STATE MATCH SUPPLEMENT

Texas Essential Knowledge and Skills

English Language Arts and Reading,
Mathematics, and Science
Grades 8–12

and

EXPLORE®, PLAN®, and the ACT®

November 2008

List of Supplement Tables

List of Supplement Tables

This document is a supplement to the *State Match Texas Essential Knowledge and Skills English Language Arts and Reading, Mathematics, and Science Grades 8–12 and EXPLORE, PLAN, and the ACT (November 2008)*. This supplement identifies specific ACT College Readiness Standards that correspond to each Texas Essential Knowledge and Skill in a side-by-side format. The left side of each page presents the Texas Essential Knowledge and Skills (highlighted if measured by ACT's corresponding testing program). The right side of each page presents the specific ACT College Readiness Standard(s) that corresponds to each Texas Essential Knowledge and Skill.

Texas standards listed here are from the Texas Essential Knowledge and Skills as presented on the Texas Education Agency website:

Texas Essential Knowledge and Skills	Academic Year of Implementation
English Language Arts and Reading	2009–2010
Mathematics	2006–2007
Science	1998–1999

SUPPLEMENT TABLES 1A–1F:

ENGLISH LANGUAGE ARTS AND READING

TABLE 1A

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	

1. Fluency

Students read grade-level text with fluency and comprehension. Students are expected to adjust fluency when reading aloud grade-level text based on the reading purpose and the nature of the text.

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2. Vocabulary Development

Students understand new vocabulary and use it when reading and writing. Students are expected to:

A. determine the meaning of grade-level academic English words derived from Latin, Greek, or other linguistic roots and affixes;

B. use context (within a sentence and in larger sections of text) to determine or clarify the meaning of unfamiliar or ambiguous words or words with novel meanings;

C. complete analogies that describe a function or its description (e.g., pen:paper as chalk:_____ or soft:kitten as hard:_____);

D. identify common words or word parts from other languages that are used in written English (e.g., phenomenon, charisma, chorus, passé, flora, fauna); and

E. use a dictionary, a glossary, or a thesaurus (printed or electronic) to determine the meanings, syllabication, pronunciations, alternate word choices, and parts of speech of words.

Meanings of Words:

Understand the implication of a familiar word or phrase and of simple descriptive language

Use context to understand basic figurative language

Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages

Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages

Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages

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3. Comprehension of Literary Text/Theme and Genre

Students analyze, make inferences and draw conclusions about theme and genre in different cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to:

A. analyze literary works that share similar themes across cultures;

B. compare and contrast the similarities and differences in mythologies from various cultures (e.g., ideas of afterlife, roles and characteristics of deities, purposes of myths); and

C. explain how the values and beliefs of particular characters are affected by the historical and cultural setting of the literary work.

Main Ideas and Author's Approach:

Summarize basic events and ideas in more challenging passages

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4. Comprehension of Literary Text/Poetry

Students understand, make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding. Students are expected to compare and contrast the relationship between the purpose and characteristics of different poetic forms (e.g., epic poetry, lyric poetry).

TABLE 1A

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards

Reading

5. Comprehension of Literary Text/Drama Students understand, make inferences and draw conclusions about the structure and elements of drama and provide evidence from text to support their understanding. Students are expected to analyze how different playwrights characterize their protagonists and antagonists through the dialogue and staging of their plays.	
6. Comprehension of Literary Text/Fiction Students understand, make inferences and draw conclusions about the structure and elements of fiction and provide evidence from text to support their understanding. Students are expected to: A. analyze linear plot developments (e.g., conflict, rising action, falling action, resolution, subplots) to determine whether and how conflicts are resolved; B. analyze how the central characters' qualities influence the theme of a fictional work and resolution of the central conflict; and C. analyze different forms of point of view, including limited versus omniscient, subjective versus objective.	**Main Ideas and Author's Approach:** Recognize a clear intent of an author or narrator in uncomplicated literary narratives Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage

▢ = Measured by the EXPLORE English and Reading tests

TABLE 1A

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	
	Identify relationships between main characters in uncomplicated literary narratives
	Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives
	Order simple sequences of events in uncomplicated literary narratives
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	

7. Comprehension of Literary Text/Literary Nonfiction Students understand, make inferences and draw conclusions about the varied structural patterns and features of literary nonfiction and provide evidence from text to support their understanding. Students are expected to analyze passages in well-known speeches for the author's use of literary devices and word and phrase choice (e.g., aphorisms, epigraphs) to appeal to the audience.	**Main Ideas and Author's Approach:** Recognize a clear intent of an author or narrator in uncomplicated literary narratives Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage Identify relationships between main characters in uncomplicated literary narratives Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives Order simple sequences of events in uncomplicated literary narratives Identify clear relationships between people, ideas, and so on in uncomplicated passages

= Measured by the EXPLORE English and Reading tests

TABLE 1A

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages

TABLE 1A

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	
8. Comprehension of Literary Text/Sensory Language ==Students understand, make inferences and draw conclusions about how an author's sensory language creates imagery in literary text and provide evidence from text to support their understanding. Students are expected to explain the effect of similes and extended metaphors in literary text.==	**Supporting Details:** Recognize a clear function of a part of an uncomplicated passage Make simple inferences about how details are used in passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Identify clear relationships between people, ideas, and so on in uncomplicated passages Understand relationships between people, ideas, and so on in uncomplicated passages Identify clear relationships between characters, ideas, and so on in more challenging literary narratives **Meanings of Words:** Understand the implication of a familiar word or phrase and of simple descriptive language Use context to understand basic figurative language Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
9. Comprehension of Informational Text/Culture and History Students analyze, make inferences and draw conclusions about the author's purpose in cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to analyze works written on the same topic and compare how the authors achieved similar or different purposes.	

☐ = Measured by the EXPLORE English and Reading tests

TABLE 1A

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	

10. Comprehension of Informational Text/Expository Text Students analyze, make inferences and draw conclusions about expository text and provide evidence from text to support their understanding. Students are expected to: A. summarize the main ideas, supporting details, and relationships among ideas in text succinctly in ways that maintain meaning and logical order; B. distinguish factual claims from commonplace assertions and opinions and evaluate inferences from their logic in text; C. make subtle inferences and draw complex conclusions about the ideas in text and their organizational patterns; and D. synthesize and make logical connections between ideas within a text and across two or three texts representing similar or different genres and support those findings with textual evidence.	**Main Ideas and Author's Approach:** Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage Identify clear relationships between people, ideas, and so on in uncomplicated passages Identify clear cause-effect relationships in uncomplicated passages Order sequences of events in uncomplicated passages Understand relationships between people, ideas, and so on in uncomplicated passages Understand implied or subtly stated cause-effect relationships in uncomplicated passages Identify clear cause-effect relationships in more challenging passages

= Measured by the EXPLORE English and Reading tests

TABLE 1A

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	

	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
11. Comprehension of Informational Text/Persuasive Text Students analyze, make inferences and draw conclusions about persuasive text and provide evidence from text to support their analysis. Students are expected to: A. compare and contrast persuasive texts that reached different conclusions about the same issue and explain how the authors reached their conclusions through analyzing the evidence each presents; and B. analyze the use of such rhetorical and logical fallacies as loaded terms, caricatures, leading questions, false assumptions, and incorrect premises in persuasive texts.	**Main Ideas and Author's Approach:** Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages

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TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	
	Locate and interpret minor or subtly stated details in uncomplicated passages
	Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages
	Sequential, Comparative, and Cause-Effect Relationships:
	Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages
	Recognize clear cause-effect relationships described within a single sentence in a passage
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	
12. Comprehension of Informational Text/Procedural Texts Students understand how to glean and use information in procedural texts and documents. Students are expected to: A. analyze text for missing or extraneous information in multi-step directions or legends for diagrams; and B. evaluate graphics for their clarity in communicating meaning or achieving a specific purpose.	
13. Media Literacy Students use comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning. Students will continue to apply earlier standards with greater depth in increasingly more complex texts. Students are expected to: A. evaluate the role of media in focusing attention on events and informing opinion on issues; B. interpret how visual and sound techniques (e.g., special effects, camera angles, lighting, music) influence the message; C. evaluate various techniques used to create a point of view in media and the impact on audience; and D. assess the correct level of formality and tone for successful participation in various digital media.	

= Measured by the EXPLORE English and Reading tests

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE English College Readiness Standards

Writing

14. Writing Process Students use elements of the writing process (planning, drafting, revising, editing, and publishing) to compose text. Students are expected to: A. plan a first draft by selecting a genre appropriate for conveying the intended meaning to an audience, determining appropriate topics through a range of strategies (e.g., discussion, background reading, personal interests, interviews), and developing a thesis or controlling idea; B. develop drafts by choosing an appropriate organizational strategy (e.g., sequence of events, cause-effect, compare-contrast) and building on ideas to create a focused, organized, and coherent piece of writing; C. revise drafts to ensure precise word choice and vivid images; consistent point of view; use of simple, compound, and complex sentences; internal and external coherence; and the use of effective transitions after rethinking how well questions of purpose, audience, and genre have been addressed; D. edit drafts for grammar, mechanics, and spelling; and E. revise final draft in response to feedback from peers and teacher and publish written work for appropriate audiences.	**Topic Development in Terms of Purpose and Focus:** Identify the basic purpose or role of a specified phrase or sentence Delete a clause or sentence because it is obviously irrelevant to the essay Identify the central idea or main topic of a straightforward piece of writing Determine relevancy when presented with a variety of sentence-level details Identify the focus of a simple essay, applying that knowledge to add a sentence that sharpens that focus or to determine if an essay has met a specified goal Delete material primarily because it disturbs the flow and development of the paragraph Add a sentence to accomplish a fairly straightforward purpose such as illustrating a given statement **Organization, Unity, and Coherence:** Use conjunctive adverbs or phrases to show time relationships in simple narrative essays (e.g., *then*, *this time*) Select the most logical place to add a sentence in a paragraph Use conjunctive adverbs or phrases to express straightforward logical relationships (e.g., *first*, *afterward*, *in response*) Decide the most logical place to add a sentence in an essay Add a sentence that introduces a simple paragraph Determine the need for conjunctive adverbs or phrases to create subtle logical connections between sentences (e.g., *therefore*, *however*, *in addition*) Rearrange the sentences in a fairly uncomplicated paragraph for the sake of logic Add a sentence to introduce or conclude the essay or to provide a transition between paragraphs when the essay is fairly straightforward **Word Choice in Terms of Style, Tone, Clarity, and Economy:** Revise sentences to correct awkward and confusing arrangements of sentence elements Revise vague nouns and pronouns that create obvious logic problems Delete obviously synonymous and wordy material in a sentence Revise expressions that deviate from the style of an essay Delete redundant material when information is repeated in different parts of speech (e.g., "alarmingly startled")

☐ = Measured by the EXPLORE English and Reading tests

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE English College Readiness Standards
Writing	
	Use the word or phrase most consistent with the style and tone of a fairly straightforward essay
	Determine the clearest and most logical conjunction to link clauses
	Revise a phrase that is redundant in terms of the meaning and logic of the entire sentence
	Identify and correct ambiguous pronoun references
	Use the word or phrase most appropriate in terms of the content of the sentence and tone of the essay
	Sentence Structure and Formation:
	Use conjunctions or punctuation to join simple clauses
	Revise shifts in verb tense between simple clauses in a sentence or between simple adjoining sentences
	Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences
	Decide the appropriate verb tense and voice by considering the meaning of the entire sentence
	Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers)
	Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems
	Maintain consistent verb tense and pronoun person on the basis of the preceding clause or sentence
	Conventions of Usage:
	Solve such basic grammatical problems as how to form the past and past participle of irregular but commonly used verbs and how to form comparative and superlative adjectives
	Solve such grammatical problems as whether to use an adverb or adjective form, how to ensure straightforward subject-verb and pronoun-antecedent agreement, and which preposition to use in simple contexts
	Recognize and use the appropriate word in frequently confused pairs such as *there* and *their*, *past* and *passed*, and *led* and *lead*
	Use idiomatically appropriate prepositions, especially in combination with verbs (e.g., *long for*, *appeal to*)
	Ensure that a verb agrees with its subject when there is some text between the two
	Ensure that a pronoun agrees with its antecedent when the two occur in separate clauses or sentences
	Identify the correct past and past participle forms of irregular and infrequently used verbs and form present-perfect verbs by using *have* rather than *of*

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE English College Readiness Standards
Writing	
	Conventions of Punctuation:
	Delete commas that create basic sense problems (e.g., between verb and direct object)
	Provide appropriate punctuation in straightforward situations (e.g., items in a series)
	Delete commas that disturb the sentence flow (e.g., between modifier and modified element)
	Use commas to set off simple parenthetical phrases
	Delete unnecessary commas when an incorrect reading of the sentence suggests a pause that should be punctuated (e.g., between verb and direct object clause)
	Use punctuation to set off complex parenthetical phrases
	Recognize and delete unnecessary commas based on a careful reading of a complicated sentence (e.g., between the elements of a compound subject or compound verb joined by *and*)
	Use apostrophes to indicate simple possessive nouns
	Recognize inappropriate uses of colons and semicolons
15. Literary Texts Students write literary texts to express their ideas and feelings about real or imagined people, events, and ideas. Students are expected to: A. write an imaginative story that: 　i. sustains reader interest; 　ii. includes well-paced action and an engaging story line; 　iii. creates a specific, believable setting through the use of sensory details; 　iv. develops interesting characters; and 　v. uses a range of literary strategies and devices to enhance the style and tone; and B. write a poem using: 　i. poetic techniques (e.g., rhyme scheme, meter); 　ii. figurative language (e.g., personification, idioms, hyperbole); and 　iii. graphic elements (e.g., word position).	
16. Writing Students write about their own experiences. Students are expected to write a personal narrative that has a clearly defined focus and includes reflections on decisions, actions, and/or consequences.	

TABLE 1A

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE English College Readiness Standards
Writing	

17. Expository and Procedural Texts
 	
Students write expository and procedural or work-related texts to communicate ideas and information to specific audiences for specific purposes. Students are expected to:
 	
A. write a multi-paragraph essay to convey information about a topic that:
   i. presents effective introductions and concluding paragraphs;
   ii. contains a clearly stated purpose or controlling idea;
   iii. is logically organized with appropriate facts and details and includes no extraneous information or inconsistencies;
   iv. accurately synthesizes ideas from several sources; and
   v. uses a variety of sentence structures, rhetorical devices, and transitions to link paragraphs;
 	
B. write a letter that reflects an opinion, registers a complaint, or requests information in a business or friendly context;
 	
C. write responses to literary or expository texts that demonstrate the use of writing skills for a multi-paragraph essay and provide sustained evidence from the text using quotations when appropriate; and
 	
D. produce a multimedia presentation involving text, graphics, images, and sound using available technology.	

18. Persuasive Texts Students write persuasive texts to influence the attitudes or actions of a specific audience on specific issues. Students are expected to write a persuasive essay to the appropriate audience that: A. establishes a clear thesis or position; B. considers and responds to the views of others and anticipates and answers reader concerns and counter-arguments; and C. includes evidence that is logically organized to support the author's viewpoint and that differentiates between fact and opinion.	

☐ = Measured by the EXPLORE English and Reading tests

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE English College Readiness Standards

Oral and Written Conventions

19. Conventions

Students understand the function of and use the conventions of academic language when speaking and writing. Students will continue to apply earlier standards with greater complexity. Students are expected to:

A. use and understand the function of the following parts of speech in the context of reading, writing, and speaking:
   i.   verbs (perfect and progressive tenses) and participles;
   ii. appositive phrases;
   iii. adverbial and adjectival phrases and clauses;
   iv. relative pronouns (e.g., whose, that, which); and
   v.   subordinating conjunctions (e.g., because, since);

B. write complex sentences and differentiate between main versus subordinate clauses; and

C. use a variety of complete sentences (e.g., simple, compound, complex) that include properly placed modifiers, correctly identified antecedents, parallel structures, and consistent tenses.

Sentence Structure and Formation:

Use conjunctions or punctuation to join simple clauses

Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences

Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers)

Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems

Conventions of Usage:

Solve such basic grammatical problems as how to form the past and past participle of irregular but commonly used verbs and how to form comparative and superlative adjectives

Solve such grammatical problems as whether to use an adverb or adjective form, how to ensure straightforward subject-verb and pronoun-antecedent agreement, and which preposition to use in simple contexts

Identify the correct past and past participle forms of irregular and infrequently used verbs and form present-perfect verbs by using *have* rather than *of*

20. Conventions of Language/Handwriting

Students write legibly and use appropriate capitalization and punctuation conventions in their compositions. Students will continue to apply earlier standards with greater complexity. Students are expected to:

A. use conventions of capitalization; and

B. use correct punctuation marks, including:
   i.   commas after introductory structures and dependent adverbial clauses, and correct punctuation of complex sentences; and
   ii. semicolons, colons, hyphens, parentheses, brackets, and ellipses.

Conventions of Punctuation:

Delete commas that create basic sense problems (e.g., between verb and direct object)

Provide appropriate punctuation in straightforward situations (e.g., items in a series)

Delete commas that disturb the sentence flow (e.g., between modifier and modified element)

Delete unnecessary commas when an incorrect reading of the sentence suggests a pause that should be punctuated (e.g., between verb and direct object clause)

Use punctuation to set off complex parenthetical phrases

Recognize and delete unnecessary commas based on a careful reading of a complicated sentence (e.g., between the elements of a compound subject or compound verb joined by *and*)

Recognize inappropriate uses of colons and semicolons

21. Spelling

Students spell correctly. Students are expected to spell correctly, including using various resources to determine and check correct spellings.

= Measured by the EXPLORE English and Reading tests

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE College Readiness Standards
Research	
22. Research Plan Students ask open-ended research questions and develop a plan for answering them. Students are expected to: A. brainstorm, consult with others, decide upon a topic, and formulate a major research question to address the major research topic; and B. apply steps for obtaining and evaluating information from a wide variety of sources and create a written plan after preliminary research in reference works and additional text searches.	
23. Gathering Sources Students determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather. Students are expected to: A. follow the research plan to gather information from a range of relevant print and electronic sources using advanced search strategies; B. categorize information thematically in order to see the larger constructs inherent in the information; C. record bibliographic information (e.g., author, title, page number) for all notes and sources according to a standard format; and D. differentiate between paraphrasing and plagiarism and identify the importance of using valid and reliable sources.	
24. Synthesizing Information Students clarify research questions and evaluate and synthesize collected information. Students are expected to: A. narrow or broaden the major research question, if necessary, based on further research and investigation; and B. utilize elements that demonstrate the reliability and validity of the sources used (e.g., publication date, coverage, language, point of view) and explain why one source is more useful and relevant than another.	
25. Organizing and Presenting Ideas Students organize and present their ideas and information according to the purpose of the research and their audience. Students are expected to synthesize the research into a written or an oral presentation that: A. draws conclusions and summarizes or paraphrases the findings in a systematic way; B. marshals evidence to explain the topic and gives relevant reasons for conclusions; C. presents the findings in a meaningful format; and D. follows accepted formats for integrating quotations and citations into the written text to maintain a flow of ideas.	

☐ = Measured by the EXPLORE English and Reading tests

TEXAS Grade 8 English Language Arts and Reading Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE College Readiness Standards
Listening and Speaking	
26. Listening Students will use comprehension skills to listen attentively to others in formal and informal settings. Students will continue to apply earlier standards with greater complexity. Students are expected to: A. listen to and interpret a speaker's purpose by explaining the content, evaluating the delivery of the presentation, and asking questions or making comments about the evidence that supports a speaker's claims; B. follow and give complex oral instructions to perform specific tasks, answer questions, or solve problems; and C. summarize formal and informal presentations, distinguish between facts and opinions, and determine the effectiveness of rhetorical devices.	
27. Speaking Students speak clearly and to the point, using the conventions of language. Students will continue to apply earlier standards with greater complexity. Students are expected to advocate a position using anecdotes, analogies, and/or illustrations, and use eye contact, speaking rate, volume, enunciation, a variety of natural gestures, and conventions of language to communicate ideas effectively.	
28. Teamwork Students work productively with others in teams. Students will continue to apply earlier standards with greater complexity. Students are expected to participate productively in discussions, plan agendas with clear goals and deadlines, set time limits for speakers, take notes, and vote on key issues.	

= Measured by the EXPLORE English and Reading tests

TEXAS English I Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards

Reading

1. Vocabulary Development <mark>Students understand new vocabulary and use it when reading</mark> and writing. <mark>Students are expected to:</mark> A. determine the meaning of grade-level technical academic English words in multiple content areas (e.g., science, mathematics, social studies, the arts) derived from Latin, Greek, or other linguistic roots and affixes; B. <mark>analyze textual context (within a sentence and in larger sections of text) to distinguish between the denotative and connotative meanings of words;</mark> C. produce analogies that describe a function of an object or its description; D. describe the origins and meanings of foreign words or phrases used frequently in written English (e.g., *caveat emptor*, *carte blanche*, *tete a tete*, *pas de deux*, *bon appetit*, *quid pro quo*); and E. use a dictionary, a glossary, or a thesaurus (printed or electronic) to determine or confirm the meanings of words and phrases, including their connotations and denotations, and their etymology.	**Meanings of Words:** Understand the implication of a familiar word or phrase and of simple descriptive language Use context to understand basic figurative language Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
2. Comprehension of Literary Text/Theme and Genre <mark>Students analyze, make inferences and draw conclusions about theme</mark> and genre in different cultural, historical, and contemporary contexts <mark>and provide evidence from the text to support their understanding.</mark> Students are expected to: A. analyze how the genre of texts with similar themes shapes meaning; B. analyze the influence of mythic, classical and traditional literature on 20th and 21st century literature; and C. relate the figurative language of a literary work to its historical and cultural setting.	**Main Ideas and Author's Approach:** Summarize basic events and ideas in more challenging passages
3. Comprehension of Literary Text/Poetry Students understand, make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding. Students are expected to analyze the effects of diction and imagery (e.g., controlling images, figurative language, understatement, overstatement, irony, paradox) in poetry.	
4. Comprehension of Literary Text/Drama Students understand, make inferences and draw conclusions about the structure and elements of drama and provide evidence from text to support their understanding. Students are expected to explain how dramatic conventions (e.g., monologues, soliloquies, dramatic irony) enhance dramatic text.	

TABLE 1B

TEXAS English I Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards

Reading

5. Comprehension of Literary Text/Fiction

Students understand, make inferences and draw conclusions about the structure and elements of fiction and provide evidence from text to support their understanding. Students are expected to:

A. analyze non-linear plot development (e.g., flashbacks, foreshadowing, sub-plots, parallel plot structures) and compare it to linear plot development;

B. analyze how authors develop complex yet believable characters in works of fiction through a range of literary devices, including character foils;

C. analyze the way in which a work of fiction is shaped by the narrator's point of view; and

D. demonstrate familiarity with works by authors from non-English-speaking literary traditions with emphasis on classical literature.

Main Ideas and Author's Approach:

Recognize a clear intent of an author or narrator in uncomplicated literary narratives

Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives

Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives

Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages

Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages

Infer the main idea or purpose of straightforward paragraphs in more challenging passages

Summarize basic events and ideas in more challenging passages

Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages

Supporting Details:

Locate basic facts (e.g., names, dates, events) clearly stated in a passage

Locate simple details at the sentence and paragraph level in uncomplicated passages

Recognize a clear function of a part of an uncomplicated passage

Locate important details in uncomplicated passages

Make simple inferences about how details are used in passages

Locate important details in more challenging passages

Locate and interpret minor or subtly stated details in uncomplicated passages

Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages

Sequential, Comparative, and Cause-Effect Relationships:

Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages

Recognize clear cause-effect relationships described within a single sentence in a passage

Identify relationships between main characters in uncomplicated literary narratives

Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives

Order simple sequences of events in uncomplicated literary narratives

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TEXAS English I Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
6. Comprehension of Literary Text/Literary Nonfiction Students understand, make inferences and draw conclusions about the varied structural patterns and features of literary nonfiction and provide evidence from text to support their understanding. Students are expected to analyze how literary essays interweave personal examples and ideas with factual information to explain, present a perspective, or describe a situation or event.	**Main Ideas and Author's Approach:** Recognize a clear intent of an author or narrator in uncomplicated literary narratives Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives

TEXAS English I Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	
	Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages
	Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages
	Infer the main idea or purpose of straightforward paragraphs in more challenging passages
	Summarize basic events and ideas in more challenging passages
	Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages
	Supporting Details:
	Locate basic facts (e.g., names, dates, events) clearly stated in a passage
	Locate simple details at the sentence and paragraph level in uncomplicated passages
	Recognize a clear function of a part of an uncomplicated passage
	Locate important details in uncomplicated passages
	Make simple inferences about how details are used in passages
	Locate important details in more challenging passages
	Locate and interpret minor or subtly stated details in uncomplicated passages
	Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages
	Sequential, Comparative, and Cause-Effect Relationships:
	Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages
	Recognize clear cause-effect relationships described within a single sentence in a passage
	Identify relationships between main characters in uncomplicated literary narratives
	Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives
	Order simple sequences of events in uncomplicated literary narratives
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives

TEXAS English I **Essential Knowledge and Skills** (Begins: Fall 2009)	EXPLORE Reading **College Readiness Standards**
Reading	
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
7. Comprehension of Literary Text/Sensory Language <mark>Students understand, make inferences and draw conclusions about how an author's sensory language creates imagery in literary text and provide evidence from text to support their understanding. Students are expected to explain the role of irony, sarcasm, and paradox in literary works.</mark>	**Supporting Details:** Recognize a clear function of a part of an uncomplicated passage
	Make simple inferences about how details are used in passages
	Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages
	Sequential, Comparative, and Cause-Effect Relationships:
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives

TEXAS English I **Essential Knowledge and Skills** (Begins: Fall 2009)	EXPLORE Reading **College Readiness Standards**
Reading	
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
8. Comprehension of Informational Text/Culture and History Students analyze, make inferences and draw conclusions about the author's purpose in cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to explain the controlling idea and specific purpose of an expository text and distinguish the most important from the less important details that support the author's purpose.	
9. Comprehension of Informational Text/Expository Text ==Students analyze, make inferences and draw conclusions about expository text and provide evidence from text to support their understanding. Students are expected to:== A. ==summarize text== and distinguish between a summary that captures the main ideas and elements of a text and a critique that takes a position and expresses an opinion; B. ==differentiate between opinions that are substantiated and unsubstantiated in the text==; C. ==make subtle inferences and draw complex conclusions about the ideas in text and their organizational patterns==; and D. synthesize and make logical connections between ideas and details in several texts selected to reflect a range of viewpoints on the same topic and support those findings with textual evidence.	**Main Ideas and Author's Approach:** Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages

TEXAS English I **Essential Knowledge and Skills** (Begins: Fall 2009)	EXPLORE Reading **College Readiness Standards**
Reading	
	Locate and interpret minor or subtly stated details in uncomplicated passages
	Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages
	Sequential, Comparative, and Cause-Effect Relationships:
	Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages
	Recognize clear cause-effect relationships described within a single sentence in a passage
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages

TEXAS English I Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	
10. Comprehension of Informational Text/Persuasive Text ==Students analyze, make inferences and draw conclusions about persuasive text and provide evidence from text to support their analysis. Students are expected to:== A. ==analyze the== relevance, quality, and credibility of ==evidence given to support or oppose an argument== for a specific audience; and B. analyze famous speeches for the rhetorical structures and devices used to convince the reader of the authors' propositions.	**Main Ideas and Author's Approach:** Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage Identify clear relationships between people, ideas, and so on in uncomplicated passages Identify clear cause-effect relationships in uncomplicated passages Order sequences of events in uncomplicated passages Understand relationships between people, ideas, and so on in uncomplicated passages Understand implied or subtly stated cause-effect relationships in uncomplicated passages Identify clear cause-effect relationships in more challenging passages

TEXAS English I Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE Reading College Readiness Standards
Reading	
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
11. Comprehension of Informational Text/Procedural Texts Students understand how to glean and use information in procedural texts and documents. Students are expected to: A. analyze the clarity of the objective(s) of procedural text (e.g., consider reading instructions for software, warranties, consumer publications); and B. analyze factual, quantitative, or technical data presented in multiple graphical sources.	
12. Media Literacy Students use comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning. Students will continue to apply earlier standards with greater depth in increasingly more complex texts. Students are expected to: A. compare and contrast how events are presented and information is communicated by visual images (e.g., graphic art, illustrations, news photographs) versus non-visual texts; B. analyze how messages in media are conveyed through visual and sound techniques (e.g., editing, reaction shots, sequencing, background music); C. compare and contrast coverage of the same event in various media (e.g., newspapers, television, documentaries, blogs, Internet); and D. evaluate changes in formality and tone within the same medium for specific audiences and purposes.	

TEXAS English I Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE English College Readiness Standards
Writing	

13. Writing Process Students use elements of the writing process (planning, drafting, revising, editing, and publishing) to compose text. Students are expected to: A. plan a first draft by selecting the correct genre for conveying the intended meaning to multiple audiences, determining appropriate topics through a range of strategies (e.g., discussion, background reading, personal interests, interviews), and developing a thesis or controlling idea; B. structure ideas in a sustained and persuasive way (e.g., using outlines, note taking, graphic organizers, lists) and develop drafts in timed and open-ended situations that include transitions and the rhetorical devices used to convey meaning; C. revise drafts to improve style, word choice, figurative language, sentence variety, and subtlety of meaning after rethinking how well questions of purpose, audience, and genre have been addressed; D. edit drafts for grammar, mechanics, and spelling; and E. revise final draft in response to feedback from peers and teacher and publish written work for appropriate audiences.	**Topic Development in Terms of Purpose and Focus:** Identify the basic purpose or role of a specified phrase or sentence Delete a clause or sentence because it is obviously irrelevant to the essay Identify the central idea or main topic of a straightforward piece of writing Determine relevancy when presented with a variety of sentence-level details Identify the focus of a simple essay, applying that knowledge to add a sentence that sharpens that focus or to determine if an essay has met a specified goal Delete material primarily because it disturbs the flow and development of the paragraph Add a sentence to accomplish a fairly straightforward purpose such as illustrating a given statement **Organization, Unity, and Coherence:** Use conjunctive adverbs or phrases to show time relationships in simple narrative essays (e.g., *then*, *this time*) Select the most logical place to add a sentence in a paragraph Use conjunctive adverbs or phrases to express straightforward logical relationships (e.g., *first*, *afterward*, *in response*) Decide the most logical place to add a sentence in an essay Add a sentence that introduces a simple paragraph Determine the need for conjunctive adverbs or phrases to create subtle logical connections between sentences (e.g., *therefore*, *however*, *in addition*) Rearrange the sentences in a fairly uncomplicated paragraph for the sake of logic Add a sentence to introduce or conclude the essay or to provide a transition between paragraphs when the essay is fairly straightforward **Word Choice in Terms of Style, Tone, Clarity, and Economy:** Revise sentences to correct awkward and confusing arrangements of sentence elements Revise vague nouns and pronouns that create obvious logic problems Delete obviously synonymous and wordy material in a sentence Revise expressions that deviate from the style of an essay Delete redundant material when information is repeated in different parts of speech (e.g., "alarmingly startled")

TEXAS English I **Essential Knowledge and Skills** (Begins: Fall 2009)	EXPLORE English **College Readiness Standards**
Writing	
	Use the word or phrase most consistent with the style and tone of a fairly straightforward essay
	Determine the clearest and most logical conjunction to link clauses
	Revise a phrase that is redundant in terms of the meaning and logic of the entire sentence
	Identify and correct ambiguous pronoun references
	Use the word or phrase most appropriate in terms of the content of the sentence and tone of the essay
	Sentence Structure and Formation:
	Use conjunctions or punctuation to join simple clauses
	Revise shifts in verb tense between simple clauses in a sentence or between simple adjoining sentences
	Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences
	Decide the appropriate verb tense and voice by considering the meaning of the entire sentence
	Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers)
	Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems
	Maintain consistent verb tense and pronoun person on the basis of the preceding clause or sentence
	Conventions of Usage:
	Solve such basic grammatical problems as how to form the past and past participle of irregular but commonly used verbs and how to form comparative and superlative adjectives
	Solve such grammatical problems as whether to use an adverb or adjective form, how to ensure straightforward subject-verb and pronoun-antecedent agreement, and which preposition to use in simple contexts
	Recognize and use the appropriate word in frequently confused pairs such as *there* and *their*, *past* and *passed*, and *led* and *lead*
	Use idiomatically appropriate prepositions, especially in combination with verbs (e.g., *long for*, *appeal to*)
	Ensure that a verb agrees with its subject when there is some text between the two
	Ensure that a pronoun agrees with its antecedent when the two occur in separate clauses or sentences
	Identify the correct past and past participle forms of irregular and infrequently used verbs and form present-perfect verbs by using *have* rather than *of*

TABLE 1B

TEXAS English I Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE English College Readiness Standards
Writing	
	Conventions of Punctuation:
	Delete commas that create basic sense problems (e.g., between verb and direct object)
	Provide appropriate punctuation in straightforward situations (e.g., items in a series)
	Delete commas that disturb the sentence flow (e.g., between modifier and modified element)
	Use commas to set off simple parenthetical phrases
	Delete unnecessary commas when an incorrect reading of the sentence suggests a pause that should be punctuated (e.g., between verb and direct object clause)
	Use punctuation to set off complex parenthetical phrases
	Recognize and delete unnecessary commas based on a careful reading of a complicated sentence (e.g., between the elements of a compound subject or compound verb joined by *and*)
	Use apostrophes to indicate simple possessive nouns
	Recognize inappropriate uses of colons and semicolons
14. Literary Texts Students write literary texts to express their ideas and feelings about real or imagined people, events, and ideas. Students are responsible for at least two forms of literary writing. Students are expected to: A. write an engaging story with a well-developed conflict and resolution, interesting and believable characters, and a range of literary strategies (e.g., dialogue, suspense) and devices to enhance the plot; B. write a poem using a variety of poetic techniques (e.g., structural elements, figurative language) and a variety of poetic forms (e.g., sonnets, ballads); and C. write a script with an explicit or implicit theme and details that contribute to a definite mood or tone.	

TABLE 1B

TEXAS English I **Essential Knowledge and Skills** (Begins: Fall 2009)	EXPLORE English **College Readiness Standards**
Writing	

15. Expository and Procedural Texts
 	
Students write expository and procedural or work-related texts to communicate ideas and information to specific audiences for specific purposes. Students are expected to:
 	
A. write an analytical essay of sufficient length that includes:
   i. effective introductory and concluding paragraphs and a variety of sentence structures;
   ii. rhetorical devices, and transitions between paragraphs;
   iii. a controlling idea or thesis;
   iv. an organizing structure appropriate to purpose, audience, and context; and
   v. relevant information and valid inferences;
 	
B. write procedural or work-related documents (e.g., instructions, e-mails, correspondence, memos, project plans) that include:
   i. organized and accurately conveyed information; and
   ii. reader-friendly formatting techniques;
 	
C. write an interpretative response to an expository or a literary text (e.g., essay or review) that:
   i. extends beyond a summary and literal analysis;
   ii. addresses the writing skills for an analytical essay and provides evidence from the text using embedded quotations; and
   iii. analyzes the aesthetic effects of an author's use of stylistic or rhetorical devices; and
 	
D. produce a multimedia presentation (e.g., documentary, class newspaper, docudrama, infomercial, visual or textual parodies, theatrical production) with graphics, images, and sound that conveys a distinctive point of view and appeals to a specific audience.	

16. Persuasive Texts Students write persuasive texts to influence the attitudes or actions of a specific audience on specific issues. Students are expected to write an argumentative essay to the appropriate audience that includes: A. a clear thesis or position based on logical reasons supported by precise and relevant evidence; B. consideration of the whole range of information and views on the topic and accurate and honest representation of these views; C. counter-arguments based on evidence to anticipate and address objections; D. an organizing structure appropriate to the purpose, audience, and context; and E. an analysis of the relative value of specific data, facts, and ideas.	

TABLE 1B

TEXAS English I Essential Knowledge and Skills (Begins: Fall 2009)	EXPLORE English College Readiness Standards
Oral and Written Conventions	

17. Conventions
 	
Students understand the function of and use the conventions of academic language when speaking and writing. Students will continue to apply earlier standards with greater complexity. Students are expected to:
 	
A. use and understand the function of the following parts of speech in the context of reading, writing, and speaking:
   i. more complex active and passive tenses and verbals (gerunds, infinitives, participles);
   ii. restrictive and nonrestrictive relative clauses; and
   iii. reciprocal pronouns (e.g., each other, one another);
B. identify and use the subjunctive mood to express doubts, wishes, and possibilities; and
C. use a variety of correctly structured sentences (e.g., compound, complex, compound-complex).
	Sentence Structure and Formation:
	
	Use conjunctions or punctuation to join simple clauses
	
	Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences
	
	Decide the appropriate verb tense and voice by considering the meaning of the entire sentence
	
	Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers)
	
	Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems
	
	Conventions of Usage:
	
	Solve such basic grammatical problems as how to form the past and past participle of irregular but commonly used verbs and how to form comparative and superlative adjectives
	
	Identify the correct past and past participle forms of irregular and infrequently used verbs and form present-perfect verbs by using *have* rather than *of*

18. Handwriting, Capitalization, and Punctuation
 	
Students write legibly and use appropriate capitalization and punctuation conventions in their compositions. Students are expected to:
 	
A. use conventions of capitalization; and
B. use correct punctuation marks including:
   i. quotation marks to indicate sarcasm or irony;
   ii. comma placement in nonrestrictive phrases, clauses, and contrasting expressions; and
   iii. dashes to emphasize parenthetical information.
	Conventions of Punctuation:
	
	Use punctuation to set off complex parenthetical phrases

19. Spelling Students spell correctly. Students are expected to spell correctly, including using various resources to determine and check correct spellings.	

TEXAS English I **Essential Knowledge and Skills** (Begins: Fall 2009)	**EXPLORE** **College Readiness Standards**
Research	
20. Research Plan Students ask open-ended research questions and develop a plan for answering them. Students are expected to: A. brainstorm, consult with others, decide upon a topic, and formulate a major research question to address the major research topic; and B. formulate a plan for engaging in research on a complex, multi-faceted topic.	
21. Gathering Sources Students determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather. Students are expected to: A. follow the research plan to compile data from authoritative sources in a manner that identifies the major issues and debates within the field of inquiry; B. organize information gathered from multiple sources to create a variety of graphics and forms (e.g., notes, learning logs); and C. paraphrase, summarize, quote, and accurately cite all researched information according to a standard format (e.g., author, title, page number).	
22. Synthesizing Information Students clarify research questions and evaluate and synthesize collected information. Students are expected to: A. modify the major research question as necessary to refocus the research plan; B. evaluate the relevance of information to the topic and determine the reliability, validity, and accuracy of sources (including Internet sources) by examining their authority and objectivity; and C. critique the research process at each step to implement changes as the need occurs and is identified.	

TEXAS English I **Essential Knowledge and Skills** (Begins: Fall 2009)	EXPLORE **College Readiness Standards**
Research	
23. Organizing and Presenting Ideas Students organize and present their ideas and information according to the purpose of the research and their audience. Students are expected to synthesize the research into a written or an oral presentation that: A. marshals evidence in support of a clear thesis statement and related claims; B. provides an analysis for the audience that reflects a logical progression of ideas and a clearly stated point of view; C. uses graphics and illustrations to help explain concepts where appropriate; D. uses a variety of evaluative tools (e.g., self-made rubrics, peer reviews, teacher and expert evaluations) to examine the quality of the research; and E. uses a style manual (e.g., *Modern Language Association*, *Chicago Manual of Style*) to document sources and format written materials.	

= Measured by the EXPLORE English and Reading tests

TEXAS English I **Essential Knowledge and Skills** (Begins: Fall 2009)	EXPLORE **College Readiness Standards**
Listening and Speaking	
24. Listening Students will use comprehension skills to listen attentively to others in formal and informal settings. Students will continue to apply earlier standards with greater complexity. Students are expected to: A. listen responsively to a speaker by taking notes that summarize, synthesize, or highlight the speaker's ideas for critical reflection and by asking questions related to the content for clarification and elaboration; B. follow and give complex oral instructions to perform specific tasks, answer questions, solve problems, and complete processes; and C. evaluate the effectiveness of a speaker's main and supporting ideas.	
25. Speaking Students speak clearly and to the point, using the conventions of language. Students will continue to apply earlier standards with greater complexity. Students are expected to give presentations using informal, formal, and technical language effectively to meet the needs of audience, purpose, and occasion, employing eye contact, speaking rate (e.g., pauses for effect), volume, enunciation, purposeful gestures, and conventions of language to communicate ideas effectively.	
26. Teamwork Students work productively with others in teams. Students will continue to apply earlier standards with greater complexity. Students are expected to participate productively in teams, building on the ideas of others, contributing relevant information, developing a plan for consensus-building, and setting ground rules for decision-making.	

TABLE 1C

TEXAS English II Essential Knowledge and Skills (Begins: Fall 2009)	PLAN Reading College Readiness Standards
Reading	
1. Vocabulary Development Students understand new vocabulary and use it when reading and writing. Students are expected to: A. determine the meaning of grade-level technical academic English words in multiple content areas (e.g., science, mathematics, social studies, the arts) derived from Latin, Greek, or other linguistic roots and affixes; B. analyze textual context (within a sentence and in larger sections of text) to distinguish between the denotative and connotative meanings of words; C. infer word meaning through the identification and analysis of analogies and other word relationships; D. show the relationship between the origins and meaning of foreign words or phrases used frequently in written English and historical events or developments (e.g., *glasnost*, *avant-garde*, *coup d'état*); and E. use a dictionary, a glossary, or a thesaurus (printed or electronic) to determine or confirm the meanings of words and phrases, including their connotations and denotations, and their etymology.	**Meanings of Words:** Understand the implication of a familiar word or phrase and of simple descriptive language Use context to understand basic figurative language Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
2. Comprehension of Literary Text/Theme and Genre Students analyze, make inferences and draw conclusions about theme and genre in different cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to: A. compare and contrast differences in similar themes expressed in different time periods; B. analyze archetypes (e.g., journey of a hero, tragic flaw) in mythic, traditional and classical literature; and C. relate the figurative language of a literary work to its historical and cultural setting.	**Main Ideas and Author's Approach:** Summarize basic events and ideas in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs
3. Comprehension of Literary Text/Poetry Students understand, make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding. Students are expected to analyze the structure or prosody (e.g., meter, rhyme scheme) and graphic elements (e.g., line length, punctuation, word position) in poetry.	
4. Comprehension of Literary Text/Drama Students understand, make inferences and draw conclusions about the structure and elements of drama and provide evidence from text to support their understanding. Students are expected to analyze how archetypes and motifs in drama affect the plot of plays.	

TABLE 1C

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN Reading **College Readiness Standards**
Reading	
5. Comprehension of Literary Text/Fiction Students understand, make inferences and draw conclusions about the structure and elements of fiction and provide evidence from text to support their understanding. Students are expected to: A. analyze isolated scenes and their contribution to the success of the plot as a whole in a variety of works of fiction; B. analyze differences in the characters' moral dilemmas in works of fiction across different countries or cultures; C. evaluate the connection between forms of narration (e.g., unreliable, omniscient) and tone in works of fiction; and D. demonstrate familiarity with works by authors from non-English-speaking literary traditions with emphasis on 20th century world literature.	**Main Ideas and Author's Approach:** Recognize a clear intent of an author or narrator in uncomplicated literary narratives Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage Identify relationships between main characters in uncomplicated literary narratives

TABLE 1C

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN Reading **College Readiness Standards**
Reading	
	Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives
	Order simple sequences of events in uncomplicated literary narratives
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages

TABLE 1C

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN Reading **College Readiness Standards**
Reading	
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
6. Comprehension of Literary Text/Literary Nonfiction <mark>Students understand, make inferences and draw conclusions about the varied structural patterns and features of literary nonfiction and provide evidence from text to support their understanding. Students are expected to evaluate the role of syntax and diction and the effect of voice, tone, and imagery on a speech, literary essay, or other forms of literary nonfiction.</mark>	**Main Ideas and Author's Approach:** Recognize a clear intent of an author or narrator in uncomplicated literary narratives Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages

TABLE 1C

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN Reading **College Readiness Standards**
Reading	
	Sequential, Comparative, and Cause-Effect Relationships:
	Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages
	Recognize clear cause-effect relationships described within a single sentence in a passage
	Identify relationships between main characters in uncomplicated literary narratives
	Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives
	Order simple sequences of events in uncomplicated literary narratives
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives

TABLE 1C

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN Reading **College Readiness Standards**
Reading	
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
7. Comprehension of Literary Text/Sensory Language ==Students understand, make inferences and draw conclusions about how an author's sensory language creates imagery in literary text and provide evidence from text to support their understanding. Students are expected to explain the function of symbolism,== allegory, and allusions in literary works.	**Supporting Details:** Recognize a clear function of a part of an uncomplicated passage Make simple inferences about how details are used in passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Identify clear relationships between people, ideas, and so on in uncomplicated passages Understand relationships between people, ideas, and so on in uncomplicated passages Identify clear relationships between characters, ideas, and so on in more challenging literary narratives Understand the dynamics between people, ideas, and so on in more challenging passages **Meanings of Words:** Understand the implication of a familiar word or phrase and of simple descriptive language Use context to understand basic figurative language Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts

TABLE 1C

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN Reading **College Readiness Standards**
Reading	
8. Comprehension of Informational Text/Culture and History Students analyze, make inferences and draw conclusions about the author's purpose in cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to analyze the controlling idea and specific purpose of a passage and the textual elements that support and elaborate it, including both the most important details and the less important details.	
9. Comprehension of Informational Text/Expository Text Students analyze, make inferences and draw conclusions about expository text and provide evidence from text to support their understanding. Students are expected to: A. summarize text and distinguish between a summary and a critique and identify non-essential information in a summary and unsubstantiated opinions in a critique; B. distinguish among different kinds of evidence (e.g., logical, empirical, anecdotal) used to support conclusions and arguments in texts; C. make and defend subtle inferences and complex conclusions about the ideas in text and their organizational patterns; and D. synthesize and make logical connections between ideas and details in several texts selected to reflect a range of viewpoints on the same topic and support those findings with textual evidence.	**Main Ideas and Author's Approach:** Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN Reading **College Readiness Standards**
Reading	
	Recognize clear cause-effect relationships described within a single sentence in a passage
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN Reading **College Readiness Standards**
Reading	
10. Comprehension of Informational Text/Persuasive Text ==Students analyze, make inferences and draw conclusions about persuasive text and provide evidence from text to support their analysis.== Students are expected to: A. explain shifts in perspective in arguments about the same topic and evaluate the accuracy of the evidence used to support the different viewpoints within those arguments; and B. analyze contemporary political debates for such rhetorical and logical fallacies as appeals to commonly held opinions, false dilemmas, appeals to pity, and personal attacks.	**Main Ideas and Author's Approach:** Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage Identify clear relationships between people, ideas, and so on in uncomplicated passages Identify clear cause-effect relationships in uncomplicated passages Order sequences of events in uncomplicated passages Understand relationships between people, ideas, and so on in uncomplicated passages Understand implied or subtly stated cause-effect relationships in uncomplicated passages

   == == = Measured by the PLAN English and Reading tests

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN Reading **College Readiness Standards**
Reading	
	Identify clear cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
11. Comprehension of Informational Text/Procedural Texts Students understand how to glean and use information in procedural texts and documents. Students are expected to: A. evaluate text for the clarity of its graphics and its visual appeal; and B. synthesize information from multiple graphical sources to draw conclusions about the ideas presented (e.g., maps, charts, schematics).	

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN Reading **College Readiness Standards**
Reading	
12. Media Literacy Students use comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning. Students will continue to apply earlier standards with greater depth in increasingly more complex texts. Students are expected to: A. evaluate how messages presented in media reflect social and cultural views in ways different from traditional texts; B. analyze how messages in media are conveyed through visual and sound techniques (e.g., editing, reaction shots, sequencing, background music); C. examine how individual perception or bias in coverage of the same event influences the audience; and D. evaluate changes in formality and tone within the same medium for specific audiences and purposes.	

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN English **College Readiness Standards**
Writing	

13. Writing Process Students use elements of the writing process (planning, drafting, revising, editing, and publishing) to compose text. Students are expected to: A. plan a first draft by selecting the correct genre for conveying the intended meaning to multiple audiences, determining appropriate topics through a range of strategies (e.g., discussion, background reading, personal interests, interviews), and developing a thesis or controlling idea; B. structure ideas in a sustained and persuasive way (e.g., using outlines, note taking, graphic organizers, lists) and develop drafts in timed and open-ended situations that include transitions and rhetorical devices used to convey meaning; C. revise drafts to improve style, word choice, figurative language, sentence variety, and subtlety of meaning after rethinking how well questions of purpose, audience, and genre have been addressed; D. edit drafts for grammar, mechanics, and spelling; and E. revise final draft in response to feedback from peers and teacher and publish written work for appropriate audiences.	**Topic Development in Terms of Purpose and Focus:** Identify the basic purpose or role of a specified phrase or sentence Delete a clause or sentence because it is obviously irrelevant to the essay Identify the central idea or main topic of a straightforward piece of writing Determine relevancy when presented with a variety of sentence-level details Identify the focus of a simple essay, applying that knowledge to add a sentence that sharpens that focus or to determine if an essay has met a specified goal Delete material primarily because it disturbs the flow and development of the paragraph Add a sentence to accomplish a fairly straightforward purpose such as illustrating a given statement Apply an awareness of the focus and purpose of a fairly involved essay to determine the rhetorical effect and suitability of an existing phrase or sentence, or to determine the need to delete plausible but irrelevant material Add a sentence to accomplish a subtle rhetorical purpose such as to emphasize, to add supporting detail, or to express meaning through connotation **Organization, Unity, and Coherence:** Use conjunctive adverbs or phrases to show time relationships in simple narrative essays (e.g., *then*, *this time*) Select the most logical place to add a sentence in a paragraph Use conjunctive adverbs or phrases to express straightforward logical relationships (e.g., *first*, *afterward*, *in response*) Decide the most logical place to add a sentence in an essay Add a sentence that introduces a simple paragraph Determine the need for conjunctive adverbs or phrases to create subtle logical connections between sentences (e.g., *therefore*, *however*, *in addition*) Rearrange the sentences in a fairly uncomplicated paragraph for the sake of logic Add a sentence to introduce or conclude the essay or to provide a transition between paragraphs when the essay is fairly straightforward **Word Choice in Terms of Style, Tone, Clarity, and Economy:** Revise sentences to correct awkward and confusing arrangements of sentence elements Revise vague nouns and pronouns that create obvious logic problems

TABLE 1C

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN English **College Readiness Standards**
Writing	
	Delete obviously synonymous and wordy material in a sentence
	Revise expressions that deviate from the style of an essay
	Delete redundant material when information is repeated in different parts of speech (e.g., "alarmingly startled")
	Use the word or phrase most consistent with the style and tone of a fairly straightforward essay
	Determine the clearest and most logical conjunction to link clauses
	Revise a phrase that is redundant in terms of the meaning and logic of the entire sentence
	Identify and correct ambiguous pronoun references
	Use the word or phrase most appropriate in terms of the content of the sentence and tone of the essay
	Sentence Structure and Formation:
	Use conjunctions or punctuation to join simple clauses
	Revise shifts in verb tense between simple clauses in a sentence or between simple adjoining sentences
	Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences
	Decide the appropriate verb tense and voice by considering the meaning of the entire sentence
	Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers)
	Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems
	Maintain consistent verb tense and pronoun person on the basis of the preceding clause or sentence
	Use sentence-combining techniques, effectively avoiding problematic comma splices, run-on sentences, and sentence fragments, especially in sentences containing compound subjects or verbs
	Maintain a consistent and logical use of verb tense and pronoun person on the basis of information in the paragraph or essay as a whole
	Conventions of Usage:
	Solve such basic grammatical problems as how to form the past and past participle of irregular but commonly used verbs and how to form comparative and superlative adjectives
	Solve such grammatical problems as whether to use an adverb or adjective form, how to ensure straightforward subject-verb and pronoun-antecedent agreement, and which preposition to use in simple contexts

TABLE 1C

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN English **College Readiness Standards**
Writing	
	Recognize and use the appropriate word in frequently confused pairs such as *there* and *their*, *past* and *passed*, and *led* and *lead*
	Use idiomatically appropriate prepositions, especially in combination with verbs (e.g., *long for*, *appeal to*)
	Ensure that a verb agrees with its subject when there is some text between the two
	Ensure that a pronoun agrees with its antecedent when the two occur in separate clauses or sentences
	Identify the correct past and past participle forms of irregular and infrequently used verbs and form present-perfect verbs by using *have* rather than *of*
	Correctly use reflexive pronouns, the possessive pronouns *its* and *your*, and the relative pronouns *who* and *whom*
	Ensure that a verb agrees with its subject in unusual situations (e.g., when the subject-verb order is inverted or when the subject is an indefinite pronoun)
	Conventions of Punctuation:
	Delete commas that create basic sense problems (e.g., between verb and direct object)
	Provide appropriate punctuation in straightforward situations (e.g., items in a series)
	Delete commas that disturb the sentence flow (e.g., between modifier and modified element)
	Use commas to set off simple parenthetical phrases
	Delete unnecessary commas when an incorrect reading of the sentence suggests a pause that should be punctuated (e.g., between verb and direct object clause)
	Use punctuation to set off complex parenthetical phrases
	Recognize and delete unnecessary commas based on a careful reading of a complicated sentence (e.g., between the elements of a compound subject or compound verb joined by *and*)
	Use apostrophes to indicate simple possessive nouns
	Recognize inappropriate uses of colons and semicolons
	Use commas to set off a nonessential/nonrestrictive appositive or clause

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN English **College Readiness Standards**
Writing	
14. Literary Texts Students write literary texts to express their ideas and feelings about real or imagined people, events, and ideas. Students are responsible for at least two forms of literary writing. Students are expected to: A. write an engaging story with a well-developed conflict and resolution, interesting and believable characters, a range of literary strategies (e.g., dialogue, suspense) and devices to enhance the plot, and sensory details that define the mood or tone; B. write a poem using a variety of poetic techniques (e.g., structural elements, figurative language) and a variety of poetic forms (e.g., sonnets, ballads); and C. write a script with an explicit or implicit theme and details that contribute to a definite mood or tone.	

15. Expository and Procedural Texts
 	
Students write expository and procedural or work-related texts to communicate ideas and information to specific audiences for specific purposes. Students are expected to:
 	
A. write an analytical essay of sufficient length that includes:
  i. effective introductory and concluding paragraphs and a variety of sentence structures;
  ii. rhetorical devices, and transitions between paragraphs;
  iii. a thesis or controlling idea;
  iv. an organizing structure appropriate to purpose, audience, and context;
  v. relevant evidence and well-chosen details; and
  vi. distinctions about the relative value of specific data, facts, and ideas that support the thesis statement;
 	
B. write procedural or work-related documents (e.g., instructions, e-mails, correspondence, memos, project plans) that include:
  i. organized and accurately conveyed information;
  ii. reader-friendly formatting techniques; and
  iii. anticipation of readers' questions;
 	
C. write an interpretative response to an expository or a literary text (e.g., essay or review) that:
  i. extends beyond a summary and literal analysis;
  ii. addresses the writing skills for an analytical essay and provides evidence from the text using embedded quotations; and
  iii. analyzes the aesthetic effects of an author's use of stylistic and rhetorical devices; and
 	
D. produce a multimedia presentation (e.g., documentary, class newspaper, docudrama, infomercial, visual or textual parodies, theatrical production) with graphics, images, and sound that conveys a distinctive point of view and appeals to a specific audience.	

TABLE 1C

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN English **College Readiness Standards**
Writing	
16. Persuasive Texts Students write persuasive texts to influence the attitudes or actions of a specific audience on specific issues. Students are expected to write an argumentative essay to the appropriate audience that includes: A. a clear thesis or position based on logical reasons supported by precise and relevant evidence; B. consideration of the whole range of information and views on the topic and accurate and honest representation of these views (i.e., in the author's own words and not out of context); C. counter-arguments based on evidence to anticipate and address objections; D. an organizing structure appropriate to the purpose, audience, and context; E. an analysis of the relative value of specific data, facts, and ideas; and F. a range of appropriate appeals (e.g., descriptions, anecdotes, case studies, analogies, illustrations).	

TABLE 1C

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN English **College Readiness Standards**
Oral and Written Conventions	

17. Conventions
 	
Students understand the function of and use the conventions of academic language when speaking and writing. Students will continue to apply earlier standards with greater complexity. Students are expected to:
 	
A. use and understand the function of the following parts of speech in the context of reading, writing, and speaking:
   i. more complex active and passive tenses and verbals (gerunds, infinitives, participles);
   ii. restrictive and nonrestrictive relative clauses; and
   iii. reciprocal pronouns (e.g., each other, one another);
B. identify and use the subjunctive mood to express doubts, wishes, and possibilities; and
C. use a variety of correctly structured sentences (e.g., compound, complex, compound-complex).
	Sentence Structure and Formation:
	
	Use conjunctions or punctuation to join simple clauses
	
	Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences
	
	Decide the appropriate verb tense and voice by considering the meaning of the entire sentence
	
	Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers)
	
	Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems
	
	Use sentence-combining techniques, effectively avoiding problematic comma splices, run-on sentences, and sentence fragments, especially in sentences containing compound subjects or verbs
	
	Conventions of Usage:
	
	Solve such basic grammatical problems as how to form the past and past participle of irregular but commonly used verbs and how to form comparative and superlative adjectives
	
	Identify the correct past and past participle forms of irregular and infrequently used verbs and form present-perfect verbs by using *have* rather than *of*
	
	Conventions of Punctuation:
	
	Use commas to set off a nonessential/nonrestrictive appositive or clause

18. Handwriting, Capitalization, and Punctuation
 	
Students write legibly and use appropriate capitalization and punctuation conventions in their compositions. Students are expected to:
 	
A. use conventions of capitalization; and
B. use correct punctuation marks including:
   i. comma placement in nonrestrictive phrases, clauses, and contrasting expressions;
   ii. quotation marks to indicate sarcasm or irony; and
   iii. dashes to emphasize parenthetical information.
	Conventions of Punctuation:
	
	Use punctuation to set off complex parenthetical phrases
	
	Use commas to set off a nonessential/nonrestrictive appositive or clause

19. Spelling Students spell correctly. Students are expected to spell correctly, including using various resources to determine and check correct spellings.	

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN **College Readiness Standards**
Research	
20. Research Plan Students ask open-ended research questions and develop a plan for answering them. Students are expected to: A. brainstorm, consult with others, decide upon a topic, and formulate a major research question to address the major research topic; and B. formulate a plan for engaging in research on a complex, multi-faceted topic.	
21. Gathering Sources Students determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather. Students are expected to: A. follow the research plan to compile data from authoritative sources in a manner that identifies the major issues and debates within the field of inquiry; B. organize information gathered from multiple sources to create a variety of graphics and forms (e.g., notes, learning logs); and C. paraphrase, summarize, quote, and accurately cite all researched information according to a standard format (e.g., author, title, page number).	
22. Synthesizing Information Students clarify research questions and evaluate and synthesize collected information. Students are expected to: A. modify the major research question as necessary to refocus the research plan; B. evaluate the relevance of information to the topic and determine the reliability, validity, and accuracy of sources (including Internet sources) by examining their authority and objectivity; and C. critique the research process at each step to implement changes as the need occurs and is identified.	

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	**PLAN** **College Readiness Standards**
Research	
23. Organizing and Presenting Ideas Students organize and present their ideas and information according to the purpose of the research and their audience. Students are expected to synthesize the research into a written or an oral presentation that: A. marshals evidence in support of a clear thesis statement and related claims; B. provides an analysis for the audience that reflects a logical progression of ideas and a clearly stated point of view; C. uses graphics and illustrations to help explain concepts where appropriate; D. uses a variety of evaluative tools (e.g., self-made rubrics, peer reviews, teacher and expert evaluations) to examine the quality of the research; and E. uses a style manual (e.g., *Modern Language Association*, *Chicago Manual of Style*) to document sources and format written materials.	

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	PLAN **College Readiness Standards**
Listening and Speaking	
24. Listening Students will use comprehension skills to listen attentively to others in formal and informal settings. Students will continue to apply earlier standards with greater complexity. Students are expected to: A. listen responsively to a speaker by taking notes that summarize, synthesize, or highlight the speaker's ideas for critical reflection and by asking questions related to the content for clarification and elaboration; B. follow and give complex oral instructions to perform specific tasks, answer questions, solve problems, and complete processes; and C. evaluate how the style and structure of a speech support or undermine its purpose or meaning.	
25. Speaking Students speak clearly and to the point, using the conventions of language. Students will continue to apply earlier standards with greater complexity. Students are expected to advance a coherent argument that incorporates a clear thesis and a logical progression of valid evidence from reliable sources and that employs eye contact, speaking rate (e.g., pauses for effect), volume, enunciation, purposeful gestures, and conventions of language to communicate ideas effectively.	
26. Teamwork Students work productively with others in teams. Students will continue to apply earlier standards with greater complexity. Students are expected to participate productively in teams, building on the ideas of others, contributing relevant information, developing a plan for consensus-building, and setting ground rules for decision-making.	

TABLE 1D

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
1. Vocabulary Development Students understand new vocabulary and use it when reading and writing. Students are expected to: A. determine the meaning of grade-level technical academic English words in multiple content areas (e.g., science, mathematics, social studies, the arts) derived from Latin, Greek, or other linguistic roots and affixes; B. analyze textual context (within a sentence and in larger sections of text) to distinguish between the denotative and connotative meanings of words; C. infer word meaning through the identification and analysis of analogies and other word relationships; D. show the relationship between the origins and meaning of foreign words or phrases used frequently in written English and historical events or developments (e.g., *glasnost*, *avant-garde*, *coup d'état*); and E. use a dictionary, a glossary, or a thesaurus (printed or electronic) to determine or confirm the meanings of words and phrases, including their connotations and denotations, and their etymology.	**Meanings of Words:** Understand the implication of a familiar word or phrase and of simple descriptive language Use context to understand basic figurative language Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
2. Comprehension of Literary Text/Theme and Genre Students analyze, make inferences and draw conclusions about theme and genre in different cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to: A. compare and contrast differences in similar themes expressed in different time periods; B. analyze archetypes (e.g., journey of a hero, tragic flaw) in mythic, traditional and classical literature; and C. relate the figurative language of a literary work to its historical and cultural setting.	**Main Ideas and Author's Approach:** Summarize basic events and ideas in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs
3. Comprehension of Literary Text/Poetry Students understand, make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding. Students are expected to analyze the structure or prosody (e.g., meter, rhyme scheme) and graphic elements (e.g., line length, punctuation, word position) in poetry.	
4. Comprehension of Literary Text/Drama Students understand, make inferences and draw conclusions about the structure and elements of drama and provide evidence from text to support their understanding. Students are expected to analyze how archetypes and motifs in drama affect the plot of plays.	

TEXAS English II Essential Knowledge and Skills (Begins: Fall 2009)	ACT Reading College Readiness Standards
Reading	

5. Comprehension of Literary Text/Fiction Students understand, make inferences and draw conclusions about the structure and elements of fiction and provide evidence from text to support their understanding. Students are expected to: A. analyze isolated scenes and their contribution to the success of the plot as a whole in a variety of works of fiction; B. analyze differences in the characters' moral dilemmas in works of fiction across different countries or cultures; C. evaluate the connection between forms of narration (e.g., unreliable, omniscient) and tone in works of fiction; and D. demonstrate familiarity with works by authors from non-English-speaking literary traditions with emphasis on 20th century world literature.	**Main Ideas and Author's Approach:** Recognize a clear intent of an author or narrator in uncomplicated literary narratives Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage Identify relationships between main characters in uncomplicated literary narratives

TABLE 1D

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives
	Order simple sequences of events in uncomplicated literary narratives
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
6. Comprehension of Literary Text/Literary Nonfiction Students understand, make inferences and draw conclusions about the varied structural patterns and features of literary nonfiction and provide evidence from text to support their understanding. Students are expected to evaluate the role of syntax and diction and the effect of voice, tone, and imagery on a speech, literary essay, or other forms of literary nonfiction.	**Main Ideas and Author's Approach:** Recognize a clear intent of an author or narrator in uncomplicated literary narratives Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Sequential, Comparative, and Cause-Effect Relationships:
	Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages
	Recognize clear cause-effect relationships described within a single sentence in a passage
	Identify relationships between main characters in uncomplicated literary narratives
	Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives
	Order simple sequences of events in uncomplicated literary narratives
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
7. Comprehension of Literary Text/Sensory Language Students understand, make inferences and draw conclusions about how an author's sensory language creates imagery in literary text and provide evidence from text to support their understanding. Students are expected to explain the function of symbolism, allegory, and allusions in literary works.	**Supporting Details:** Recognize a clear function of a part of an uncomplicated passage Make simple inferences about how details are used in passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Identify clear relationships between people, ideas, and so on in uncomplicated passages Understand relationships between people, ideas, and so on in uncomplicated passages Identify clear relationships between characters, ideas, and so on in more challenging literary narratives Understand the dynamics between people, ideas, and so on in more challenging passages **Meanings of Words:** Understand the implication of a familiar word or phrase and of simple descriptive language Use context to understand basic figurative language Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts

TABLE 1D

TEXAS English II Essential Knowledge and Skills (Begins: Fall 2009)	ACT Reading College Readiness Standards
Reading	
8. Comprehension of Informational Text/Culture and History Students analyze, make inferences and draw conclusions about the author's purpose in cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to analyze the controlling idea and specific purpose of a passage and the textual elements that support and elaborate it, including both the most important details and the less important details.	
9. Comprehension of Informational Text/Expository Text Students analyze, make inferences and draw conclusions about expository text and provide evidence from text to support their understanding. Students are expected to: A. summarize text and distinguish between a summary and a critique and identify non-essential information in a summary and unsubstantiated opinions in a critique; B. distinguish among different kinds of evidence (e.g., logical, empirical, anecdotal) used to support conclusions and arguments in texts; C. make and defend subtle inferences and complex conclusions about the ideas in text and their organizational patterns; and D. synthesize and make logical connections between ideas and details in several texts selected to reflect a range of viewpoints on the same topic and support those findings with textual evidence.	**Main Ideas and Author's Approach:** Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages Understand the function of a part of a passage when the function is subtle or complex

= Measured by the ACT English, Reading, and Writing tests

TEXAS English II Essential Knowledge and Skills (Begins: Fall 2009)	ACT Reading College Readiness Standards
Reading	
	Sequential, Comparative, and Cause-Effect Relationships:
	Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages
	Recognize clear cause-effect relationships described within a single sentence in a passage
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Determine, even when the language is richly figurative and the vocabulary is difficult, the appropriate meaning of context-dependent words, phrases, or statements in virtually any passage
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages

TABLE 1D

TEXAS English II Essential Knowledge and Skills (Begins: Fall 2009)	ACT Reading College Readiness Standards
Reading	
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
	Draw complex or subtle generalizations and conclusions about people, ideas, and so on, often by synthesizing information from different portions of the passage
10. Comprehension of Informational Text/Persuasive Text Students analyze, make inferences and draw conclusions about persuasive text and provide evidence from text to support their analysis. Students are expected to: A. explain shifts in perspective in arguments about the same topic and evaluate the accuracy of the evidence used to support the different viewpoints within those arguments; and B. analyze contemporary political debates for such rhetorical and logical fallacies as appeals to commonly held opinions, false dilemmas, appeals to pity, and personal attacks.	**Main Ideas and Author's Approach:** Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
11. Comprehension of Informational Text/Procedural Texts Students understand how to glean and use information in procedural texts and documents. Students are expected to: A. evaluate text for the clarity of its graphics and its visual appeal; and B. synthesize information from multiple graphical sources to draw conclusions about the ideas presented (e.g., maps, charts, schematics).	

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
12. Media Literacy Students use comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning. Students will continue to apply earlier standards with greater depth in increasingly more complex texts. Students are expected to: A. evaluate how messages presented in media reflect social and cultural views in ways different from traditional texts; B. analyze how messages in media are conveyed through visual and sound techniques (e.g., editing, reaction shots, sequencing, background music); C. examine how individual perception or bias in coverage of the same event influences the audience; and D. evaluate changes in formality and tone within the same medium for specific audiences and purposes.	

TABLE 1D

TEXAS English II Essential Knowledge and Skills (Begins: Fall 2009)	ACT English College Readiness Standards
Writing	

13. Writing Process	

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Students use elements of the writing process (planning, drafting, revising, editing, and publishing) to compose text. Students are expected to:

A. plan a first draft by selecting the correct genre for conveying the intended meaning to multiple audiences, determining appropriate topics through a range of strategies (e.g., discussion, background reading, personal interests, interviews), and developing a thesis or controlling idea;

B. structure ideas in a sustained and persuasive way (e.g., using outlines, note taking, graphic organizers, lists) and develop drafts in timed and open-ended situations that include transitions and rhetorical devices used to convey meaning;

C. revise drafts to improve style, word choice, figurative language, sentence variety, and subtlety of meaning after rethinking how well questions of purpose, audience, and genre have been addressed;

D. edit drafts for grammar, mechanics, and spelling; and

E. revise final draft in response to feedback from peers and teacher and publish written work for appropriate audiences.

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English College Readiness Standards

Topic Development in Terms of Purpose and Focus:

Identify the basic purpose or role of a specified phrase or sentence

Delete a clause or sentence because it is obviously irrelevant to the essay

Identify the central idea or main topic of a straightforward piece of writing

Determine relevancy when presented with a variety of sentence-level details

Identify the focus of a simple essay, applying that knowledge to add a sentence that sharpens that focus or to determine if an essay has met a specified goal

Delete material primarily because it disturbs the flow and development of the paragraph

Add a sentence to accomplish a fairly straightforward purpose such as illustrating a given statement

Apply an awareness of the focus and purpose of a fairly involved essay to determine the rhetorical effect and suitability of an existing phrase or sentence, or to determine the need to delete plausible but irrelevant material

Add a sentence to accomplish a subtle rhetorical purpose such as to emphasize, to add supporting detail, or to express meaning through connotation

Organization, Unity, and Coherence:

Use conjunctive adverbs or phrases to show time relation-ships in simple narrative essays (e.g., *then*, *this time*)

Select the most logical place to add a sentence in a paragraph

Use conjunctive adverbs or phrases to express straightfor-ward logical relationships (e.g., *first*, *afterward*, *in response*)

Decide the most logical place to add a sentence in an essay

Add a sentence that introduces a simple paragraph

Determine the need for conjunctive adverbs or phrases to create subtle logical connections between sentences (e.g., *therefore*, *however*, *in addition*)

Rearrange the sentences in a fairly uncomplicated paragraph for the sake of logic

Add a sentence to introduce or conclude the essay or to provide a transition between paragraphs when the essay is fairly straightforward

Word Choice in Terms of Style, Tone, Clarity, and Economy:

Revise sentences to correct awkward and confusing arrangements of sentence elements

Revise vague nouns and pronouns that create obvious logic problems

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= Measured by the ACT English, Reading, and Writing tests

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English **College Readiness Standards**
Writing	
	Delete obviously synonymous and wordy material in a sentence
	Revise expressions that deviate from the style of an essay
	Delete redundant material when information is repeated in different parts of speech (e.g., "alarmingly startled")
	Use the word or phrase most consistent with the style and tone of a fairly straightforward essay
	Determine the clearest and most logical conjunction to link clauses
	Revise a phrase that is redundant in terms of the meaning and logic of the entire sentence
	Identify and correct ambiguous pronoun references
	Use the word or phrase most appropriate in terms of the content of the sentence and tone of the essay
	Sentence Structure and Formation:
	Use conjunctions or punctuation to join simple clauses
	Revise shifts in verb tense between simple clauses in a sentence or between simple adjoining sentences
	Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences
	Decide the appropriate verb tense and voice by considering the meaning of the entire sentence
	Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers)
	Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems
	Maintain consistent verb tense and pronoun person on the basis of the preceding clause or sentence
	Use sentence-combining techniques, effectively avoiding problematic comma splices, run-on sentences, and sentence fragments, especially in sentences containing compound subjects or verbs
	Maintain a consistent and logical use of verb tense and pronoun person on the basis of information in the paragraph or essay as a whole
	Conventions of Usage:
	Solve such basic grammatical problems as how to form the past and past participle of irregular but commonly used verbs and how to form comparative and superlative adjectives
	Solve such grammatical problems as whether to use an adverb or adjective form, how to ensure straightforward subject-verb and pronoun-antecedent agreement, and which preposition to use in simple contexts

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English **College Readiness Standards**
Writing	
	Recognize and use the appropriate word in frequently confused pairs such as *there* and *their*, *past* and *passed*, and *led* and *lead*
	Use idiomatically appropriate prepositions, especially in combination with verbs (e.g., *long for*, *appeal to*)
	Ensure that a verb agrees with its subject when there is some text between the two
	Ensure that a pronoun agrees with its antecedent when the two occur in separate clauses or sentences
	Identify the correct past and past participle forms of irregular and infrequently used verbs and form present-perfect verbs by using *have* rather than *of*
	Correctly use reflexive pronouns, the possessive pronouns *its* and *your*, and the relative pronouns *who* and *whom*
	Ensure that a verb agrees with its subject in unusual situations (e.g., when the subject-verb order is inverted or when the subject is an indefinite pronoun)
	Conventions of Punctuation:
	Delete commas that create basic sense problems (e.g., between verb and direct object)
	Provide appropriate punctuation in straightforward situations (e.g., items in a series)
	Delete commas that disturb the sentence flow (e.g., between modifier and modified element)
	Use commas to set off simple parenthetical phrases
	Delete unnecessary commas when an incorrect reading of the sentence suggests a pause that should be punctuated (e.g., between verb and direct object clause)
	Use punctuation to set off complex parenthetical phrases
	Recognize and delete unnecessary commas based on a careful reading of a complicated sentence (e.g., between the elements of a compound subject or compound verb joined by *and*)
	Use apostrophes to indicate simple possessive nouns
	Recognize inappropriate uses of colons and semicolons
	Use commas to set off a nonessential/nonrestrictive appositive or clause
	Writing College Readiness Standards
	Focusing on the Topic:
	Present a thesis that establishes focus on the topic
	Organizing Ideas:
	Use some simple and obvious, but appropriate, transitional words and phrases
	Provide unity and coherence throughout the essay, sometimes with a logical progression of ideas
	Use relevant, though at times simple and obvious, transitional words and phrases to convey logical relationships between ideas

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English **College Readiness Standards**
Writing	
	Provide unity and coherence throughout the essay, often with a logical progression of ideas
	Use relevant transitional words, phrases, and sentences to convey logical relationships between ideas
	Using Language:
	Show competent use of language to communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding
	• using some precise and varied vocabulary
	• using several kinds of sentence structures to vary pace and to support meaning
	Show effective use of language to clearly communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors
	• using precise and varied vocabulary
	• using a variety of kinds of sentence structures to vary pace and to support meaning
14. Literary Texts Students write literary texts to express their ideas and feelings about real or imagined people, events, and ideas. Students are responsible for at least two forms of literary writing. Students are expected to: A. write an engaging story with a well-developed conflict and resolution, interesting and believable characters, a range of literary strategies (e.g., dialogue, suspense) and devices to enhance the plot, and sensory details that define the mood or tone; B. write a poem using a variety of poetic techniques (e.g., structural elements, figurative language) and a variety of poetic forms (e.g., sonnets, ballads); and C. write a script with an explicit or implicit theme and details that contribute to a definite mood or tone.	

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English **College Readiness Standards**
Writing	

15. Expository and Procedural Texts
 	
Students write expository and procedural or work-related texts to communicate ideas and information to specific audiences for specific purposes. Students are expected to:
 	
A. write an analytical essay of sufficient length that includes:
   i. effective introductory and concluding paragraphs and a variety of sentence structures;
   ii. rhetorical devices, and transitions between paragraphs;
   iii. a thesis or controlling idea;
   iv. an organizing structure appropriate to purpose, audience, and context;
   v. relevant evidence and well-chosen details; and
   vi. distinctions about the relative value of specific data, facts, and ideas that support the thesis statement;
 	
B. write procedural or work-related documents (e.g., instructions, e-mails, correspondence, memos, project plans) that include:
   i. organized and accurately conveyed information;
   ii. reader-friendly formatting techniques; and
   iii. anticipation of readers' questions;
 	
C. write an interpretative response to an expository or a literary text (e.g., essay or review) that:
   i. extends beyond a summary and literal analysis;
   ii. addresses the writing skills for an analytical essay and provides evidence from the text using embedded quotations; and
   iii. analyzes the aesthetic effects of an author's use of stylistic and rhetorical devices; and
 	
D. produce a multimedia presentation (e.g., documentary, class newspaper, docudrama, infomercial, visual or textual parodies, theatrical production) with graphics, images, and sound that conveys a distinctive point of view and appeals to a specific audience.	

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English **College Readiness Standards**
Writing	

16. Persuasive Texts Students write persuasive texts to influence the attitudes or actions of a specific audience on specific issues. Students are expected to write an argumentative essay to the appropriate audience that includes: A. a clear thesis or position based on logical reasons supported by precise and relevant evidence; B. consideration of the whole range of information and views on the topic and accurate and honest representation of these views (i.e., in the author's own words and not out of context); C. counter-arguments based on evidence to anticipate and address objections; D. an organizing structure appropriate to the purpose, audience, and context; E. an analysis of the relative value of specific data, facts, and ideas; and F. a range of appropriate appeals (e.g., descriptions, anecdotes, case studies, analogies, illustrations).	**Writing** College Readiness Standards **Expressing Judgments:** Show understanding of the persuasive purpose of the task by taking a position on the issue in the prompt Show some recognition of the complexity of the issue in the prompt by • acknowledging counterarguments to the writer's position • providing some response to counterarguments to the writer's position Show clear understanding of the persuasive purpose of the task by taking a position on the specific issue in the prompt and offering a broad context for discussion Show recognition of the complexity of the issue in the prompt by • partially evaluating implications and/or complications of the issue, and/or • posing and partially responding to counterarguments to the writer's position Show clear understanding of the persuasive purpose of the task by taking a position on the specific issue in the prompt and offering a critical context for discussion Show understanding of the complexity of the issue in the prompt by • examining different perspectives, and/or • evaluating implications or complications of the issue, and/or • posing and fully discussing counterarguments to the writer's position **Focusing on the Topic:** Present a thesis that establishes focus on the topic Present a thesis that establishes a focus on the writer's position on the issue Present a critical thesis that clearly establishes the focus on the writer's position on the issue **Developing a Position:** Develop most ideas fully, using some specific and relevant reasons, details, and examples Show clear movement between general and specific ideas and examples Develop several ideas fully, using specific and relevant reasons, details, and examples Show effective movement between general and specific ideas and examples

TABLE 1D

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English **College Readiness Standards**
Writing	
	Organizing Ideas:
	Provide unity and coherence throughout the essay, sometimes with a logical progression of ideas
	Use relevant, though at times simple and obvious, transitional words and phrases to convey logical relationships between ideas
	Present a somewhat developed introduction and conclusion
	Provide unity and coherence throughout the essay, often with a logical progression of ideas
	Use relevant transitional words, phrases, and sentences to convey logical relationships between ideas
	Present a well-developed introduction and conclusion

TABLE 1D

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English **College Readiness Standards**
Oral and Written Conventions	

17. Conventions
 	
Students understand the function of and use the conventions of academic language when speaking and writing. Students will continue to apply earlier standards with greater complexity. Students are expected to:
 	
A. use and understand the function of the following parts of speech in the context of reading, writing, and speaking:
  i. more complex active and passive tenses and verbals (gerunds, infinitives, participles);
  ii. restrictive and nonrestrictive relative clauses; and
  iii. reciprocal pronouns (e.g., each other, one another);
B. identify and use the subjunctive mood to express doubts, wishes, and possibilities; and
C. use a variety of correctly structured sentences (e.g., compound, complex, compound-complex).
	English College Readiness Standards
	
	Sentence Structure and Formation:
	
	Use conjunctions or punctuation to join simple clauses
	
	Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences
	
	Decide the appropriate verb tense and voice by considering the meaning of the entire sentence
	
	Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers)
	
	Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems
	
	Use sentence-combining techniques, effectively avoiding problematic comma splices, run-on sentences, and sentence fragments, especially in sentences containing compound subjects or verbs
	
	Conventions of Usage:
	
	Solve such basic grammatical problems as how to form the past and past participle of irregular but commonly used verbs and how to form comparative and superlative adjectives
	
	Identify the correct past and past participle forms of irregular and infrequently used verbs and form present-perfect verbs by using *have* rather than *of*
	
	Conventions of Punctuation:
	
	Use commas to set off a nonessential/nonrestrictive appositive or clause
	
	Writing College Readiness Standards
	
	Using Language:
	
	Show adequate use of language to communicate by
	• correctly employing many of the conventions of standard English grammar, usage, and mechanics, but with some distracting errors that may occasionally impede understanding
	• using appropriate vocabulary
	• using some varied kinds of sentence structures to vary pace
	
	Show competent use of language to communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding
	• using some precise and varied vocabulary
	• using several kinds of sentence structures to vary pace and to support meaning

= Measured by the ACT English, Reading, and Writing tests

TABLE 1D

TEXAS English II Essential Knowledge and Skills (Begins: Fall 2009)	ACT English College Readiness Standards
Oral and Written Conventions	
	Show effective use of language to clearly communicate ideas by • correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors • using precise and varied vocabulary • using a variety of kinds of sentence structures to vary pace and to support meaning

18. Handwriting, Capitalization, and Punctuation
Students write legibly and use appropriate capitalization and punctuation conventions in their compositions. Students are expected to:
A. use conventions of capitalization; and
B. use correct punctuation marks including:
  i. comma placement in nonrestrictive phrases, clauses, and contrasting expressions;
  ii. quotation marks to indicate sarcasm or irony; and
  iii. dashes to emphasize parenthetical information.
	English College Readiness Standards
	Conventions of Punctuation:
	Use punctuation to set off complex parenthetical phrases
	Use commas to set off a nonessential/nonrestrictive appositive or clause
	Writing College Readiness Standards
	Using Language:
	Show adequate use of language to communicate by
	• correctly employing many of the conventions of standard English grammar, usage, and mechanics, but with some distracting errors that may occasionally impede understanding
	• using appropriate vocabulary
	• using some varied kinds of sentence structures to vary pace
	Show competent use of language to communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding
	• using some precise and varied vocabulary
	• using several kinds of sentence structures to vary pace and to support meaning
	Show effective use of language to clearly communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors
	• using precise and varied vocabulary
	• using a variety of kinds of sentence structures to vary pace and to support meaning

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English **College Readiness Standards**
Oral and Written Conventions	
19. Spelling Students spell correctly. Students are expected to spell correctly, including using various resources to determine and check correct spellings.	**Writing** College Readiness Standards **Using Language:** Show adequate use of language to communicate by • correctly employing many of the conventions of standard English grammar, usage, and mechanics, but with some distracting errors that may occasionally impede understanding • using appropriate vocabulary • using some varied kinds of sentence structures to vary pace Show competent use of language to communicate ideas by • correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding • using some precise and varied vocabulary • using several kinds of sentence structures to vary pace and to support meaning Show effective use of language to clearly communicate ideas by • correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors • using precise and varied vocabulary • using a variety of kinds of sentence structures to vary pace and to support meaning

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT **College Readiness Standards**
Research	
20. Research Plan Students ask open-ended research questions and develop a plan for answering them. Students are expected to: A. brainstorm, consult with others, decide upon a topic, and formulate a major research question to address the major research topic; and B. formulate a plan for engaging in research on a complex, multi-faceted topic.	
21. Gathering Sources Students determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather. Students are expected to: A. follow the research plan to compile data from authoritative sources in a manner that identifies the major issues and debates within the field of inquiry; B. organize information gathered from multiple sources to create a variety of graphics and forms (e.g., notes, learning logs); and C. paraphrase, summarize, quote, and accurately cite all researched information according to a standard format (e.g., author, title, page number).	
22. Synthesizing Information Students clarify research questions and evaluate and synthesize collected information. Students are expected to: A. modify the major research question as necessary to refocus the research plan; B. evaluate the relevance of information to the topic and determine the reliability, validity, and accuracy of sources (including Internet sources) by examining their authority and objectivity; and C. critique the research process at each step to implement changes as the need occurs and is identified.	

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT **College Readiness Standards**
Research	
23. Organizing and Presenting Ideas Students organize and present their ideas and information according to the purpose of the research and their audience. Students are expected to synthesize the research into a written or an oral presentation that: A. marshals evidence in support of a clear thesis statement and related claims; B. provides an analysis for the audience that reflects a logical progression of ideas and a clearly stated point of view; C. uses graphics and illustrations to help explain concepts where appropriate; D. uses a variety of evaluative tools (e.g., self-made rubrics, peer reviews, teacher and expert evaluations) to examine the quality of the research; and E. uses a style manual (e.g., *Modern Language Association*, *Chicago Manual of Style*) to document sources and format written materials.	

TEXAS English II **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT **College Readiness Standards**
Listening and Speaking	
24. Listening Students will use comprehension skills to listen attentively to others in formal and informal settings. Students will continue to apply earlier standards with greater complexity. Students are expected to: A. listen responsively to a speaker by taking notes that summarize, synthesize, or highlight the speaker's ideas for critical reflection and by asking questions related to the content for clarification and elaboration; B. follow and give complex oral instructions to perform specific tasks, answer questions, solve problems, and complete processes; and C. evaluate how the style and structure of a speech support or undermine its purpose or meaning.	
25. Speaking Students speak clearly and to the point, using the conventions of language. Students will continue to apply earlier standards with greater complexity. Students are expected to advance a coherent argument that incorporates a clear thesis and a logical progression of valid evidence from reliable sources and that employs eye contact, speaking rate (e.g., pauses for effect), volume, enunciation, purposeful gestures, and conventions of language to communicate ideas effectively.	
26. Teamwork Students work productively with others in teams. Students will continue to apply earlier standards with greater complexity. Students are expected to participate productively in teams, building on the ideas of others, contributing relevant information, developing a plan for consensus-building, and setting ground rules for decision-making.	

TABLE 1E

TEXAS English III Essential Knowledge and Skills (Begins: Fall 2009)	ACT Reading College Readiness Standards
Reading	

1. Vocabulary Development Students understand new vocabulary and use it when reading and writing. Students are expected to: A. determine the meaning of grade-level technical academic English words in multiple content areas (e.g., science, mathematics, social studies, the arts) derived from Latin, Greek, or other linguistic roots and affixes; B. analyze textual context (within a sentence and in larger sections of text) to draw conclusions about the nuance in word meanings; C. infer word meaning through the identification and analysis of analogies and other word relationships; D. recognize and use knowledge of cognates in different languages and of word origins to determine the meaning of words; and E. use general and specialized dictionaries, thesauri, glossaries, histories of language, books of quotations, and other related references (printed or electronic) as needed.	**Meanings of Words:** Understand the implication of a familiar word or phrase and of simple descriptive language Use context to understand basic figurative language Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
2. Comprehension of Literary Text/Theme and Genre Students analyze, make inferences and draw conclusions about theme and genre in different cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to: A. analyze the way in which the theme or meaning of a selection represents a view or comment on the human condition; B. relate the characters and text structures of mythic, traditional, and classical literature to 20th and 21st century American novels, plays, or films; and C. relate the main ideas found in a literary work to primary source documents from its historical and cultural setting.	**Main Ideas and Author's Approach:** Summarize basic events and ideas in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs
3. Comprehension of Literary Text/Poetry Students understand, make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding. Students are expected to analyze the effects of metrics, rhyme schemes (e.g., end, internal, slant, eye), and other conventions in American poetry.	
4. Comprehension of Literary Text/Drama Students understand, make inferences and draw conclusions about the structure and elements of drama and provide evidence from text to support their understanding. Students are expected to analyze the themes and characteristics in different periods of modern American drama.	

TABLE 1E

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	

5. Comprehension of Literary Text/Fiction Students understand, make inferences and draw conclusions about the structure and elements of fiction and provide evidence from text to support their understanding. Students are expected to: A. evaluate how different literary elements (e.g., figurative language, point of view) shape the author's portrayal of the plot and setting in works of fiction; B. analyze the internal and external development of characters through a range of literary devices; C. analyze the impact of narration when the narrator's point of view shifts from one character to another; and D. demonstrate familiarity with works by authors in American fiction from each major literary period.	**Main Ideas and Author's Approach:** Recognize a clear intent of an author or narrator in uncomplicated literary narratives Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage Identify relationships between main characters in uncomplicated literary narratives

TEXAS English III Essential Knowledge and Skills (Begins: Fall 2009)	ACT Reading College Readiness Standards
Reading	
	Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives
	Order simple sequences of events in uncomplicated literary narratives
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages

TABLE 1E

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
6. Comprehension of Literary Text/Literary Nonfiction Students understand, make inferences and draw conclusions about the varied structural patterns and features of literary nonfiction and provide evidence from text to support their understanding. Students are expected to analyze how rhetorical techniques (e.g., repetition, parallel structure, understatement, overstatement) in literary essays, true life adventures, and historically important speeches influence the reader, evoke emotions, and create meaning.	**Main Ideas and Author's Approach:** Recognize a clear intent of an author or narrator in uncomplicated literary narratives Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages

Texas English III Essential Knowledge and Skills   S-82   ▮ = Measured by the ACT English, Reading, and Writing tests

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Sequential, Comparative, and Cause-Effect Relationships:
	Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages
	Recognize clear cause-effect relationships described within a single sentence in a passage
	Identify relationships between main characters in uncomplicated literary narratives
	Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives
	Order simple sequences of events in uncomplicated literary narratives
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
7. Comprehension of Literary Text/Sensory Language ==Students understand, make inferences and draw conclusions about how an author's sensory language creates imagery in literary text and provide evidence from text to support their understanding.== Students are expected to analyze the meaning of classical, mythological, and biblical allusions in words, phrases, passages, and literary works.	**Supporting Details:** Recognize a clear function of a part of an uncomplicated passage Make simple inferences about how details are used in passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages **Meanings of Words:** Understand the implication of a familiar word or phrase and of simple descriptive language Use context to understand basic figurative language Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
8. Comprehension of Informational Text/Culture and History Students analyze, make inferences and draw conclusions about the author's purpose in cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to analyze how the style, tone, and diction of a text advance the author's purpose and perspective or stance.	

TABLE 1E

TEXAS English III Essential Knowledge and Skills (Begins: Fall 2009)	ACT Reading College Readiness Standards
Reading	

9. Comprehension of Informational Text/Expository Text Students analyze, make inferences and draw conclusions about expository text and provide evidence from text to support their understanding. Students are expected to: A. summarize a text in a manner that captures the author's viewpoint, its main ideas, and its elements without taking a position or expressing an opinion; B. distinguish between inductive and deductive reasoning and analyze the elements of deductively and inductively reasoned texts and the different ways conclusions are supported; C. make and defend subtle inferences and complex conclusions about the ideas in text and their organizational patterns; and D. synthesize ideas and make logical connections (e.g., thematic links, author analyses) between and among multiple texts representing similar or different genres and technical sources and support those findings with textual evidence.	**Main Ideas and Author's Approach:** Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage Identify clear relationships between people, ideas, and so on in uncomplicated passages Identify clear cause-effect relationships in uncomplicated passages Order sequences of events in uncomplicated passages Understand relationships between people, ideas, and so on in uncomplicated passages

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
	Draw complex or subtle generalizations and conclusions about people, ideas, and so on, often by synthesizing information from different portions of the passage

TABLE 1E

TEXAS English III Essential Knowledge and Skills (Begins: Fall 2009)	ACT Reading College Readiness Standards
Reading	
10. Comprehension of Informational Text/Persuasive Text Students analyze, make inferences and draw conclusions about persuasive text and provide evidence from text to support their analysis. Students are expected to: A. evaluate how the author's purpose and stated or perceived audience affect the tone of persuasive texts; and B. analyze historical and contemporary political debates for such logical fallacies as non-sequiturs, circular logic, and hasty generalizations.	**Main Ideas and Author's Approach:** Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage Identify clear relationships between people, ideas, and so on in uncomplicated passages Identify clear cause-effect relationships in uncomplicated passages Order sequences of events in uncomplicated passages Understand relationships between people, ideas, and so on in uncomplicated passages

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
	Draw complex or subtle generalizations and conclusions about people, ideas, and so on, often by synthesizing information from different portions of the passage

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading College Readiness Standards
Reading	
11. Comprehension of Informational Text/Procedural Texts Students understand how to glean and use information in procedural texts and documents. Students are expected to: A. evaluate the logic of the sequence of information presented in text (e.g., product support material, contracts); and B. translate (from text to graphic or from graphic to text) complex, factual, quantitative, or technical information presented in maps, charts, illustrations, graphs, timelines, tables, and diagrams.	
12. Media Literacy Students use comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning. Students will continue to apply earlier standards with greater depth in increasingly more complex texts. Students are expected to: A. evaluate how messages presented in media reflect social and cultural views in ways different from traditional texts; B. evaluate the interactions of different techniques (e.g., layout, pictures, typeface in print media, images, text, sound in electronic journalism) used in multi-layered media; C. evaluate the objectivity of coverage of the same event in various types of media; and D. evaluate changes in formality and tone across various media for different audiences and purposes.	

TABLE 1E

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English and Writing **College Readiness Standards**
Writing	

13. Writing Process

Students use elements of the writing process (planning, drafting, revising, editing, and publishing) to compose text. Students are expected to:

A. plan a first draft by selecting the correct genre for conveying the intended meaning to multiple audiences, determining appropriate topics through a range of strategies (e.g., discussion, background reading, personal interests, interviews), and developing a thesis or controlling idea;

B. structure ideas in a sustained and persuasive way (e.g., using outlines, note taking, graphic organizers, lists) and develop drafts in timed and open-ended situations that include transitions and rhetorical devices to convey meaning;

C. revise drafts to clarify meaning and achieve specific rhetorical purposes, consistency of tone, and logical organization by rearranging the words, sentences, and paragraphs to employ tropes (e.g., metaphors, similes, analogies, hyperbole, understatement, rhetorical questions, irony), schemes (e.g., parallelism, antithesis, inverted word order, repetition, reversed structures), and by adding transitional words and phrases;

D. edit drafts for grammar, mechanics, and spelling; and

E. revise final draft in response to feedback from peers and teacher and publish written work for appropriate audiences.

English College Readiness Standards

Topic Development in Terms of Purpose and Focus:

Identify the basic purpose or role of a specified phrase or sentence

Delete a clause or sentence because it is obviously irrelevant to the essay

Identify the central idea or main topic of a straightforward piece of writing

Determine relevancy when presented with a variety of sentence-level details

Identify the focus of a simple essay, applying that knowledge to add a sentence that sharpens that focus or to determine if an essay has met a specified goal

Delete material primarily because it disturbs the flow and development of the paragraph

Add a sentence to accomplish a fairly straightforward purpose such as illustrating a given statement

Apply an awareness of the focus and purpose of a fairly involved essay to determine the rhetorical effect and suitability of an existing phrase or sentence, or to determine the need to delete plausible but irrelevant material

Add a sentence to accomplish a subtle rhetorical purpose such as to emphasize, to add supporting detail, or to express meaning through connotation

Organization, Unity, and Coherence:

Use conjunctive adverbs or phrases to show time relation-ships in simple narrative essays (e.g., *then*, *this time*)

Select the most logical place to add a sentence in a paragraph

Use conjunctive adverbs or phrases to express straightfor-ward logical relationships (e.g., *first*, *afterward*, *in response*)

Decide the most logical place to add a sentence in an essay

Add a sentence that introduces a simple paragraph

Determine the need for conjunctive adverbs or phrases to create subtle logical connections between sentences (e.g., *therefore*, *however*, *in addition*)

Rearrange the sentences in a fairly uncomplicated paragraph for the sake of logic

Add a sentence to introduce or conclude the essay or to provide a transition between paragraphs when the essay is fairly straightforward

Word Choice in Terms of Style, Tone, Clarity, and Economy:

Revise sentences to correct awkward and confusing arrangements of sentence elements

Revise vague nouns and pronouns that create obvious logic problems

= Measured by the ACT English, Reading, and Writing tests

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English and Writing **College Readiness Standards**
Writing	
	Delete obviously synonymous and wordy material in a sentence
	Revise expressions that deviate from the style of an essay
	Delete redundant material when information is repeated in different parts of speech (e.g., "alarmingly startled")
	Use the word or phrase most consistent with the style and tone of a fairly straightforward essay
	Determine the clearest and most logical conjunction to link clauses
	Revise a phrase that is redundant in terms of the meaning and logic of the entire sentence
	Identify and correct ambiguous pronoun references
	Use the word or phrase most appropriate in terms of the content of the sentence and tone of the essay
	Sentence Structure and Formation:
	Use conjunctions or punctuation to join simple clauses
	Revise shifts in verb tense between simple clauses in a sentence or between simple adjoining sentences
	Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences
	Decide the appropriate verb tense and voice by considering the meaning of the entire sentence
	Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers)
	Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems
	Maintain consistent verb tense and pronoun person on the basis of the preceding clause or sentence
	Use sentence-combining techniques, effectively avoiding problematic comma splices, run-on sentences, and sentence fragments, especially in sentences containing compound subjects or verbs
	Maintain a consistent and logical use of verb tense and pronoun person on the basis of information in the paragraph or essay as a whole
	Conventions of Usage:
	Solve such basic grammatical problems as how to form the past and past participle of irregular but commonly used verbs and how to form comparative and superlative adjectives
	Solve such grammatical problems as whether to use an adverb or adjective form, how to ensure straightforward subject-verb and pronoun-antecedent agreement, and which preposition to use in simple contexts

TEXAS English III Essential Knowledge and Skills (Begins: Fall 2009)	ACT English and Writing College Readiness Standards
Writing	
	Recognize and use the appropriate word in frequently confused pairs such as *there* and *their*, *past* and *passed*, and *led* and *lead*
	Use idiomatically appropriate prepositions, especially in combination with verbs (e.g., *long for*, *appeal to*)
	Ensure that a verb agrees with its subject when there is some text between the two
	Ensure that a pronoun agrees with its antecedent when the two occur in separate clauses or sentences
	Identify the correct past and past participle forms of irregular and infrequently used verbs and form present-perfect verbs by using *have* rather than *of*
	Correctly use reflexive pronouns, the possessive pronouns *its* and *your*, and the relative pronouns *who* and *whom*
	Ensure that a verb agrees with its subject in unusual situations (e.g., when the subject-verb order is inverted or when the subject is an indefinite pronoun)
	Conventions of Punctuation:
	Delete commas that create basic sense problems (e.g., between verb and direct object)
	Provide appropriate punctuation in straightforward situations (e.g., items in a series)
	Delete commas that disturb the sentence flow (e.g., between modifier and modified element)
	Use commas to set off simple parenthetical phrases
	Delete unnecessary commas when an incorrect reading of the sentence suggests a pause that should be punctuated (e.g., between verb and direct object clause)
	Use punctuation to set off complex parenthetical phrases
	Recognize and delete unnecessary commas based on a careful reading of a complicated sentence (e.g., between the elements of a compound subject or compound verb joined by *and*)
	Use apostrophes to indicate simple possessive nouns
	Recognize inappropriate uses of colons and semicolons
	Use commas to set off a nonessential/nonrestrictive appositive or clause
	Writing College Readiness Standards
	Focusing on the Topic:
	Present a thesis that establishes focus on the topic
	Maintain a focus on discussion of the specific topic and issue in the prompt throughout the essay
	Maintain a clear focus on discussion of the specific topic and issue in the prompt throughout the essay
	Developing a Position:
	Show clear movement between general and specific ideas and examples

TEXAS English III Essential Knowledge and Skills (Begins: Fall 2009)	ACT English and Writing College Readiness Standards
Writing	
	Show effective movement between general and specific ideas and examples
	Organizing Ideas:
	Use some simple and obvious, but appropriate, transitional words and phrases
	Provide unity and coherence throughout the essay, sometimes with a logical progression of ideas
	Use relevant, though at times simple and obvious, transitional words and phrases to convey logical relationships between ideas
	Present a somewhat developed introduction and conclusion
	Provide unity and coherence throughout the essay, often with a logical progression of ideas
	Use relevant transitional words, phrases, and sentences to convey logical relationships between ideas
	Present a well-developed introduction and conclusion
	Using Language:
	Show competent use of language to communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding
	• using some precise and varied vocabulary
	• using several kinds of sentence structures to vary pace and to support meaning
	Show effective use of language to clearly communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors
	• using precise and varied vocabulary
	• using a variety of kinds of sentence structures to vary pace and to support meaning
14. Literary Texts Students write literary texts to express their ideas and feelings about real or imagined people, events, and ideas. Students are responsible for at least two forms of literary writing. Students are expected to: A. write an engaging story with a well-developed conflict and resolution, complex and non-stereotypical characters, a range of literary strategies (e.g., dialogue, suspense) and devices to enhance the plot, and sensory details that define the mood or tone; B. write a poem that reflects an awareness of poetic conventions and traditions within different forms (e.g., sonnets, ballads, free verse); and C. write a script with an explicit or implicit theme, using a variety of literary techniques.	

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English and Writing **College Readiness Standards**
Writing	

15. Expository and Procedural Texts
 	
Students write expository and procedural or work-related texts to communicate ideas and information to specific audiences for specific purposes. Students are expected to:
 	
A. write an analytical essay of sufficient length that includes:
   i. effective introductory and concluding paragraphs and a variety of sentence structures;
   ii. rhetorical devices, and transitions between paragraphs;
   iii. a clear thesis statement or controlling idea;
   iv. a clear organizational schema for conveying ideas;
   v. relevant and substantial evidence and well-chosen details; and
   vi. information on multiple relevant perspectives and a consideration of the validity, reliability, and relevance of primary and secondary sources;
 	
B. write procedural or work-related documents (e.g., résumés, proposals, college applications, operation manuals) that include:
   i. a clearly stated purpose combined with a well-supported viewpoint on the topic;
   ii. appropriate formatting structures (e.g., headings, graphics, white space);
   iii. relevant questions that engage readers and consider their needs;
   iv. accurate technical information in accessible language; and
   v. appropriate organizational structures supported by facts and details (documented if appropriate);
 	
C. write an interpretation of an expository or a literary text that:
   i. advances a clear thesis statement;
   ii. addresses the writing skills for an analytical essay, including references to and commentary on quotations from the text;
   iii. analyzes the aesthetic effects of an author's use of stylistic or rhetorical devices;
   iv. identifies and analyzes the ambiguities, nuances, and complexities within the text; and
   v. anticipates and responds to readers' questions or contradictory information; and
 	
D. produce a multimedia presentation (e.g., documentary, class newspaper, docudrama, infomercial, visual or textual parodies, theatrical production) with graphics, images, and sound that appeals to a specific audience and synthesizes information from multiple points of view.	

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English and Writing **College Readiness Standards**
Writing	

16. Persuasive Texts Students write persuasive texts to influence the attitudes or actions of a specific audience on specific issues. Students are expected to <mark>write an argumentative essay</mark> (e.g., evaluative essays, proposals) to the appropriate audience <mark>that includes</mark>: A. <mark>a clear thesis or position based on logical reasons supported by precise and relevant evidence</mark>, including facts, expert opinions, quotations, and/or expressions of commonly accepted beliefs; B. <mark>accurate and honest representation of divergent views</mark> (i.e., in the author's own words and not out of context); C. <mark>an organizing structure appropriate to the purpose, audience, and context</mark>; D. information on the complete range of relevant perspectives; E. demonstrated consideration of the validity and reliability of all primary and secondary sources used; and F. language attentively crafted to move a disinterested or opposed audience, using specific rhetorical devices to back up assertions (e.g., appeals to logic, emotions, ethical beliefs).	**Writing** College Readiness Standards **Expressing Judgments:** Show understanding of the persuasive purpose of the task by taking a position on the issue in the prompt Show some recognition of the complexity of the issue in the prompt by • acknowledging counterarguments to the writer's position • providing some response to counterarguments to the writer's position Show clear understanding of the persuasive purpose of the task by taking a position on the specific issue in the prompt and offering a broad context for discussion Show recognition of the complexity of the issue in the prompt by • partially evaluating implications and/or complications of the issue, and/or • posing and partially responding to counterarguments to the writer's position Show clear understanding of the persuasive purpose of the task by taking a position on the specific issue in the prompt and offering a critical context for discussion Show understanding of the complexity of the issue in the prompt by • examining different perspectives, and/or • evaluating implications or complications of the issue, and/or • posing and fully discussing counterarguments to the writer's position **Focusing on the Topic:** Present a thesis that establishes focus on the topic Present a thesis that establishes a focus on the writer's position on the issue Present a critical thesis that clearly establishes the focus on the writer's position on the issue **Developing a Position:** Develop most ideas fully, using some specific and relevant reasons, details, and examples Show clear movement between general and specific ideas and examples Develop several ideas fully, using specific and relevant reasons, details, and examples

<mark></mark> = Measured by the ACT English, Reading, and Writing tests

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English and Writing **College Readiness Standards**
Writing	
	Show effective movement between general and specific ideas and examples
	Organizing Ideas:
	Provide unity and coherence throughout the essay, sometimes with a logical progression of ideas
	Use relevant, though at times simple and obvious, transitional words and phrases to convey logical relationships between ideas
	Present a somewhat developed introduction and conclusion
	Provide unity and coherence throughout the essay, often with a logical progression of ideas
	Use relevant transitional words, phrases, and sentences to convey logical relationships between ideas
	Present a well-developed introduction and conclusion

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English and Writing **College Readiness Standards**
Oral and Written Conventions	

17. Conventions

Students understand the function of and use the conventions of academic language when speaking and writing. Students will continue to apply earlier standards with greater complexity. Students are expected to:

A. use and understand the function of different types of clauses and phrases (e.g., adjectival, noun, adverbial clauses and phrases); and

B. use a variety of correctly structured sentences (e.g., compound, complex, compound-complex).

> **English** College Readiness Standards

Sentence Structure and Formation:

Use conjunctions or punctuation to join simple clauses

Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences

Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers)

Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems

Use sentence-combining techniques, effectively avoiding problematic comma splices, run-on sentences, and sentence fragments, especially in sentences containing compound subjects or verbs

> **Writing** College Readiness Standards

Using Language:

Show competent use of language to communicate ideas by

- correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding
- using some precise and varied vocabulary
- using several kinds of sentence structures to vary pace and to support meaning

Show effective use of language to clearly communicate ideas by

- correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors
- using precise and varied vocabulary
- using a variety of kinds of sentence structures to vary pace and to support meaning

18. Handwriting, Capitalization, and Punctuation

Students write legibly and use appropriate capitalization and punctuation conventions in their compositions. Students are expected to correctly and consistently use conventions of punctuation and capitalization.

> **English** College Readiness Standards

Conventions of Punctuation:

Delete commas that create basic sense problems (e.g., between verb and direct object)

Provide appropriate punctuation in straightforward situations (e.g., items in a series)

Delete commas that disturb the sentence flow (e.g., between modifier and modified element)

Use commas to set off simple parenthetical phrases

Delete unnecessary commas when an incorrect reading of the sentence suggests a pause that should be punctuated (e.g., between verb and direct object clause)

TEXAS English III Essential Knowledge and Skills (Begins: Fall 2009)	ACT English and Writing College Readiness Standards
Oral and Written Conventions	
	Use punctuation to set off complex parenthetical phrases
	Recognize and delete unnecessary commas based on a careful reading of a complicated sentence (e.g., between the elements of a compound subject or compound verb joined by *and*)
	Use apostrophes to indicate simple possessive nouns
	Recognize inappropriate uses of colons and semicolons
	Use commas to set off a nonessential/nonrestrictive appositive or clause
	Writing College Readiness Standards
	Using Language:
	Show competent use of language to communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding
	• using some precise and varied vocabulary
	• using several kinds of sentence structures to vary pace and to support meaning
	Show effective use of language to clearly communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors
	• using precise and varied vocabulary
	• using a variety of kinds of sentence structures to vary pace and to support meaning
19. Spelling <mark>Students spell correctly. Students are expected to spell correctly, including using various resources to determine and check correct spellings.</mark>	**Writing** College Readiness Standards **Using Language:** Show competent use of language to communicate ideas by • correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding • using some precise and varied vocabulary • using several kinds of sentence structures to vary pace and to support meaning Show effective use of language to clearly communicate ideas by • correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors • using precise and varied vocabulary • using a variety of kinds of sentence structures to vary pace and to support meaning

TABLE 1E

TEXAS English III Essential Knowledge and Skills (Begins: Fall 2009)	ACT College Readiness Standards
Research	
20. Research Plan Students ask open-ended research questions and develop a plan for answering them. Students are expected to: A. brainstorm, consult with others, decide upon a topic, and formulate a major research question to address the major research topic; and B. formulate a plan for engaging in in-depth research on a complex, multi-faceted topic.	
21. Gathering Sources Students determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather. Students are expected to: A. follow the research plan to gather evidence from experts on the topic and texts written for informed audiences in the field, distinguishing between reliable and unreliable sources and avoiding over-reliance on one source; B. systematically organize relevant and accurate information to support central ideas, concepts, and themes, outline ideas into conceptual maps/timelines, and separate factual data from complex inferences; and C. paraphrase, summarize, quote, and accurately cite all researched information according to a standard format (e.g., author, title, page number), differentiating among primary, secondary, and other sources.	
22. Synthesizing Information Students clarify research questions and evaluate and synthesize collected information. Students are expected to: A. modify the major research question as necessary to refocus the research plan; B. differentiate between theories and the evidence that supports them and determine whether the evidence found is weak or strong and how that evidence helps create a cogent argument; and C. critique the research process at each step to implement changes as the need occurs and is identified.	

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT **College Readiness Standards**
Research	
23. Organizing and Presenting Ideas Students organize and present their ideas and information according to the purpose of the research and their audience. Students are expected to synthesize the research into an extended written or oral presentation that: A. provides an analysis that supports and develops personal opinions, as opposed to simply restating existing information; B. uses a variety of formats and rhetorical strategies to argue for the thesis; C. develops an argument that incorporates the complexities of and discrepancies in information from multiple sources and perspectives while anticipating and refuting counter-arguments; D. uses a style manual (e.g., *Modern Language Association*, *Chicago Manual of Style*) to document sources and format written materials; and E. is of sufficient length and complexity to address the topic.	

TEXAS English III **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT **College Readiness Standards**
Listening and Speaking	
24. Listening Students will use comprehension skills to listen attentively to others in formal and informal settings. Students will continue to apply earlier standards with greater complexity. Students are expected to: A. listen responsively to a speaker by framing inquiries that reflect an understanding of the content and by identifying the positions taken and the evidence in support of those positions; and B. evaluate the clarity and coherence of a speaker's message and critique the impact of a speaker's diction and syntax on an audience.	
25. Speaking Students speak clearly and to the point, using the conventions of language. Students will continue to apply earlier standards with greater complexity. Students are expected to give a formal presentation that exhibits a logical structure, smooth transitions, accurate evidence, well-chosen details, and rhetorical devices, and that employs eye contact, speaking rate (e.g., pauses for effect), volume, enunciation, purposeful gestures, and conventions of language to communicate ideas effectively.	
26. Teamwork Students work productively with others in teams. Students will continue to apply earlier standards with greater complexity. Students are expected to participate productively in teams, offering ideas or judgments that are purposeful in moving the team towards goals, asking relevant and insightful questions, tolerating a range of positions and ambiguity in decision-making, and evaluating the work of the group based on agreed-upon criteria.	

TEXAS English IV Essential Knowledge and Skills (Begins: Fall 2009)	ACT Reading College Readiness Standards
Reading	
1. Vocabulary Development Students understand new vocabulary and use it when reading and writing. Students are expected to: A. determine the meaning of technical academic English words in multiple content areas (e.g., science, mathematics, social studies, the arts) derived from Latin, Greek, or other linguistic roots and affixes; B. analyze textual context (within a sentence and in larger sections of text) to draw conclusions about the nuance in word meanings; C. use the relationship between words encountered in analogies to determine their meanings (e.g., synonyms/antonyms, connotation/denotation); D. analyze and explain how the English language has developed and been influenced by other languages; and E. use general and specialized dictionaries, thesauri, histories of language, books of quotations, and other related references (printed or electronic) as needed.	**Meanings of Words:** Understand the implication of a familiar word or phrase and of simple descriptive language Use context to understand basic figurative language Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
2. Comprehension of Literary Text/Theme and Genre Students analyze, make inferences and draw conclusions about theme and genre in different cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to: A. compare and contrast works of literature that express a universal theme; B. compare and contrast the similarities and differences in classical plays with their modern day novel, play, or film versions; and C. relate the characters, setting, and theme of a literary work to the historical, social, and economic ideas of its time.	**Main Ideas and Author's Approach:** Summarize basic events and ideas in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs
3. Comprehension of Literary Text/Poetry Students understand, make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding. Students are expected to evaluate the changes in sound, form, figurative language, graphics, and dramatic structure in poetry across literary time periods.	
4. Comprehension of Literary Text/Drama Students understand, make inferences and draw conclusions about the structure and elements of drama and provide evidence from text to support their understanding. Students are expected to evaluate how the structure and elements of drama change in the works of British dramatists across literary periods.	

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	

5. Comprehension of Literary Text/Fiction Students understand, make inferences and draw conclusions about the structure and elements of fiction and provide evidence from text to support their understanding. Students are expected to: A. analyze how complex plot structures (e.g., subplots) and devices (e.g., foreshadowing, flashbacks, suspense) function and advance the action in a work of fiction; B. analyze the moral dilemmas and quandaries presented in works of fiction as revealed by the underlying motivations and behaviors of the characters; C. compare and contrast the effects of different forms of narration across various genres of fiction; and D. demonstrate familiarity with works of fiction by British authors from each major literary period.	**Main Ideas and Author's Approach:** Recognize a clear intent of an author or narrator in uncomplicated literary narratives Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage Identify relationships between main characters in uncomplicated literary narratives

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives
	Order simple sequences of events in uncomplicated literary narratives
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages

TABLE 1F

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
6. Comprehension of Literary Text/Literary Nonfiction Students understand, make inferences and draw conclusions about the varied structural patterns and features of literary nonfiction and provide evidence from text to support their understanding. Students are expected to analyze the effect of ambiguity, contradiction, subtlety, paradox, irony, sarcasm, and overstatement in literary essays, speeches, and other forms of literary nonfiction.	**Main Ideas and Author's Approach:** Recognize a clear intent of an author or narrator in uncomplicated literary narratives Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages

TABLE 1F

TEXAS English IV Essential Knowledge and Skills (Begins: Fall 2009)	ACT Reading College Readiness Standards
Reading	
	Sequential, Comparative, and Cause-Effect Relationships:
	Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages
	Recognize clear cause-effect relationships described within a single sentence in a passage
	Identify relationships between main characters in uncomplicated literary narratives
	Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives
	Order simple sequences of events in uncomplicated literary narratives
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Identify clear relationships between characters, ideas, and so on in more challenging literary narratives
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives

TEXAS English IV Essential Knowledge and Skills (Begins: Fall 2009)	ACT Reading College Readiness Standards
Reading	
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
7. Comprehension of Literary Text/Sensory Language Students understand, make inferences and draw conclusions about how an author's sensory language creates imagery in literary text and provide evidence from text to support their understanding. Students are expected to analyze how the author's patterns of imagery, literary allusions, and conceits reveal theme, set tone, and create meaning in metaphors, passages, and literary works.	**Supporting Details:** Recognize a clear function of a part of an uncomplicated passage Make simple inferences about how details are used in passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Identify clear relationships between people, ideas, and so on in uncomplicated passages Understand relationships between people, ideas, and so on in uncomplicated passages Identify clear relationships between characters, ideas, and so on in more challenging literary narratives Understand the dynamics between people, ideas, and so on in more challenging passages **Meanings of Words:** Understand the implication of a familiar word or phrase and of simple descriptive language Use context to understand basic figurative language Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
8. Comprehension of Informational Text/Culture and History Students analyze, make inferences and draw conclusions about the author's purpose in cultural, historical, and contemporary contexts and provide evidence from the text to support their understanding. Students are expected to analyze the consistency and clarity of the expression of the controlling idea and the ways in which the organizational and rhetorical patterns of text support or confound the author's meaning or purpose.	
9. Comprehension of Informational Text/Expository Text Students analyze, make inferences and draw conclusions about expository text and provide evidence from text to support their understanding. Students are expected to: A. summarize a text in a manner that captures the author's viewpoint, its main ideas, and its elements without taking a position or expressing an opinion; B. explain how authors writing on the same issue reached different conclusions because of differences in assumptions, evidence, reasoning, and viewpoints; C. make and defend subtle inferences and complex conclusions about the ideas in text and their organizational patterns; and D. synthesize ideas and make logical connections (e.g., thematic links, author analysis) among multiple texts representing similar or different genres and technical sources and support those findings with textual evidence.	**Main Ideas and Author's Approach:** Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Recognize clear cause-effect relationships described within a single sentence in a passage
	Identify clear relationships between people, ideas, and so on in uncomplicated passages
	Identify clear cause-effect relationships in uncomplicated passages
	Order sequences of events in uncomplicated passages
	Understand relationships between people, ideas, and so on in uncomplicated passages
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
	Draw complex or subtle generalizations and conclusions about people, ideas, and so on, often by synthesizing information from different portions of the passage

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
10. Comprehension of Informational Text/Persuasive Text Students analyze, make inferences and draw conclusions about persuasive text and provide evidence from text to support their analysis. Students are expected to: A. evaluate the merits of an argument, action, or policy by analyzing the relationships (e.g., implication, necessity, sufficiency) among evidence, inferences, assumptions, and claims in text; and B. draw conclusions about the credibility of persuasive text by examining its implicit and stated assumptions about an issue as conveyed by the specific use of language.	**Main Ideas and Author's Approach:** Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in uncomplicated passages Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Infer the main idea or purpose of straightforward paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Infer the main idea or purpose of more challenging passages or their paragraphs **Supporting Details:** Locate basic facts (e.g., names, dates, events) clearly stated in a passage Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage Locate important details in uncomplicated passages Make simple inferences about how details are used in passages Locate important details in more challenging passages Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages Locate and interpret minor or subtly stated details in more challenging passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Recognize clear cause-effect relationships described within a single sentence in a passage Identify clear relationships between people, ideas, and so on in uncomplicated passages Identify clear cause-effect relationships in uncomplicated passages Order sequences of events in uncomplicated passages Understand relationships between people, ideas, and so on in uncomplicated passages

TABLE 1F

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
	Understand implied or subtly stated cause-effect relationships in uncomplicated passages
	Identify clear cause-effect relationships in more challenging passages
	Order sequences of events in more challenging passages
	Understand the dynamics between people, ideas, and so on in more challenging passages
	Understand implied or subtly stated cause-effect relationships in more challenging passages
	Meanings of Words:
	Understand the implication of a familiar word or phrase and of simple descriptive language
	Use context to understand basic figurative language
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages
	Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages
	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages
	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
	Generalizations and Conclusions:
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages
	Draw simple generalizations and conclusions using details that support the main points of more challenging passages
	Draw generalizations and conclusions about people, ideas, and so on in more challenging passages
	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
	Draw complex or subtle generalizations and conclusions about people, ideas, and so on, often by synthesizing information from different portions of the passage
11. Comprehension of Informational Text/Procedural Texts Students understand how to glean and use information in procedural texts and documents. Students are expected to: A. draw conclusions about how the patterns of organization and hierarchic structures support the understandability of text; and B. evaluate the structures of text (e.g., format, headers) for their clarity and organizational coherence and for the effectiveness of their graphic representations.	

▆ = Measured by the ACT English, Reading, and Writing tests

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT Reading **College Readiness Standards**
Reading	
12. Media Literacy Students use comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning. Students will continue to apply earlier standards with greater depth in increasingly more complex texts. Students are expected to: A. evaluate how messages presented in media reflect social and cultural views in ways different from traditional texts; B. evaluate the interactions of different techniques (e.g., layout, pictures, typeface in print media, images, text, sound in electronic journalism) used in multi-layered media; C. evaluate how one issue or event is represented across various media to understand the notions of bias, audience, and purpose; and D. evaluate changes in formality and tone across various media for different audiences and purposes.	

TEXAS English IV Essential Knowledge and Skills (Begins: Fall 2009)	ACT English and Writing College Readiness Standards
Writing	

13. Writing Process	**English** College Readiness Standards
Students use elements of the writing process (planning, drafting, revising, editing, and publishing) to compose text. Students are expected to:	**Topic Development in Terms of Purpose and Focus:**
	Identify the basic purpose or role of a specified phrase or sentence
A. plan a first draft by selecting the correct genre for conveying the intended meaning to multiple audiences, determining appropriate topics through a range of strategies (e.g., discussion, background reading, personal interests, interviews), and developing a thesis or controlling idea;	Delete a clause or sentence because it is obviously irrelevant to the essay
	Identify the central idea or main topic of a straightforward piece of writing
B. structure ideas in a sustained and persuasive way (e.g., using outlines, note taking, graphic organizers, lists) and develop drafts in timed and open-ended situations that include transitions and the rhetorical devices to convey meaning;	Determine relevancy when presented with a variety of sentence-level details
	Identify the focus of a simple essay, applying that knowledge to add a sentence that sharpens that focus or to determine if an essay has met a specified goal
	Delete material primarily because it disturbs the flow and development of the paragraph
C. revise drafts to clarify meaning and achieve specific rhetorical purposes, consistency of tone, and logical organization by rearranging the words, sentences, and paragraphs to employ tropes (e.g., metaphors, similes, analogies, hyperbole, understatement, rhetorical questions, irony), schemes (e.g., parallelism, antithesis, inverted word order, repetition, reversed structures), and by adding transitional words and phrases;	Add a sentence to accomplish a fairly straightforward purpose such as illustrating a given statement
	Apply an awareness of the focus and purpose of a fairly involved essay to determine the rhetorical effect and suitability of an existing phrase or sentence, or to determine the need to delete plausible but irrelevant material
D. edit drafts for grammar, mechanics, and spelling; and	Add a sentence to accomplish a subtle rhetorical purpose such as to emphasize, to add supporting detail, or to express meaning through connotation
E. revise final draft in response to feedback from peers and teacher and publish written work for appropriate audiences.	**Organization, Unity, and Coherence:**
	Use conjunctive adverbs or phrases to show time relationships in simple narrative essays (e.g., *then*, *this time*)
	Select the most logical place to add a sentence in a paragraph
	Use conjunctive adverbs or phrases to express straightforward logical relationships (e.g., *first*, *afterward*, *in response*)
	Decide the most logical place to add a sentence in an essay
	Add a sentence that introduces a simple paragraph
	Determine the need for conjunctive adverbs or phrases to create subtle logical connections between sentences (e.g., *therefore*, *however*, *in addition*)
	Rearrange the sentences in a fairly uncomplicated paragraph for the sake of logic
	Add a sentence to introduce or conclude the essay or to provide a transition between paragraphs when the essay is fairly straightforward
	Word Choice in Terms of Style, Tone, Clarity, and Economy:
	Revise sentences to correct awkward and confusing arrangements of sentence elements
	Revise vague nouns and pronouns that create obvious logic problems

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English and Writing **College Readiness Standards**
Writing	
	Delete obviously synonymous and wordy material in a sentence
	Revise expressions that deviate from the style of an essay
	Delete redundant material when information is repeated in different parts of speech (e.g., "alarmingly startled")
	Use the word or phrase most consistent with the style and tone of a fairly straightforward essay
	Determine the clearest and most logical conjunction to link clauses
	Revise a phrase that is redundant in terms of the meaning and logic of the entire sentence
	Identify and correct ambiguous pronoun references
	Use the word or phrase most appropriate in terms of the content of the sentence and tone of the essay
	Sentence Structure and Formation:
	Use conjunctions or punctuation to join simple clauses
	Revise shifts in verb tense between simple clauses in a sentence or between simple adjoining sentences
	Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences
	Decide the appropriate verb tense and voice by considering the meaning of the entire sentence
	Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers)
	Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems
	Maintain consistent verb tense and pronoun person on the basis of the preceding clause or sentence
	Use sentence-combining techniques, effectively avoiding problematic comma splices, run-on sentences, and sentence fragments, especially in sentences containing compound subjects or verbs
	Maintain a consistent and logical use of verb tense and pronoun person on the basis of information in the paragraph or essay as a whole
	Conventions of Usage:
	Solve such basic grammatical problems as how to form the past and past participle of irregular but commonly used verbs and how to form comparative and superlative adjectives
	Solve such grammatical problems as whether to use an adverb or adjective form, how to ensure straightforward subject-verb and pronoun-antecedent agreement, and which preposition to use in simple contexts

TEXAS English IV Essential Knowledge and Skills (Begins: Fall 2009)	ACT English and Writing College Readiness Standards
Writing	
	Recognize and use the appropriate word in frequently confused pairs such as *there* and *their*, *past* and *passed*, and *led* and *lead*
	Use idiomatically appropriate prepositions, especially in combination with verbs (e.g., *long for*, *appeal to*)
	Ensure that a verb agrees with its subject when there is some text between the two
	Ensure that a pronoun agrees with its antecedent when the two occur in separate clauses or sentences
	Identify the correct past and past participle forms of irregular and infrequently used verbs and form present-perfect verbs by using *have* rather than *of*
	Correctly use reflexive pronouns, the possessive pronouns *its* and *your*, and the relative pronouns *who* and *whom*
	Ensure that a verb agrees with its subject in unusual situations (e.g., when the subject-verb order is inverted or when the subject is an indefinite pronoun)
	Conventions of Punctuation:
	Delete commas that create basic sense problems (e.g., between verb and direct object)
	Provide appropriate punctuation in straightforward situations (e.g., items in a series)
	Delete commas that disturb the sentence flow (e.g., between modifier and modified element)
	Use commas to set off simple parenthetical phrases
	Delete unnecessary commas when an incorrect reading of the sentence suggests a pause that should be punctuated (e.g., between verb and direct object clause)
	Use punctuation to set off complex parenthetical phrases
	Recognize and delete unnecessary commas based on a careful reading of a complicated sentence (e.g., between the elements of a compound subject or compound verb joined by *and*)
	Use apostrophes to indicate simple possessive nouns
	Recognize inappropriate uses of colons and semicolons
	Use commas to set off a nonessential/nonrestrictive appositive or clause
	Writing College Readiness Standards
	Focusing on the Topic:
	Present a thesis that establishes focus on the topic
	Maintain a focus on discussion of the specific topic and issue in the prompt throughout the essay
	Maintain a clear focus on discussion of the specific topic and issue in the prompt throughout the essay
	Developing a Position:
	Show clear movement between general and specific ideas and examples

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English and Writing **College Readiness Standards**
Writing	
	Show effective movement between general and specific ideas and examples
	Organizing Ideas:
	Use some simple and obvious, but appropriate, transitional words and phrases
	Provide unity and coherence throughout the essay, sometimes with a logical progression of ideas
	Use relevant, though at times simple and obvious, transitional words and phrases to convey logical relationships between ideas
	Present a somewhat developed introduction and conclusion
	Provide unity and coherence throughout the essay, often with a logical progression of ideas
	Use relevant transitional words, phrases, and sentences to convey logical relationships between ideas
	Present a well-developed introduction and conclusion
	Using Language:
	Show competent use of language to communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding
	• using some precise and varied vocabulary
	• using several kinds of sentence structures to vary pace and to support meaning
	Show effective use of language to clearly communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors
	• using precise and varied vocabulary
	• using a variety of kinds of sentence structures to vary pace and to support meaning
14. Literary Texts Students write literary texts to express their ideas and feelings about real or imagined people, events, and ideas. Students are responsible for at least two forms of literary writing. Students are expected to: A. write an engaging story with a well-developed conflict and resolution, a clear theme, complex and non-stereotypical characters, a range of literary strategies (e.g., dialogue, suspense), devices to enhance the plot, and sensory details that define the mood or tone; B. write a poem that reflects an awareness of poetic conventions and traditions within different forms (e.g., sonnets, ballads, free verse); and C. write a script with an explicit or implicit theme, using a variety of literary techniques.	

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English and Writing **College Readiness Standards**
Writing	

15. Expository and Procedural Texts

Students write expository and procedural or work-related texts to communicate ideas and information to specific audiences for specific purposes. Students are expected to:

A. write an analytical essay of sufficient length that includes:
- i. effective introductory and concluding paragraphs and a variety of sentence structures;
- ii. rhetorical devices, and transitions between paragraphs;
- iii. a clear thesis statement or controlling idea;
- iv. a clear organizational schema for conveying ideas;
- v. relevant and substantial evidence and well-chosen details;
- vi. information on all relevant perspectives and consideration of the validity, reliability, and relevance of primary and secondary sources; and
- vii. an analysis of views and information that contradict the thesis statement and the evidence presented for it;

B. write procedural and work-related documents (e.g., résumés, proposals, college applications, operation manuals) that include:
- i. a clearly stated purpose combined with a well-supported viewpoint on the topic;
- ii. appropriate formatting structures (e.g., headings, graphics, white space);
- iii. relevant questions that engage readers and address their potential problems and misunderstandings;
- iv. accurate technical information in accessible language; and
- v. appropriate organizational structures supported by facts and details (documented if appropriate);

C. write an interpretation of an expository or a literary text that:
- i. advances a clear thesis statement;
- ii. addresses the writing skills for an analytical essay including references to and commentary on quotations from the text;
- iii. analyzes the aesthetic effects of an author's use of stylistic or rhetorical devices;
- iv. identifies and analyzes ambiguities, nuances, and complexities within the text; and
- v. anticipates and responds to readers' questions and contradictory information; and

D. produce a multimedia presentation (e.g., documentary, class newspaper, docudrama, infomercial, visual or textual parodies, theatrical production) with graphics, images, and sound that appeals to a specific audience and synthesizes information from multiple points of view.

TABLE 1F

TEXAS English IV Essential Knowledge and Skills (Begins: Fall 2009)	ACT English and Writing College Readiness Standards
Writing	

16. Persuasive Texts

Students write persuasive texts to influence the attitudes or actions of a specific audience on specific issues. Students are expected to write an argumentative essay (e.g., evaluative essays, proposals) to the appropriate audience that includes:

A. a clear thesis or position based on logical reasons with various forms of support (e.g., hard evidence, reason, common sense, cultural assumptions);

B. accurate and honest representation of divergent views (i.e., in the author's own words and not out of context);

C. an organizing structure appropriate to the purpose, audience, and context;

D. information on the complete range of relevant perspectives;

E. demonstrated consideration of the validity and reliability of all primary and secondary sources used;

F. language attentively crafted to move a disinterested or opposed audience, using specific rhetorical devices to back up assertions (e.g., appeals to logic, emotions, ethical beliefs); and

G. an awareness and anticipation of audience response that is reflected in different levels of formality, style, and tone.

Writing College Readiness Standards

Expressing Judgments:

Show understanding of the persuasive purpose of the task by taking a position on the issue in the prompt

Show some recognition of the complexity of the issue in the prompt by

- acknowledging counterarguments to the writer's position
- providing some response to counterarguments to the writer's position

Show clear understanding of the persuasive purpose of the task by taking a position on the specific issue in the prompt and offering a broad context for discussion

Show recognition of the complexity of the issue in the prompt by

- partially evaluating implications and/or complications of the issue, and/or
- posing and partially responding to counterarguments to the writer's position

Show clear understanding of the persuasive purpose of the task by taking a position on the specific issue in the prompt and offering a critical context for discussion

Show understanding of the complexity of the issue in the prompt by

- examining different perspectives, and/or
- evaluating implications or complications of the issue, and/or
- posing and fully discussing counterarguments to the writer's position

Focusing on the Topic:

Present a thesis that establishes focus on the topic

Present a thesis that establishes a focus on the writer's position on the issue

Present a critical thesis that clearly establishes the focus on the writer's position on the issue

Developing a Position:

Develop most ideas fully, using some specific and relevant reasons, details, and examples

Show clear movement between general and specific ideas and examples

Develop several ideas fully, using specific and relevant reasons, details, and examples

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English and Writing College Readiness Standards
Writing	
	Show effective movement between general and specific ideas and examples
	Organizing Ideas:
	Provide unity and coherence throughout the essay, sometimes with a logical progression of ideas
	Use relevant, though at times simple and obvious, transitional words and phrases to convey logical relationships between ideas
	Present a somewhat developed introduction and conclusion
	Provide unity and coherence throughout the essay, often with a logical progression of ideas
	Use relevant transitional words, phrases, and sentences to convey logical relationships between ideas
	Present a well-developed introduction and conclusion

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English and Writing **College Readiness Standards**
Oral and Written Conventions	
17. Conventions Students understand the function of and use the conventions of academic language when speaking and writing. Students will continue to apply earlier standards with greater complexity. Students are expected to: A. use and understand the function of different types of clauses and phrases (e.g., adjectival, noun, adverbial clauses and phrases); and B. use a variety of correctly structured sentences (e.g., compound, complex, compound-complex).	**English** College Readiness Standards **Sentence Structure and Formation:** Use conjunctions or punctuation to join simple clauses Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers) Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems Use sentence-combining techniques, effectively avoiding problematic comma splices, run-on sentences, and sentence fragments, especially in sentences containing compound subjects or verbs **Writing** College Readiness Standards **Using Language:** Show competent use of language to communicate ideas by • correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding • using some precise and varied vocabulary • using several kinds of sentence structures to vary pace and to support meaning Show effective use of language to clearly communicate ideas by • correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors • using precise and varied vocabulary • using a variety of kinds of sentence structures to vary pace and to support meaning
18. Handwriting, Capitalization, and Punctuation Students write legibly and use appropriate capitalization and punctuation conventions in their compositions. Students are expected to correctly and consistently use conventions of punctuation and capitalization.	**English** College Readiness Standards **Conventions of Punctuation:** Delete commas that create basic sense problems (e.g., between verb and direct object) Provide appropriate punctuation in straightforward situations (e.g., items in a series) Delete commas that disturb the sentence flow (e.g., between modifier and modified element) Use commas to set off simple parenthetical phrases Delete unnecessary commas when an incorrect reading of the sentence suggests a pause that should be punctuated (e.g., between verb and direct object clause)

     = Measured by the ACT English, Reading, and Writing tests

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT English and Writing **College Readiness Standards**
Oral and Written Conventions	
	Use punctuation to set off complex parenthetical phrases
	Recognize and delete unnecessary commas based on a careful reading of a complicated sentence (e.g., between the elements of a compound subject or compound verb joined by *and*)
	Use apostrophes to indicate simple possessive nouns
	Recognize inappropriate uses of colons and semicolons
	Use commas to set off a nonessential/nonrestrictive appositive or clause
	Writing College Readiness Standards
	Using Language:
	Show competent use of language to communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding
	• using some precise and varied vocabulary
	• using several kinds of sentence structures to vary pace and to support meaning
	Show effective use of language to clearly communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors
	• using precise and varied vocabulary
	• using a variety of kinds of sentence structures to vary pace and to support meaning
19. Spelling <mark>Students spell correctly. Students are expected to spell correctly, including using various resources to determine and check correct spellings</mark>.	**Writing** College Readiness Standards
	Using Language:
	Show competent use of language to communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding
	• using some precise and varied vocabulary
	• using several kinds of sentence structures to vary pace and to support meaning
	Show effective use of language to clearly communicate ideas by
	• correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors
	• using precise and varied vocabulary
	• using a variety of kinds of sentence structures to vary pace and to support meaning

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT **College Readiness Standards**
Research	
20. Research Plan Students ask open-ended research questions and develop a plan for answering them. Students are expected to: A. brainstorm, consult with others, decide upon a topic, and formulate a major research question to address the major research topic; and B. formulate a plan for engaging in in-depth research on a complex, multi-faceted topic.	
21. Gathering Sources Students determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather. Students are expected to: A. follow the research plan to gather evidence from experts on the topic and texts written for informed audiences in the field, distinguishing between reliable and unreliable sources and avoiding over-reliance on one source; B. systematically organize relevant and accurate information to support central ideas, concepts, and themes, outline ideas into conceptual maps/timelines, and separate factual data from complex inferences; and C. paraphrase, summarize, quote, and accurately cite all researched information according to a standard format (e.g., author, title, page number), differentiating among primary, secondary, and other sources.	
22. Synthesizing Information Students clarify research questions and evaluate and synthesize collected information. Students are expected to: A. modify the major research question as necessary to refocus the research plan; B. differentiate between theories and the evidence that supports them and determine whether the evidence found is weak or strong and how that evidence helps create a cogent argument; and C. critique the research process at each step to implement changes as the need occurs and is identified.	

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT **College Readiness Standards**
Research	
23. Organizing and Presenting Ideas Students organize and present their ideas and information according to the purpose of the research and their audience. Students are expected to synthesize the research into an extended written or oral presentation that: A. provides an analysis that supports and develops personal opinions, as opposed to simply restating existing information; B. uses a variety of formats and rhetorical strategies to argue for the thesis; C. develops an argument that incorporates the complexities of and discrepancies in information from multiple sources and perspectives while anticipating and refuting counter-arguments; D. uses a style manual (e.g., *Modern Language Association*, *Chicago Manual of Style*) to document sources and format written materials; and E. is of sufficient length and complexity to address the topic.	

TEXAS English IV **Essential Knowledge and Skills** (Begins: Fall 2009)	ACT **College Readiness Standards**
Listening and Speaking	
24. Listening Students will use comprehension skills to listen attentively to others in formal and informal settings. Students will continue to apply earlier standards with greater complexity. Students are expected to: A. listen responsively to a speaker by framing inquiries that reflect an understanding of the content and by identifying the positions taken and the evidence in support of those positions; and B. assess the persuasiveness of a presentation based on content, diction, rhetorical strategies, and delivery.	
25. Speaking Students speak clearly and to the point, using the conventions of language. Students will continue to apply earlier standards with greater complexity. Students are expected to formulate sound arguments by using elements of classical speeches (e.g., introduction, first and second transitions, body, and conclusion), the art of persuasion, rhetorical devices, eye contact, speaking rate (e.g., pauses for effect), volume, enunciation, purposeful gestures, and conventions of language to communicate ideas effectively.	
26. Teamwork Students work productively with others in teams. Students will continue to apply earlier standards with greater complexity. Students are expected to participate productively in teams, offering ideas or judgments that are purposeful in moving the team towards goals, asking relevant and insightful questions, tolerating a range of positions and ambiguity in decision-making, and evaluating the work of the group based on agreed-upon criteria.	

SUPPLEMENT

TABLES 2A–2I:

MATHEMATICS

TABLE 2A

TEXAS Grade 8 Mathematics Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
8.1. Number, operation, and quantitative reasoning. The student understands that different forms of numbers are appropriate for different situations. The student is expected to:	
A. compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals;	**Numbers: Concepts & Properties:** Identify a digit's place value Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor Order fractions
B. select and use appropriate forms of rational numbers to solve real-life problems including those involving proportional relationships;	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) **Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
C. approximate (mentally and with calculators) the value of irrational numbers as they arise from problem situations (such as π, $\sqrt{2}$); and	**Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor Work with squares and square roots of numbers
D. express numbers in scientific notation, including negative exponents, in appropriate problem situations.	**Numbers: Concepts & Properties:** Work with squares and square roots of numbers

TABLE 2A

TEXAS Grade 8 Mathematics Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
8.2. Number, operation, and quantitative reasoning. The student selects and uses appropriate operations to solve problems and justify solutions. The student is expected to:	
A. select appropriate operations to solve problems involving rational numbers and justify the selections;	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)
B. use appropriate operations to solve problems involving rational numbers in problem situations;	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)
C. evaluate a solution for reasonableness; and	
D. use multiplication by a constant factor (unit rate) to represent proportional relationships.	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Perform common conversions (e.g., inches to feet or hours to minutes) Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)

TABLE 2A

TEXAS Grade 8 Mathematics Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
	Expressions, Equations, & Inequalities:
	Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$)
	Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals
	Solve one-step equations having integer or decimal answers
	Perform straightforward word-to-symbol translations
	Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
8.3. Patterns, relationships, and algebraic thinking. The student identifies proportional or non-proportional linear relationships in problem situations and solves problems. The student is expected to:	
A. compare and contrast proportional and non-proportional linear relationships; and	**Numbers: Concepts & Properties:**
	Recognize equivalent fractions and fractions in lowest terms
	Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor
	Find and use the least common multiple
B. estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates.	**Basic Operations & Applications:**
	Perform common conversions (e.g., inches to feet or hours to minutes)
	Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average
	Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)
	Expressions, Equations, & Inequalities:
	Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$)
	Perform straightforward word-to-symbol translations
	Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
8.4. Patterns, relationships, and algebraic thinking. The student makes connections among various representations of a numerical relationship. The student is expected to generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description).	
[No statement at this level]	

TABLE 2A

TEXAS Grade 8 Mathematics Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
8.5. Patterns, relationships, and algebraic thinking. The student uses graphs, tables, and algebraic representations to make predictions and solve problems. The student is expected to:	
A. predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations; and	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) **Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs **Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals Solve one-step equations having integer or decimal answers Combine like terms (e.g., $2x + 5x$) Add and subtract simple algebraic expressions Solve routine first-degree equations Perform straightforward word-to-symbol translations Solve real-world problems using first-degree equations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)

= Measured by the EXPLORE Mathematics Test

TABLE 2A

TEXAS Grade 8 Mathematics Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
B. find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change).	**Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor **Expressions, Equations, & Inequalities:** Substitute whole numbers for unknown quantities to evaluate expressions Evaluate algebraic expressions by substituting integers for unknown quantities
8.6. Geometry and spatial reasoning. The student uses transformational geometry to develop spatial sense. The student is expected to:	
A. generate similar figures using dilations including enlargements and reductions; and	
B. graph dilations, reflections, and translations on a coordinate plane.	
8.7. Geometry and spatial reasoning. The student uses geometry to model and describe the physical world. The student is expected to:	
A. draw three-dimensional figures from different perspectives;	
B. use geometric concepts and properties to solve problems in fields such as art and architecture;	**Properties of Plane Figures:** Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) Use several angle properties to find an unknown angle measure **Measurement:** Estimate or calculate the length of a line segment based on other lengths given on a geometric figure Compute the perimeter of polygons when all side lengths are given Compute the area of rectangles when whole number dimensions are given Compute the area and perimeter of triangles and rectangles in simple problems Use geometric formulas when all necessary information is given Compute the area of triangles and rectangles when one or more additional simple steps are required Compute the area and circumference of circles after identifying necessary information
C. use pictures or models to demonstrate the Pythagorean Theorem; and	
D. locate and name points on a coordinate plane using ordered pairs of rational numbers.	**Graphical Representations:** Identify the location of a point with a positive coordinate on the number line Locate points on the number line and in the first quadrant Locate points in the coordinate plane

Texas Grade 8 Mathematics Essential Knowledge and Skills

= Measured by the EXPLORE Mathematics Test

TEXAS Grade 8 Mathematics Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
8.8. Measurement. The student uses procedures to determine measures of three-dimensional figures. The student is expected to:	
A. find lateral and total surface area of prisms, pyramids, and cylinders using concrete models and nets (two-dimensional models);	**Measurement:** Estimate or calculate the length of a line segment based on other lengths given on a geometric figure Compute the area of rectangles when whole number dimensions are given Compute the area and perimeter of triangles and rectangles in simple problems Compute the area of triangles and rectangles when one or more additional simple steps are required
B. connect models of prisms, cylinders, pyramids, spheres, and cones to formulas for volume of these objects; and	**Measurement:** Use geometric formulas when all necessary information is given
C. estimate measurements and use formulas to solve application problems involving lateral and total surface area and volume.	**Measurement:** Estimate or calculate the length of a line segment based on other lengths given on a geometric figure Compute the perimeter of polygons when all side lengths are given Compute the area of rectangles when whole number dimensions are given Compute the area and perimeter of triangles and rectangles in simple problems Use geometric formulas when all necessary information is given Compute the area of triangles and rectangles when one or more additional simple steps are required Compute the area and circumference of circles after identifying necessary information
8.9. Measurement. The student uses indirect measurement to solve problems. The student is expected to:	
A. use the Pythagorean Theorem to solve real-life problems; and	
B. use proportional relationships in similar two-dimensional figures or similar three-dimensional figures to find missing measurements.	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) **Expressions, Equations, & Inequalities:**

TEXAS Grade 8 Mathematics Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
	Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$)
	Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals
	Solve one-step equations having integer or decimal answers
	Solve routine first-degree equations
	Perform straightforward word-to-symbol translations
	Solve real-world problems using first-degree equations
	Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
	Measurement:
	Estimate or calculate the length of a line segment based on other lengths given on a geometric figure
	Compute the perimeter of polygons when all side lengths are given
	Compute the area of rectangles when whole number dimensions are given
	Compute the area and perimeter of triangles and rectangles in simple problems
	Use geometric formulas when all necessary information is given
	Compute the area of triangles and rectangles when one or more additional simple steps are required
	Compute the area and circumference of circles after identifying necessary information
8.10. Measurement. The student describes how changes in dimensions affect linear, area, and volume measures. The student is expected to:	
A. describe the resulting effects on perimeter and area when dimensions of a shape are changed proportionally; and	
B. describe the resulting effect on volume when dimensions of a solid are changed proportionally.	
8.11. Probability and statistics. The student applies concepts of theoretical and experimental probability to make predictions. The student is expected to:	
A. find the probabilities of dependent and independent events;	**Probability, Statistics, & Data Analysis:**
	Use the relationship between the probability of an event and the probability of its complement
	Determine the probability of a simple event
	Compute straightforward probabilities for common situations

TEXAS Grade 8 Mathematics Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
B. use theoretical probabilities and experimental results to make predictions and decisions; and	**Probability, Statistics, & Data Analysis:** Use the relationship between the probability of an event and the probability of its complement Determine the probability of a simple event Compute straightforward probabilities for common situations
C. select and use different models to simulate an event.	**Probability, Statistics, & Data Analysis:** Use the relationship between the probability of an event and the probability of its complement Determine the probability of a simple event Compute straightforward probabilities for common situations
8.12. Probability and statistics. The student uses statistical procedures to describe data. The student is expected to:	
A. select the appropriate measure of central tendency or range to describe a set of data and justify the choice for a particular situation;	**Basic Operations & Applications:** Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average **Probability, Statistics, & Data Analysis:** Calculate the average of a list of positive whole numbers Calculate the average of a list of numbers Calculate the average, given the number of data values and the sum of the data values Calculate the missing data value, given the average and all data values but one Calculate the average, given the frequency counts of all the data values
B. draw conclusions and make predictions by analyzing trends in scatterplots; and	**Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs
C. select and use an appropriate representation for presenting and displaying relationships among collected data, including line plots, line graphs, stem and leaf plots, circle graphs, bar graphs, box and whisker plots, histograms, and Venn diagrams, with and without the use of technology.	**Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs
8.13. Probability and statistics. The student evaluates predictions and conclusions based on statistical data. The student is expected to:	
A. evaluate methods of sampling to determine validity of an inference made from a set of data; and	

= Measured by the EXPLORE Mathematics Test

TABLE 2A

TEXAS Grade 8 Mathematics Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
B. recognize misuses of graphical or numerical information and evaluate predictions and conclusions based on data analysis.	
8.14. Underlying processes and mathematical tools. The student applies Grade 8 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to:	
A. identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)
B. use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;	**Basic Operations & Applications:** Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)
C. select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and	**Basic Operations & Applications:** Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)
D. select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)

= Measured by the EXPLORE Mathematics Test

TABLE 2A

TEXAS Grade 8 Mathematics Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
8.15. Underlying processes and mathematical tools. The student communicates about Grade 8 mathematics through informal and mathematical language, representations, and models. The student is expected to:	
A. communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models; and	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) **Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs **Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Solve one-step equations having integer or decimal answers Solve routine first-degree equations Perform straightforward word-to-symbol translations Solve real-world problems using first-degree equations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
B. evaluate the effectiveness of different representations to communicate ideas.	
8.16. Underlying processes and mathematical tools. The student uses logical reasoning to make conjectures and verify conclusions. The student is expected to:	
A. make conjectures from patterns or sets of examples and nonexamples; and	**Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor

☐ = Measured by the EXPLORE Mathematics Test

TABLE 2A

TEXAS Grade 8 Mathematics Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
B. validate his/her conclusions using mathematical properties and relationships.	

TABLE 2B

TEXAS Algebra I Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
A.1. Foundations for functions. The student understands that a function represents a dependence of one quantity on another and can be described in a variety of ways. The student is expected to:	
A. describe independent and dependent quantities in functional relationships;	
B. gather and record data and use data sets to determine functional relationships between quantities;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs
C. describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations;	**Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Combine like terms (e.g., $2x + 5x$) Add and subtract simple algebraic expressions Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
D. represent relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations, and inequalities; and	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs **Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Combine like terms (e.g., $2x + 5x$) Add and subtract simple algebraic expressions Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
E. interpret and make decisions, predictions, and critical judgments from functional relationships.	
A.2. Foundations for functions. The student uses the properties and attributes of functions. The student is expected to:	
A. identify and sketch the general forms of linear ($y = x$) and quadratic ($y = x^2$) parent functions;	**Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane

TEXAS Algebra I Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
B. identify mathematical domains and ranges and determine reasonable domain and range values for given situations, both continuous and discrete;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs
C. interpret situations in terms of given graphs or creates situations that fit given graphs; and	
D. collect and organize data, make and interpret scatterplots (including recognizing positive, negative, or no correlation for data approximating linear situations), and model, predict, and make decisions and critical judgments in problem situations.	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs
A.3. Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations. The student is expected to:	
A. use symbols to represent unknowns and variables; and	**Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Combine like terms (e.g., $2x + 5x$) Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
B. look for patterns and represent generalizations algebraically.	**Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor **Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Combine like terms (e.g., $2x + 5x$) Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)

TABLE 2B

TEXAS Algebra I Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
A.4. Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to:	
A. find specific function values, simplify polynomial expressions, transform and solve equations, and factor as necessary in problem situations;	**Expressions, Equations, & Inequalities:** Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals Substitute whole numbers for unknown quantities to evaluate expressions Solve one-step equations having integer or decimal answers Combine like terms (e.g., $2x + 5x$) Evaluate algebraic expressions by substituting integers for unknown quantities Add and subtract simple algebraic expressions Solve routine first-degree equations Multiply two binomials Solve real-world problems using first-degree equations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Identify solutions to simple quadratic equations Add, subtract, and multiply polynomials
B. use the commutative, associative, and distributive properties to simplify algebraic expressions; and	**Expressions, Equations, & Inequalities:** Combine like terms (e.g., $2x + 5x$) Add and subtract simple algebraic expressions
C. connect equation notation with function notation, such as $y = x + 1$ and $f(x) = x + 1$.	
A.5. Linear functions. The student understands that linear functions can be represented in different ways and translates among their various representations. The student is expected to:	
A. determine whether or not given situations can be represented by linear functions;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs **Expressions, Equations, & Inequalities:** Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
B. determine the domain and range for linear functions in given situations; and	

TABLE 2B

TEXAS Algebra I Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
C. use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions.	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs **Expressions, Equations, & Inequalities:** Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
A.6. Linear functions. The student understands the meaning of the slope and intercepts of the graphs of linear functions and zeros of linear functions and interprets and describes the effects of changes in parameters of linear functions in real-world and mathematical situations. The student is expected to:	
A. develop the concept of slope as rate of change and determine slopes from graphs, tables, and algebraic representations;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs **Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane
B. interpret the meaning of slope and intercepts in situations using data, symbolic representations, or graphs;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) **Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane
C. investigate, describe, and predict the effects of changes in m and b on the graph of $y = mx + b$;	**Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane

TEXAS Algebra I Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
D. graph and <mark>write equations of lines given characteristics such as two points, a point and a slope, or a slope and y-intercept;</mark>	**Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
E. <mark>determine the intercepts of the graphs of linear functions and zeros of linear functions from graphs, tables, and algebraic representations;</mark>	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs **Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane
F. <mark>interpret and predict the effects of changing slope and y–intercept in applied situations; and</mark>	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs **Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane
G. <mark>relate direct variation to linear functions and solve problems involving proportional change.</mark>	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) **Expressions, Equations, & Inequalities:** Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)

TEXAS Algebra I Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
A.7. Linear functions. The student formulates equations and inequalities based on linear functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. The student is expected to:	
A. analyze situations involving linear functions and formulate linear equations or inequalities to solve problems;	**Expressions, Equations, & Inequalities:** Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
B. investigate methods for solving linear equations and inequalities using concrete models, graphs, and the properties of equality, select a method, and solve the equations and inequalities; and	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs **Expressions, Equations, & Inequalities:** Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals Solve one-step equations having integer or decimal answers Solve routine first-degree equations Solve real-world problems using first-degree equations
C. interpret and determine the reasonableness of solutions to linear equations and inequalities.	
A.8. Linear functions. The student formulates systems of linear equations from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. The student is expected to:	
A. analyze situations and formulate systems of linear equations in two unknowns to solve problems;	
B. solve systems of linear equations using concrete models, graphs, tables, and algebraic methods; and	
C. interpret and determine the reasonableness of solutions to systems of linear equations.	
A.9. Quadratic and other nonlinear functions. The student understands that the graphs of quadratic functions are affected by the parameters of the function and can interpret and describe the effects of changes in the parameters of quadratic functions. The student is expected to:	
A. determine the domain and range for quadratic functions in given situations;	
B. investigate, describe, and predict the effects of changes in a on the graph of $y = ax^2 + c$;	
C. investigate, describe, and predict the effects of changes in c on the graph of $y = ax^2 + c$; and	
D. analyze graphs of quadratic functions and draw conclusions.	

TABLE 2B

TEXAS Algebra I Essential Knowledge and Skills	EXPLORE Mathematics College Readiness Standards
A.10. Quadratic and other nonlinear functions. The student understands there is more than one way to solve a quadratic equation and solves them using appropriate methods. The student is expected to:	
A. solve quadratic equations using concrete models, tables, graphs, and algebraic methods; and	
B. make connections among the solutions (roots) of quadratic equations, the zeros of their related functions, and the horizontal intercepts (x–intercepts) of the graph of the function.	
A.11. Quadratic and other nonlinear functions. The student understands there are situations modeled by functions that are neither linear nor quadratic and models the situations. The student is expected to:	
A. use patterns to generate the laws of exponents and apply them in problem-solving situations;	
B. analyze data and represent situations involving inverse variation using concrete models, tables, graphs, or algebraic methods; and	
C. analyze data and represent situations involving exponential growth and decay using concrete models, tables, graphs, or algebraic methods.	

TABLE 2C

TEXAS Algebra I Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
A.1. Foundations for functions. The student understands that a function represents a dependence of one quantity on another and can be described in a variety of ways. The student is expected to:	
A. describe independent and dependent quantities in functional relationships;	
B. gather and record data and use data sets to determine functional relationships between quantities;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs
C. describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations;	**Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Combine like terms (e.g., $2x + 5x$) Add and subtract simple algebraic expressions Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Add, subtract, and multiply polynomials Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings
D. represent relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations, and inequalities; and	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Combine like terms (e.g., $2x + 5x$) Add and subtract simple algebraic expressions Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Add, subtract, and multiply polynomials Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings

TABLE 2C

TEXAS Algebra I Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
E. interpret and make decisions, predictions, and critical judgments from functional relationships.	
A.2. Foundations for functions. The student uses the properties and attributes of functions. The student is expected to:	
A. identify and sketch the general forms of linear ($y = x$) and quadratic ($y = x^2$) parent functions;	**Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane Exhibit knowledge of slope Determine the slope of a line from points or equations Match linear graphs with their equations Interpret and use information from graphs in the coordinate plane Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)
B. identify mathematical domains and ranges and determine reasonable domain and range values for given situations, both continuous and discrete;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs
C. interpret situations in terms of given graphs or creates situations that fit given graphs; and	
D. collect and organize data, make and interpret scatterplots (including recognizing positive, negative, or no correlation for data approximating linear situations), and model, predict, and make decisions and critical judgments in problem situations.	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs

Texas Algebra I Essential Knowledge and Skills   S-144   ⬜ = Measured by the PLAN Mathematics Test

TABLE 2C

TEXAS Algebra I Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
A.3. Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations. The student is expected to:	
A. use symbols to represent unknowns and variables; and	**Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Combine like terms (e.g., $2x + 5x$) Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings
B. look for patterns and represent generalizations algebraically.	**Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor **Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Combine like terms (e.g., $2x + 5x$) Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings

TEXAS Algebra I Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
A.4. Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to:	
A. find specific function values, simplify polynomial expressions, transform and solve equations, and factor as necessary in problem situations;	**Expressions, Equations, & Inequalities:** Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals Substitute whole numbers for unknown quantities to evaluate expressions Solve one-step equations having integer or decimal answers Combine like terms (e.g., $2x + 5x$) Evaluate algebraic expressions by substituting integers for unknown quantities Add and subtract simple algebraic expressions Solve routine first-degree equations Multiply two binomials Solve real-world problems using first-degree equations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Identify solutions to simple quadratic equations Add, subtract, and multiply polynomials Factor simple quadratics (e.g., the difference of squares and perfect square trinomials) Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Solve quadratic equations
B. use the commutative, associative, and distributive properties to simplify algebraic expressions; and	**Expressions, Equations, & Inequalities:** Combine like terms (e.g., $2x + 5x$) Add and subtract simple algebraic expressions Multiply two binomials Add, subtract, and multiply polynomials Manipulate expressions and equations
C. connect equation notation with function notation, such as $y = x + 1$ and $f(x) = x + 1$.	

TABLE 2C

TEXAS Algebra I Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
A.5. Linear functions. The student understands that linear functions can be represented in different ways and translates among their various representations. The student is expected to:	
A. determine whether or not given situations can be represented by linear functions;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings
B. determine the domain and range for linear functions in given situations; and	
C. use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions.	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings

TABLE 2C

TEXAS Algebra I Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
A.6. Linear functions. The student understands the meaning of the slope and intercepts of the graphs of linear functions and zeros of linear functions and interprets and describes the effects of changes in parameters of linear functions in real-world and mathematical situations. The student is expected to:	
A. develop the concept of slope as rate of change and determine slopes from graphs, tables, and algebraic representations;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane Exhibit knowledge of slope Determine the slope of a line from points or equations Match linear graphs with their equations Interpret and use information from graphs in the coordinate plane
B. interpret the meaning of slope and intercepts in situations using data, symbolic representations, or graphs;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings **Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane Exhibit knowledge of slope Determine the slope of a line from points or equations Match linear graphs with their equations Interpret and use information from graphs in the coordinate plane Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point

Texas Algebra I Essential Knowledge and Skills   S-148   ▢ = Measured by the PLAN Mathematics Test

TEXAS Algebra I Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
C. investigate, <mark>describe, and predict the effects of changes in *m* and *b* on the graph of</mark> $y = mx + b$;	**Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane Exhibit knowledge of slope Determine the slope of a line from points or equations Match linear graphs with their equations Interpret and use information from graphs in the coordinate plane Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point
D. graph and <mark>write equations of lines given characteristics such as two points, a point and a slope, or a slope and *y*-intercept;</mark>	**Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings
E. <mark>determine the intercepts of the graphs of linear functions and zeros of linear functions from graphs, tables, and algebraic representations;</mark>	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane Exhibit knowledge of slope
F. <mark>interpret and predict the effects of changing slope and *y*–intercept in applied situations; and</mark>	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane Exhibit knowledge of slope Determine the slope of a line from points or equations Match linear graphs with their equations Interpret and use information from graphs in the coordinate plane Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point

TABLE 2C

TEXAS Algebra I Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
G. relate direct variation to linear functions and solve problems involving proportional change.	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) Solve word problems containing several rates, proportions, or percentages **Expressions, Equations, & Inequalities:** Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings
A.7. Linear functions. The student formulates equations and inequalities based on linear functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. The student is expected to:	
A. analyze situations involving linear functions and formulate linear equations or inequalities to solve problems;	**Expressions, Equations, & Inequalities:** Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings

TEXAS Algebra I Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
B. investigate methods for <mark>solving linear equations and inequalities using</mark> concrete models, <mark>graphs, and the properties of equality, select a method, and solve the equations and inequalities; and</mark>	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals Solve one-step equations having integer or decimal answers Solve routine first-degree equations Solve real-world problems using first-degree equations Solve first-degree inequalities that do not require reversing the inequality sign Solve linear inequalities that require reversing the inequality sign
C. <mark>interpret and determine the reasonableness of solutions to linear equations and inequalities.</mark>	**Expressions, Equations, & Inequalities:** Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals Solve one-step equations having integer or decimal answers Solve routine first-degree equations Solve real-world problems using first-degree equations Solve first-degree inequalities that do not require reversing the inequality sign Solve linear inequalities that require reversing the inequality sign

TABLE 2C

TEXAS Algebra I Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
A.8. Linear functions. The student formulates systems of linear equations from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. The student is expected to:	
A. analyze situations and formulate systems of linear equations in two unknowns to solve problems;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Find solutions to systems of linear equations
B. solve systems of linear equations using concrete models, graphs, tables, and algebraic methods; and	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Find solutions to systems of linear equations **Graphical Representations:** Interpret and use information from graphs in the coordinate plane
C. interpret and determine the reasonableness of solutions to systems of linear equations.	**Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Find solutions to systems of linear equations

TABLE 2C

TEXAS Algebra I Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
A.9. Quadratic and other nonlinear functions. The student understands that the graphs of quadratic functions are affected by the parameters of the function and can interpret and describe the effects of changes in the parameters of quadratic functions. The student is expected to:	
A. determine the domain and range for quadratic functions in given situations;	
B. investigate, describe, and predict the effects of changes in a on the graph of $y = ax^2 + c$;	**Graphical Representations:** Interpret and use information from graphs in the coordinate plane Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)†
C. investigate, describe, and predict the effects of changes in c on the graph of $y = ax^2 + c$; and	**Graphical Representations:** Interpret and use information from graphs in the coordinate plane Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)†
D. analyze graphs of quadratic functions and draw conclusions.	**Graphical Representations:** Interpret and use information from graphs in the coordinate plane Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)†
A.10. Quadratic and other nonlinear functions. The student understands there is more than one way to solve a quadratic equation and solves them using appropriate methods. The student is expected to:	
A. solve quadratic equations using concrete models, tables, graphs, and algebraic methods; and	**Probability, Statistics, & Data Analysis:** Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Identify solutions to simple quadratic equations Factor simple quadratics (e.g., the difference of squares and perfect square trinomials) **Graphical Representations:** Interpret and use information from graphs in the coordinate plane
B. make connections among the solutions (roots) of quadratic equations, the zeros of their related functions, and the horizontal intercepts (x–intercepts) of the graph of the function.	
A.11. Quadratic and other nonlinear functions. The student understands there are situations modeled by functions that are neither linear nor quadratic and models the situations. The student is expected to:	
A. use patterns to generate the laws of exponents and apply them in problem-solving situations;	**Numbers: Concepts & Properties:** Work problems involving positive integer exponents

TEXAS Algebra I Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
B. <mark>analyze data and represent situations involving inverse variation using</mark> concrete models, <mark>tables, graphs, or algebraic methods; and</mark>	**Probability, Statistics, & Data Analysis:** Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings
C. <mark>analyze data and represent situations involving exponential growth and decay using</mark> concrete <mark>models, tables, graphs, or algebraic methods.</mark>	**Probability, Statistics, & Data Analysis:** Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings

TABLE 2D

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
A.1. Foundations for functions. The student understands that a function represents a dependence of one quantity on another and can be described in a variety of ways. The student is expected to:	
A. describe independent and dependent quantities in functional relationships;	
B. gather and record data and use data sets to determine functional relationships between quantities;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs
C. describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations;	**Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Combine like terms (e.g., $2x + 5x$) Add and subtract simple algebraic expressions Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Add, subtract, and multiply polynomials Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
D. represent relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations, and inequalities; and	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Combine like terms (e.g., $2x + 5x$) Add and subtract simple algebraic expressions

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
	Add, subtract, and multiply polynomials
	Manipulate expressions and equations
	Write expressions, equations, and inequalities for common algebra settings
	Write expressions that require planning and/or manipulating to accurately model a situation
	Write equations and inequalities that require planning, manipulating, and/or solving
E. interpret and make decisions, predictions, and critical judgments from functional relationships.	**Expressions, Equations, & Inequalities:**
	Write expressions that require planning and/or manipulating to accurately model a situation
	Write equations and inequalities that require planning, manipulating, and/or solving
A.2. Foundations for functions. The student uses the properties and attributes of functions. The student is expected to:	
A. identify and sketch the general forms of linear ($y = x$) and quadratic ($y = x^2$) parent functions;	**Graphical Representations:**
	Locate points on the number line and in the first quadrant
	Locate points in the coordinate plane
	Exhibit knowledge of slope
	Determine the slope of a line from points or equations
	Match linear graphs with their equations
	Interpret and use information from graphs in the coordinate plane
	Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
B. identify mathematical domains and ranges and determine reasonable domain and range values for given situations, both continuous and discrete;	**Probability, Statistics, & Data Analysis:**
	Read tables and graphs
	Perform computations on data from tables and graphs
	Translate from one representation of data to another (e.g., a bar graph to a circle graph)
	Manipulate data from tables and graphs
	Interpret and use information from figures, tables, and graphs
	Analyze and draw conclusions based on information from figures, tables, and graphs

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
C. interpret situations in terms of given graphs or creates situations that fit given graphs; and	**Probability, Statistics, & Data Analysis:** Analyze and draw conclusions based on information from figures, tables, and graphs **Graphical Representations:** Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
D. collect and organize data, make and interpret scatterplots (including recognizing positive, negative, or no correlation for data approximating linear situations), and model, predict, and make decisions and critical judgments in problem situations.	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs
A.3. Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations. The student is expected to:	
A. use symbols to represent unknowns and variables; and	**Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Combine like terms (e.g., $2x + 5x$) Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
B. look for patterns and represent generalizations algebraically.	**Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers **Expressions, Equations, & Inequalities:** Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Combine like terms (e.g., $2x + 5x$) Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving

TABLE 2D

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
A.4. Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to:	
A. find specific function values, simplify polynomial expressions, transform and solve equations, and factor as necessary in problem situations;	**Expressions, Equations, & Inequalities:** Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals Substitute whole numbers for unknown quantities to evaluate expressions Solve one-step equations having integer or decimal answers Combine like terms (e.g., $2x + 5x$) Evaluate algebraic expressions by substituting integers for unknown quantities Add and subtract simple algebraic expressions Solve routine first-degree equations Multiply two binomials Solve real-world problems using first-degree equations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Identify solutions to simple quadratic equations Add, subtract, and multiply polynomials Factor simple quadratics (e.g., the difference of squares and perfect square trinomials) Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Solve quadratic equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
B. use the commutative, associative, and distributive properties to simplify algebraic expressions; and	**Expressions, Equations, & Inequalities:** Combine like terms (e.g., $2x + 5x$) Add and subtract simple algebraic expressions Multiply two binomials Add, subtract, and multiply polynomials Manipulate expressions and equations Write equations and inequalities that require planning, manipulating, and/or solving
C. connect equation notation with function notation, such as $y = x + 1$ and $f(x) = x + 1$.	

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
A.5. Linear functions. The student understands that linear functions can be represented in different ways and translates among their various representations. The student is expected to:	
A. determine whether or not given situations can be represented by linear functions;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Write equations and inequalities that require planning, manipulating, and/or solving
B. determine the domain and range for linear functions in given situations; and	
C. use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions.	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving

TABLE 2D

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
A.6. Linear functions. The student understands the meaning of the slope and intercepts of the graphs of linear functions and zeros of linear functions and interprets and describes the effects of changes in parameters of linear functions in real-world and mathematical situations. The student is expected to:	
A. develop the concept of slope as rate of change and determine slopes from graphs, tables, and algebraic representations;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane Exhibit knowledge of slope Determine the slope of a line from points or equations Match linear graphs with their equations Interpret and use information from graphs in the coordinate plane Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) Match number line graphs with solution sets of simple quadratic inequalities
B. interpret the meaning of slope and intercepts in situations using data, symbolic representations, or graphs;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation

TABLE 2D

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Write equations and inequalities that require planning, manipulating, and/or solving
	Graphical Representations:
	Locate points on the number line and in the first quadrant
	Locate points in the coordinate plane
	Exhibit knowledge of slope
	Determine the slope of a line from points or equations
	Match linear graphs with their equations
	Interpret and use information from graphs in the coordinate plane
	Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane
C. investigate, <mark>describe, and predict the effects of changes in m and b on the graph of $y = mx + b$;</mark>	**Graphical Representations:**
	Locate points on the number line and in the first quadrant
	Locate points in the coordinate plane
	Exhibit knowledge of slope
	Determine the slope of a line from points or equations
	Match linear graphs with their equations
	Interpret and use information from graphs in the coordinate plane
	Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane
D. graph and <mark>write equations of lines given characteristics such as two points, a point and a slope, or a slope and y-intercept;</mark>	**Expressions, Equations, & Inequalities:**
	Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
	Write expressions, equations, and inequalities for common algebra settings
	Write expressions that require planning and/or manipulating to accurately model a situation
	Write equations and inequalities that require planning, manipulating, and/or solving

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
E. determine the intercepts of the graphs of linear functions and zeros of linear functions from graphs, tables, and algebraic representations;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
F. interpret and predict the effects of changing slope and y–intercept in applied situations; and	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Graphical Representations:** Locate points on the number line and in the first quadrant Locate points in the coordinate plane Exhibit knowledge of slope Determine the slope of a line from points or equations Match linear graphs with their equations Interpret and use information from graphs in the coordinate plane Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
G. relate direct variation to linear functions and solve problems involving proportional change.	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) Solve word problems containing several rates, proportions, or percentages Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings) **Expressions, Equations, & Inequalities:** Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
A.7. Linear functions. The student formulates equations and inequalities based on linear functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. The student is expected to:	
A. analyze situations involving linear functions and formulate linear equations or inequalities to solve problems;	**Expressions, Equations, & Inequalities:** Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
B. investigate methods for <mark>solving linear equations and inequalities using</mark> concrete models, <mark>graphs, and the properties of equality, select a method, and solve the equations and inequalities; and</mark>	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals Solve one-step equations having integer or decimal answers Solve routine first-degree equations Solve real-world problems using first-degree equations Solve first-degree inequalities that do not require reversing the inequality sign Solve linear inequalities that require reversing the inequality sign Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
C. <mark>interpret and determine the reasonableness of solutions to linear equations and inequalities.</mark>	**Expressions, Equations, & Inequalities:** Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals Solve one-step equations having integer or decimal answers Solve routine first-degree equations Solve real-world problems using first-degree equations Solve first-degree inequalities that do not require reversing the inequality sign Solve linear inequalities that require reversing the inequality sign Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
A.8. Linear functions. The student formulates systems of linear equations from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. The student is expected to:	
A. analyze situations and formulate systems of linear equations in two unknowns to solve problems;	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Find solutions to systems of linear equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
B. solve systems of linear equations using concrete models, graphs, tables, and algebraic methods; and	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Find solutions to systems of linear equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Graphical Representations:
	Interpret and use information from graphs in the coordinate plane
C. interpret and determine the reasonableness of solutions to systems of linear equations.	**Expressions, Equations, & Inequalities:**
	Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
	Write expressions, equations, and inequalities for common algebra settings
	Find solutions to systems of linear equations
A.9. Quadratic and other nonlinear functions. The student understands that the graphs of quadratic functions are affected by the parameters of the function and can interpret and describe the effects of changes in the parameters of quadratic functions. The student is expected to:	
A. determine the domain and range for quadratic functions in given situations;	**Functions:**
	Evaluate quadratic functions, expressed in function notation, at integer values
	Evaluate polynomial functions, expressed in function notation, at integer values
B. investigate, describe, and predict the effects of changes in a on the graph of $y = ax^2 + c$;	**Graphical Representations:**
	Interpret and use information from graphs in the coordinate plane
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)†
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane
C. investigate, describe, and predict the effects of changes in c on the graph of $y = ax^2 + c$; and	**Graphical Representations:**
	Interpret and use information from graphs in the coordinate plane
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)†
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
D. analyze graphs of quadratic functions and draw conclusions.	**Graphical Representations:** Interpret and use information from graphs in the coordinate plane Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)† Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
A.10. Quadratic and other nonlinear functions. The student understands there is more than one way to solve a quadratic equation and solves them using appropriate methods. The student is expected to:	
A. solve quadratic equations using concrete models, tables, graphs, and algebraic methods; and	**Probability, Statistics, & Data Analysis:** Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Identify solutions to simple quadratic equations Factor simple quadratics (e.g., the difference of squares and perfect square trinomials) Solve quadratic equations **Graphical Representations:** Interpret and use information from graphs in the coordinate plane Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
B. make connections among the solutions (roots) of quadratic equations, the zeros of their related functions, and the horizontal intercepts (*x*–intercepts) of the graph of the function.	**Probability, Statistics, & Data Analysis:** Analyze and draw conclusions based on information from figures, tables, and graphs **Graphical Representations:** Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane

TABLE 2D

TEXAS Algebra I Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
A.11. Quadratic and other nonlinear functions. The student understands there are situations modeled by functions that are neither linear nor quadratic and models the situations. The student is expected to:	
A. use patterns to generate the laws of exponents and apply them in problem-solving situations;	**Numbers: Concepts & Properties:** Work problems involving positive integer exponents
B. analyze data and represent situations involving inverse variation using concrete models, tables, graphs, or algebraic methods; and	**Probability, Statistics, & Data Analysis:** Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
C. analyze data and represent situations involving exponential growth and decay using concrete models, tables, graphs, or algebraic methods.	**Probability, Statistics, & Data Analysis:** Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving

TABLE 2E

TEXAS Geometry Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
G.1. Geometric structure. The student understands the structure of, and relationships within, an axiomatic system. The student is expected to:	
A. develop an awareness of the structure of a mathematical system, connecting definitions, postulates, logical reasoning, and theorems;	
B. recognize the historical development of geometric systems and know mathematics is developed for a variety of purposes; and	
C. compare and contrast the structures and implications of Euclidean and non-Euclidean geometries.	
G.2. Geometric structure. The student analyzes geometric relationships in order to make and verify conjectures. The student is expected to:	
A. use constructions to explore attributes of geometric figures and to make conjectures about geometric relationships; and	
B. make conjectures about angles, lines, polygons, circles, and three-dimensional figures and determine the validity of the conjectures, choosing from a variety of approaches such as coordinate, transformational, or axiomatic.	
G.3. Geometric structure. The student applies logical reasoning to justify and prove mathematical statements. The student is expected to:	
A. determine the validity of a conditional statement, its converse, inverse, and contrapositive;	
B. construct and justify statements about geometric figures and their properties;	
C. use logical reasoning to prove statements are true and find counter examples to disprove statements that are false;	
D. use inductive reasoning to formulate a conjecture; and	
E. use deductive reasoning to prove a statement.	
G.4. Geometric structure. The student uses a variety of representations to describe geometric relationships and solve problems. The student is expected to select an appropriate representation (concrete, pictorial, graphical, verbal, or symbolic) in order to solve problems.	
[No statement at this level]	
G.5. Geometric patterns. The student uses a variety of representations to describe geometric relationships and solve problems. The student is expected to:	
A. use numeric and geometric patterns to develop algebraic expressions representing geometric properties;	**Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor

TEXAS Geometry Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
B. use numeric and geometric patterns to make generalizations about geometric properties, including properties of polygons, ratios in similar figures and solids, and angle relationships in polygons and circles;	**Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor **Properties of Plane Figures:** Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) Use several angle properties to find an unknown angle measure Recognize Pythagorean triples Use properties of isosceles triangles Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles Use the Pythagorean theorem **Measurement:** Estimate or calculate the length of a line segment based on other lengths given on a geometric figure Compute the perimeter of polygons when all side lengths are given Compute the area of rectangles when whole number dimensions are given Compute the area and perimeter of triangles and rectangles in simple problems Use geometric formulas when all necessary information is given Compute the area of triangles and rectangles when one or more additional simple steps are required Compute the area and circumference of circles after identifying necessary information Compute the perimeter of simple composite geometric figures with unknown side lengths Use relationships involving area, perimeter, and volume of geometric figures to compute another measure
C. use properties of transformations and their compositions to make connections between mathematics and the real world, such as tessellations; and	
D. identify and apply patterns from right triangles to solve meaningful problems, including special right triangles (45 – 45 – 90 and 30 – 60 – 90) and triangles whose sides are Pythagorean triples.	**Properties of Plane Figures:** Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) Use several angle properties to find an unknown angle measure Recognize Pythagorean triples Use properties of isosceles triangles Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles Use the Pythagorean theorem

TEXAS Geometry Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
G.6. Dimensionality and the geometry of location. The student analyzes the relationship between three-dimensional geometric figures and related two-dimensional representations and uses these representations to solve problems. The student is expected to:	
A. describe and draw the intersection of a given plane with various three-dimensional geometric figures;	
B. use nets to represent and construct three-dimensional geometric figures; and	
C. use orthographic and isometric views of three-dimensional geometric figures to represent and construct three-dimensional geometric figures and solve problems.	**Properties of Plane Figures:** Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) Use several angle properties to find an unknown angle measure Recognize Pythagorean triples Use properties of isosceles triangles Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles Use the Pythagorean theorem **Measurement:** Estimate or calculate the length of a line segment based on other lengths given on a geometric figure Compute the perimeter of polygons when all side lengths are given Compute the area of rectangles when whole number dimensions are given Compute the area and perimeter of triangles and rectangles in simple problems Use geometric formulas when all necessary information is given Compute the area of triangles and rectangles when one or more additional simple steps are required Compute the area and circumference of circles after identifying necessary information Compute the perimeter of simple composite geometric figures with unknown side lengths Use relationships involving area, perimeter, and volume of geometric figures to compute another measure

TEXAS Geometry Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
G.7. Dimensionality and the geometry of location. The student understands that coordinate systems provide convenient and efficient ways of representing geometric figures and uses them accordingly. The student is expected to:	
A. use one- and two-dimensional coordinate systems to represent points, lines, rays, line segments, and figures;	**Graphical Representations:** Identify the location of a point with a positive coordinate on the number line Locate points on the number line and in the first quadrant Locate points in the coordinate plane Comprehend the concept of length on the number line Exhibit knowledge of slope Identify the graph of a linear inequality on the number line Determine the slope of a line from points or equations Match linear graphs with their equations Find the midpoint of a line segment Interpret and use information from graphs in the coordinate plane
B. use slopes and equations of lines to investigate geometric relationships, including parallel lines, perpendicular lines, and special segments of triangles and other polygons; and	**Graphical Representations:** Determine the slope of a line from points or equations Match linear graphs with their equations Interpret and use information from graphs in the coordinate plane Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point **Measurement:** Estimate or calculate the length of a line segment based on other lengths given on a geometric figure Compute the perimeter of polygons when all side lengths are given Compute the area of rectangles when whole number dimensions are given Compute the area and perimeter of triangles and rectangles in simple problems Use geometric formulas when all necessary information is given Compute the area of triangles and rectangles when one or more additional simple steps are required Compute the area and circumference of circles after identifying necessary information Compute the perimeter of simple composite geometric figures with unknown side lengths Use relationships involving area, perimeter, and volume of geometric figures to compute another measure

TABLE 2E

TEXAS Geometry Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
C. derive and <mark>use formulas involving length, slope, and midpoint.</mark>	**Expressions, Equations, & Inequalities:** Substitute whole numbers for unknown quantities to evaluate expressions Evaluate algebraic expressions by substituting integers for unknown quantities **Graphical Representations:** Exhibit knowledge of slope Determine the slope of a line from points or equations Find the midpoint of a line segment Use the distance formula
<mark>G.8.</mark> <mark>Congruence and the geometry of size. The student uses tools to determine measurements of geometric figures and extends measurement concepts to find perimeter, area, and volume in problem situations. The student is expected to:</mark>	
A. <mark>find areas of regular polygons, circles, and composite figures;</mark>	**Measurement:** Compute the area of rectangles when whole number dimensions are given Compute the area and perimeter of triangles and rectangles in simple problems Use geometric formulas when all necessary information is given Compute the area of triangles and rectangles when one or more additional simple steps are required Compute the area and circumference of circles after identifying necessary information Compute the perimeter of simple composite geometric figures with unknown side lengths Use relationships involving area, perimeter, and volume of geometric figures to compute another measure
B. <mark>find areas of sectors and arc lengths of circles using proportional reasoning;</mark>	**Measurement:** Compute the area and circumference of circles after identifying necessary information Use relationships involving area, perimeter, and volume of geometric figures to compute another measure
C. derive, <mark>extend, and use the Pythagorean Theorem;</mark> and	**Properties of Plane Figures:** Recognize Pythagorean triples Use the Pythagorean theorem
D. <mark>find surface areas and volumes of prisms, pyramids, spheres, cones, cylinders, and composites of these figures in problem situations.</mark>	**Measurement:** Use relationships involving area, perimeter, and volume of geometric figures to compute another measure

TABLE 2E

TEXAS Geometry Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
G.9. Congruence and the geometry of size. The student analyzes properties and describes relationships in geometric figures. The student is expected to:	
A. formulate and test conjectures about the properties of parallel and perpendicular lines based on explorations and concrete models;	**Properties of Plane Figures:** Exhibit some knowledge of the angles associated with parallel lines Find the measure of an angle using properties of parallel lines
B. formulate and test conjectures about the properties and attributes of polygons and their component parts based on explorations and concrete models;	**Graphical Representations:** Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point **Measurement:** Compute the area and circumference of circles after identifying necessary information
C. formulate and test conjectures about the properties and attributes of circles and the lines that intersect them based on explorations and concrete models; and	**Measurement:** Compute the area and circumference of circles after identifying necessary information
D. analyze the characteristics of polyhedra and other three-dimensional figures and their component parts based on explorations and concrete models.	**Measurement:** Compute the perimeter of simple composite geometric figures with unknown side lengths Use relationships involving area, perimeter, and volume of geometric figures to compute another measure
G.10. Congruence and the geometry of size. The student applies the concept of congruence to justify properties of figures and solve problems. The student is expected to:	
A. use congruence transformations to make conjectures and justify properties of geometric figures including figures represented on a coordinate plane; and	
B. justify and apply triangle congruence relationships.	**Properties of Plane Figures:** Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) Use several angle properties to find an unknown angle measure Use properties of isosceles triangles Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles
G.11. Similarity and the geometry of shape. The student applies the concepts of similarity to justify properties of figures and solve problems. The student is expected to:	
A. use and extend similarity properties and transformations to explore and justify conjectures about geometric figures;	**Properties of Plane Figures:** Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) Use several angle properties to find an unknown angle measure Use properties of isosceles triangles Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles

TABLE 2E

TEXAS Geometry Essential Knowledge and Skills	PLAN Mathematics College Readiness Standards
B. use ratios to solve problems involving similar figures;	**Properties of Plane Figures:** Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles
C. develop, apply, and justify triangle similarity relationships, such as right triangle ratios, trigonometric ratios, and Pythagorean triples using a variety of methods; and	**Properties of Plane Figures:** Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles **Measurement:** Use relationships involving area, perimeter, and volume of geometric figures to compute another measure
D. describe the effect on perimeter, area, and volume when one or more dimensions of a figure are changed and apply this idea in solving problems	**Measurement:** Use relationships involving area, perimeter, and volume of geometric figures to compute another measure

TABLE 2F

TEXAS Geometry Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
G.1. Geometric structure. The student understands the structure of, and relationships within, an axiomatic system. The student is expected to:	
A. develop an awareness of the structure of a mathematical system, connecting definitions, postulates, logical reasoning, and theorems;	
B. recognize the historical development of geometric systems and know mathematics is developed for a variety of purposes; and	
C. compare and contrast the structures and implications of Euclidean and non-Euclidean geometries.	
G.2. Geometric structure. The student analyzes geometric relationships in order to make and verify conjectures. The student is expected to:	
A. use constructions to explore attributes of geometric figures and to make conjectures about geometric relationships; and	**Properties of Plane Figures:** Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
B. make conjectures about angles, lines, polygons, circles, and three-dimensional figures and determine the validity of the conjectures, choosing from a variety of approaches such as coordinate, transformational, or axiomatic.	
G.3. Geometric structure. The student applies logical reasoning to justify and prove mathematical statements. The student is expected to:	
A. determine the validity of a conditional statement, its converse, inverse, and contrapositive;	**Properties of Plane Figures:** Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
B. construct and justify statements about geometric figures and their properties;	**Properties of Plane Figures:** Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
C. use logical reasoning to prove statements are true and find counter examples to disprove statements that are false;	**Properties of Plane Figures:** Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
D. use inductive reasoning to formulate a conjecture; and	**Properties of Plane Figures:** Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
E. use deductive reasoning to prove a statement.	

= Measured by the ACT Mathematics Test

TEXAS Geometry Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
G.4. Geometric structure. The student uses a variety of representations to describe geometric relationships and solve problems. The student is expected to select an appropriate representation (concrete, pictorial, graphical, verbal, or symbolic) in order to solve problems.	
[No Statement at this level]	
G.5. Geometric patterns. The student uses a variety of representations to describe geometric relationships and solve problems. The student is expected to:	
A. use numeric and geometric patterns to develop algebraic expressions representing geometric properties;	**Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers **Properties of Plane Figures:** Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
B. use numeric and geometric patterns to make generalizations about geometric properties, including properties of polygons, ratios in similar figures and solids, and angle relationships in polygons and circles;	**Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers **Properties of Plane Figures:** Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) Use several angle properties to find an unknown angle measure Recognize Pythagorean triples Use properties of isosceles triangles Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles Use the Pythagorean theorem Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas Use relationships among angles, arcs, and distances in a circle **Measurement:** Estimate or calculate the length of a line segment based on other lengths given on a geometric figure

TEXAS Geometry Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Compute the perimeter of polygons when all side lengths are given
	Compute the area of rectangles when whole number dimensions are given
	Compute the area and perimeter of triangles and rectangles in simple problems
	Use geometric formulas when all necessary information is given
	Compute the area of triangles and rectangles when one or more additional simple steps are required
	Compute the area and circumference of circles after identifying necessary information
	Compute the perimeter of simple composite geometric figures with unknown side lengths
	Use relationships involving area, perimeter, and volume of geometric figures to compute another measure
	Use scale factors to determine the magnitude of a size change
	Compute the area of composite geometric figures when planning or visualization is required
C. use properties of transformations and their compositions to make connections between mathematics and the real world, such as tessellations; and	**Properties of Plane Figures:** Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
D. identify and apply patterns from right triangles to solve meaningful problems, including special right triangles (45 – 45 – 90 and 30 – 60 – 90) and triangles whose sides are Pythagorean triples.	**Properties of Plane Figures:** Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) Use several angle properties to find an unknown angle measure Recognize Pythagorean triples Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles Use the Pythagorean theorem Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
G.6. Dimensionality and the geometry of location. The student analyzes the relationship between three-dimensional geometric figures and related two-dimensional representations and uses these representations to solve problems. The student is expected to:	
A. describe and draw the intersection of a given plane with various three-dimensional geometric figures;	**Properties of Plane Figures:** Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas

TABLE 2F

TEXAS Geometry Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
B. use nets to represent and construct three-dimensional geometric figures; and	
C. use orthographic and isometric views of three-dimensional geometric figures to represent and construct three-dimensional geometric figures and solve problems.	**Properties of Plane Figures:** Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) Use several angle properties to find an unknown angle measure Recognize Pythagorean triples Use properties of isosceles triangles Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles Use the Pythagorean theorem Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas **Measurement:** Estimate or calculate the length of a line segment based on other lengths given on a geometric figure Compute the perimeter of polygons when all side lengths are given Compute the area of rectangles when whole number dimensions are given Compute the area and perimeter of triangles and rectangles in simple problems Compute the area of triangles and rectangles when one or more additional simple steps are required Compute the area and circumference of circles after identifying necessary information Compute the perimeter of simple composite geometric figures with unknown side lengths Use relationships involving area, perimeter, and volume of geometric figures to compute another measure Compute the area of composite geometric figures when planning or visualization is required

TABLE 2F

TEXAS Geometry Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
G.7. Dimensionality and the geometry of location. The student understands that coordinate systems provide convenient and efficient ways of representing geometric figures and uses them accordingly. The student is expected to:	
A. use one- and two-dimensional coordinate systems to represent points, lines, rays, line segments, and figures;	**Graphical Representations:** Identify the location of a point with a positive coordinate on the number line Locate points on the number line and in the first quadrant Locate points in the coordinate plane Comprehend the concept of length on the number line Exhibit knowledge of slope Identify the graph of a linear inequality on the number line Determine the slope of a line from points or equations Match linear graphs with their equations Find the midpoint of a line segment Interpret and use information from graphs in the coordinate plane Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
B. use slopes and equations of lines to investigate geometric relationships, including parallel lines, perpendicular lines, and special segments of triangles and other polygons; and	**Graphical Representations:** Determine the slope of a line from points or equations Match linear graphs with their equations Interpret and use information from graphs in the coordinate plane Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane **Measurement:** Estimate or calculate the length of a line segment based on other lengths given on a geometric figure Compute the perimeter of polygons when all side lengths are given Compute the area of rectangles when whole number dimensions are given Compute the area and perimeter of triangles and rectangles in simple problems Use geometric formulas when all necessary information is given Compute the area of triangles and rectangles when one or more additional simple steps are required Compute the area and circumference of circles after identifying necessary information

TEXAS Geometry Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Compute the perimeter of simple composite geometric figures with unknown side lengths
	Use relationships involving area, perimeter, and volume of geometric figures to compute another measure
	Compute the area of composite geometric figures when planning or visualization is required
C. derive and <mark>use formulas involving length, slope, and midpoint.</mark>	**Expressions, Equations, & Inequalities:**
	Substitute whole numbers for unknown quantities to evaluate expressions
	Evaluate algebraic expressions by substituting integers for unknown quantities
	Graphical Representations:
	Exhibit knowledge of slope
	Determine the slope of a line from points or equations
	Find the midpoint of a line segment
	Use the distance formula
G.8. Congruence and the geometry of size. The student uses tools to determine measurements of geometric figures and extends measurement concepts to find perimeter, area, and volume in problem situations. The student is expected to:	
A. find areas of regular polygons, circles, and composite figures;	**Measurement:**
	Compute the area of rectangles when whole number dimensions are given
	Compute the area and perimeter of triangles and rectangles in simple problems
	Use geometric formulas when all necessary information is given
	Compute the area of triangles and rectangles when one or more additional simple steps are required
	Compute the area and circumference of circles after identifying necessary information
	Compute the perimeter of simple composite geometric figures with unknown side lengths
	Use relationships involving area, perimeter, and volume of geometric figures to compute another measure
B. find areas of sectors and arc lengths of circles using proportional reasoning;	**Properties of Plane Figures:** Use relationships among angles, arcs, and distances in a circle
	Measurement:
	Compute the area and circumference of circles after identifying necessary information
	Use relationships involving area, perimeter, and volume of geometric figures to compute another measure
C. derive, extend, and use the Pythagorean Theorem; and	**Properties of Plane Figures:**
	Recognize Pythagorean triples
	Use the Pythagorean theorem

TEXAS Geometry Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
D. find surface areas and volumes of prisms, pyramids, spheres, cones, cylinders, and composites of these figures in problem situations.	**Measurement:** Use relationships involving area, perimeter, and volume of geometric figures to compute another measure Compute the area of composite geometric figures when planning or visualization is required
G.9. Congruence and the geometry of size. The student analyzes properties and describes relationships in geometric figures. The student is expected to:	
A. formulate and test conjectures about the properties of parallel and perpendicular lines based on explorations and concrete models;	**Measurement:** Compute the perimeter of polygons when all side lengths are given Compute the area and perimeter of triangles and rectangles in simple problems
B. formulate and test conjectures about the properties and attributes of polygons and their component parts based on explorations and concrete models;	**Graphical Representations:** Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane **Measurement:** Compute the area and circumference of circles after identifying necessary information Use relationships involving area, perimeter, and volume of geometric figures to compute another measure Compute the area of composite geometric figures when planning or visualization is required
C. formulate and test conjectures about the properties and attributes of circles and the lines that intersect them based on explorations and concrete models; and	**Properties of Plane Figures:** Use relationships among angles, arcs, and distances in a circle **Measurement:** Compute the area and circumference of circles after identifying necessary information Use relationships involving area, perimeter, and volume of geometric figures to compute another measure Compute the area of composite geometric figures when planning or visualization is required
D. analyze the characteristics of polyhedra and other three-dimensional figures and their component parts based on explorations and concrete models.	**Measurement:** Compute the perimeter of simple composite geometric figures with unknown side lengths Use relationships involving area, perimeter, and volume of geometric figures to compute another measure Compute the area of composite geometric figures when planning or visualization is required

TEXAS Geometry Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
G.10. Congruence and the geometry of size. The student applies the concept of congruence to justify properties of figures and solve problems. The student is expected to:	
A. use congruence transformations to make conjectures and justify properties of geometric figures including figures represented on a coordinate plane; and	**Properties of Plane Figures:** Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
B. justify and apply triangle congruence relationships.	**Properties of Plane Figures:** Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) Use several angle properties to find an unknown angle measure Use properties of isosceles triangles Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
G.11. Similarity and the geometry of shape. The student applies the concepts of similarity to justify properties of figures and solve problems. The student is expected to:	
A. use and extend similarity properties and transformations to explore and justify conjectures about geometric figures;	**Properties of Plane Figures:** Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) Use several angle properties to find an unknown angle measure Use properties of isosceles triangles Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
B. use ratios to solve problems involving similar figures;	**Properties of Plane Figures:** Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas

TABLE 2F

TEXAS Geometry Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
C. develop, <mark>apply, and justify triangle similarity relationships, such as right triangle ratios, trigonometric ratios, and Pythagorean triples using a variety of methods</mark>; and	**Properties of Plane Figures:** Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas **Measurement:** Use relationships involving area, perimeter, and volume of geometric figures to compute another measure Use scale factors to determine the magnitude of a size change **Functions:** Express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given side lengths Apply basic trigonometric ratios to solve right-triangle problems Use trigonometric concepts and basic identities to solve problems
D. <mark>describe the effect on perimeter, area, and volume when one or more dimensions of a figure are changed and apply this idea in solving problems</mark>	**Measurement:** Use relationships involving area, perimeter, and volume of geometric figures to compute another measure Use scale factors to determine the magnitude of a size change

<mark>   </mark> = Measured by the ACT Mathematics Test

TABLE 2G

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
2A.1. Foundations for functions. The student uses properties and attributes of functions and applies functions to problem situations. The student is expected to:	
A. identify the mathematical domains and ranges of functions and determine reasonable domain and range values for continuous and discrete situations; and	
B. collect and organize data, make and interpret scatterplots, fit the graph of a function to the data, interpret the results, and proceed to model, predict, and make decisions and critical judgments.	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs

TABLE 2G

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
2A.2. Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to:	
A. use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations; and	**Numbers: Concepts & Properties:** Recognize one-digit factors of a number Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor Find and use the least common multiple Work with numerical factors Work problems involving positive integer exponents Apply number properties involving prime factorization Apply number properties involving even/odd numbers and factors/multiples Apply rules of exponents Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers **Expressions, Equations, & Inequalities:** Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals Solve one-step equations having integer or decimal answers Combine like terms (e.g., $2x + 5x$) Add and subtract simple algebraic expressions Solve routine first-degree equations Multiply two binomials Solve real-world problems using first-degree equations Add, subtract, and multiply polynomials Manipulate expressions and equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
B. use complex numbers to describe the solutions of quadratic equations.	**Numbers: Concepts & Properties:** Exhibit some knowledge of the complex numbers Multiply two complex numbers Apply properties of complex numbers **Expressions, Equations, & Inequalities:** Solve quadratic equations Write equations and inequalities that require planning, manipulating, and/or solving

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
2A.3. Foundations for functions. The student formulates systems of equations and inequalities from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situations. The student is expected to:	
A. analyze situations and formulate systems of equations in two or more unknowns or inequalities in two unknowns to solve problems;	**Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Write expressions, equations, and inequalities for common algebra settings Find solutions to systems of linear equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
B. use algebraic methods, graphs, tables, or matrices, to solve systems of equations or inequalities; and	**Probability, Statistics, & Data Analysis:** Read tables and graphs Perform computations on data from tables and graphs Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals Solve one-step equations having integer or decimal answers Solve routine first-degree equations Solve real-world problems using first-degree equations Solve first-degree inequalities that do not require reversing the inequality sign Solve linear inequalities that require reversing the inequality sign Find solutions to systems of linear equations Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane

TABLE 2G

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
C. interpret and determine the reasonableness of solutions to systems of equations or inequalities for given contexts.	**Expressions, Equations, & Inequalities:** Find solutions to systems of linear equations Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
2A.4. Algebra and geometry. The student connects algebraic and geometric representations of functions. The student is expected to:	
A. identify and sketch graphs of parent functions, including linear ($f(x) = x$), quadratic ($f(x) = x^2$), exponential ($f(x) = a^x$), and logarithmic ($f(x) = \log_a x$) functions, absolute value of x ($f(x) = |x|$), square root of x ($f(x) = \sqrt{x}$), and reciprocal of x ($f(x) = 1/x$);	**Graphical Representations:** Determine the slope of a line from points or equations Match linear graphs with their equations Interpret and use information from graphs in the coordinate plane Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
B. extend parent functions with parameters such as a in $f(x) = a/x$ and describe the effects of the parameter changes on the graph of parent functions; and	**Graphical Representations:** Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
C. describe and analyze the relationship between a function and its inverse.	**Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write equations and inequalities that require planning, manipulating, and/or solving **Functions:** Write an expression for the composite of two simple functions

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
2A.5. Algebra and geometry. The student knows the relationship between the geometric and algebraic descriptions of conic sections. The student is expected to:	
A. describe a conic section as the intersection of a plane and a cone;	
B. sketch graphs of conic sections to relate simple parameter changes in the equation to corresponding changes in the graph;	**Graphical Representations:** Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
C. identify symmetries from graphs of conic sections;	**Graphical Representations:** Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
D. identify the conic section from a given equation; and	**Graphical Representations:** Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
E. use the method of completing the square.	

TABLE 2G

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
2A.6. Quadratic and square root functions. The student understands that quadratic functions can be represented in different ways and translates among their various representations. The student is expected to:	
A. determine the reasonable domain and range values of quadratic functions, as well as interpret and determine the reasonableness of solutions to quadratic equations and inequalities;	**Expressions, Equations, & Inequalities:** Solve real-world problems using first-degree equations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Identify solutions to simple quadratic equations Factor simple quadratics (e.g., the difference of squares and perfect square trinomials) Solve first-degree inequalities that do not require reversing the inequality sign Manipulate expressions and equations Solve linear inequalities that require reversing the inequality sign Solve quadratic equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
B. relate representations of quadratic functions, such as algebraic, tabular, graphical, and verbal descriptions; and	**Probability, Statistics, & Data Analysis:** Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
C. determine a quadratic function from its roots or a graph.	**Graphical Representations:**
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane
2A.7. Quadratic and square root functions. The student interprets and describes the effects of changes in the parameters of quadratic functions in applied and mathematical situations. The student is expected to:	
A. use characteristics of the quadratic parent function to sketch the related graphs and connect between the $y = ax^2 + bx + c$ and the $y = a(x - h)^2 + k$ symbolic representations of quadratic functions; and	**Graphical Representations:**
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
B. use the parent function to investigate, describe, and predict the effects of changes in a, h, and k on the graphs of $y = a(x - h)^2 + k$ form of a function in applied and purely mathematical situations.	**Graphical Representations:**
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
2A.8. Quadratic and square root functions. The student formulates equations and inequalities based on quadratic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. The student is expected to:	
A. analyze situations involving quadratic functions and formulate quadratic equations or inequalities to solve problems;	**Expressions, Equations, & Inequalities:**
	Write expressions that require planning and/or manipulating to accurately model a situation
	Write equations and inequalities that require planning, manipulating, and/or solving

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
B. <mark>analyze and interpret the solutions of quadratic equations using discriminants and solve quadratic equations using the quadratic formula;</mark>	**Expressions, Equations, & Inequalities:** Identify solutions to simple quadratic equations Factor simple quadratics (e.g., the difference of squares and perfect square trinomials) Solve quadratic equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
C. <mark>compare and translate between algebraic and graphical solutions of quadratic equations; and</mark>	**Expressions, Equations, & Inequalities:** Identify solutions to simple quadratic equations Factor simple quadratics (e.g., the difference of squares and perfect square trinomials) Solve quadratic equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Comprehend the concept of length on the number line Identify the graph of a linear inequality on the number line Interpret and use information from graphs in the coordinate plane Match number line graphs with solution sets of linear inequalities Match number line graphs with solution sets of simple quadratic inequalities Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
D. solve quadratic equations and inequalities using graphs, tables, and algebraic methods.	**Expressions, Equations, & Inequalities:** Identify solutions to simple quadratic equations Factor simple quadratics (e.g., the difference of squares and perfect square trinomials) Solve quadratic equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
2A.9. Quadratic and square root functions. The student formulates equations and inequalities based on square root functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. The student is expected to:	
A. use the parent function to investigate, describe, and predict the effects of parameter changes on the graphs of square root functions and describe limitations on the domains and ranges;	**Numbers: Concepts & Properties:** Work with squares and square roots of numbers Determine when an expression is undefined Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers **Graphical Representations:** Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
B. relate representations of square root functions, such as algebraic, tabular, graphical, and verbal descriptions;	**Probability, Statistics, & Data Analysis:** Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
C. <mark>determine the reasonable domain and range values of square root functions, as well as interpret and determine the reasonableness of solutions to square root equations and inequalities;</mark>	**Numbers: Concepts & Properties:** Work with squares and square roots of numbers Determine when an expression is undefined Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
D. <mark>determine solutions of square root equations using graphs, tables, and algebraic methods;</mark>	**Probability, Statistics, & Data Analysis:** Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Interpret and use information from graphs in the coordinate plane Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane

TABLE 2G

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
E. determine solutions of square root inequalities using graphs and tables;	**Probability, Statistics, & Data Analysis:** Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Numbers: Concepts & Properties:** Work with squares and square roots of numbers Determine when an expression is undefined Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
F. analyze situations modeled by square root functions, formulate equations or inequalities, select a method, and solve problems; and	**Probability, Statistics, & Data Analysis:** Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Numbers: Concepts & Properties:** Work with squares and square roots of numbers Determine when an expression is undefined Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
G. connect inverses of square root functions with quadratic functions.	**Expressions, Equations, & Inequalities:** Manipulate expressions and equations **Functions:** Write an expression for the composite of two simple functions

= Measured by the ACT Mathematics Test

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
2A.10. Rational functions. The student formulates equations and inequalities based on rational functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. The student is expected to:	
A. use quotients of polynomials to describe the graphs of rational functions, predict the effects of parameter changes, describe limitations on the domains and ranges, and examine asymptotic behavior;	**Graphical Representations:** Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
B. analyze various representations of rational functions with respect to problem situations;	**Graphical Representations:** Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
C. determine the reasonable domain and range values of rational functions, as well as interpret and determine the reasonableness of solutions to rational equations and inequalities;	**Expressions, Equations, & Inequalities:** Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Functions:** Evaluate quadratic functions, expressed in function notation, at integer values Evaluate polynomial functions, expressed in function notation, at integer values
D. determine the solutions of rational equations using graphs, tables, and algebraic methods;	**Probability, Statistics, & Data Analysis:** Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Solve real-world problems using first-degree equations Identify solutions to simple quadratic equations Solve first-degree inequalities that do not require reversing the inequality sign Solve linear inequalities that require reversing the inequality sign Solve quadratic equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
E. determine solutions of rational inequalities using graphs and tables;	**Probability, Statistics, & Data Analysis:** Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Solve first-degree inequalities that do not require reversing the inequality sign Solve linear inequalities that require reversing the inequality sign Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
F. analyze a situation modeled by a rational function, formulate an equation or inequality composed of a linear or quadratic function, and solve the problem; and	**Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Solve first-degree inequalities that do not require reversing the inequality sign Write expressions, equations, and inequalities for common algebra settings Solve linear inequalities that require reversing the inequality sign Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving

= Measured by the ACT Mathematics Test

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
G. <mark>use functions to model and make predictions in problem situations involving direct and inverse variation.</mark>	**Basic Operations & Applications:** Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) Solve word problems containing several rates, proportions, or percentages Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings) **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
2A.11. <mark>Exponential and logarithmic functions. The student formulates equations and inequalities based on exponential and logarithmic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. The student is expected to:</mark>	
A. <mark>develop the definition of logarithms by exploring and describing the relationship between exponential functions and their inverses;</mark>	**Numbers: Concepts & Properties:** Apply rules of exponents Exhibit knowledge of logarithms and geometric sequences **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
B. <mark>use the parent functions to investigate, describe, and predict the effects of parameter changes on the graphs of exponential and logarithmic functions, describe limitations on the domains and ranges, and examine asymptotic behavior;</mark>	**Numbers: Concepts & Properties:** Apply rules of exponents Exhibit knowledge of logarithms and geometric sequences **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$

TEXAS Algebra II Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
C. determine the reasonable domain and range values of exponential and logarithmic functions, as well as interpret and determine the reasonableness of solutions to exponential and logarithmic equations and inequalities;	**Numbers: Concepts & Properties:** Apply rules of exponents Exhibit knowledge of logarithms and geometric sequences **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
D. determine solutions of exponential and logarithmic equations using graphs, tables, and algebraic methods;	**Numbers: Concepts & Properties:** Apply rules of exponents Exhibit knowledge of logarithms and geometric sequences **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
E. determine solutions of exponential and logarithmic inequalities using graphs and tables; and	**Graphical Representations:** Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
F. analyze a situation modeled by an exponential function, formulate an equation or inequality, and solve the problem.	**Numbers: Concepts & Properties:** Apply rules of exponents Exhibit knowledge of logarithms and geometric sequences **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$

    = Measured by the ACT Mathematics Test

TEXAS Precalculus Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
P.1. The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, power (including radical), exponential, logarithmic, trigonometric, and piecewise-defined functions. The student is expected to:	
A. describe parent functions symbolically and graphically, including $f(x) = x^n$, $f(x) = 1nx$, $f(x) = \log_a x$, $f(x) = 1/x$, $f(x) = e^x$, $f(x) = |x|$, $f(x) = a^x$, $f(x) = \sin x$, $f(x) = \arcsin x$, etc.;	**Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Calculate the average, given the number of data values and the sum of the data values Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Graphical Representations:** Determine the slope of a line from points or equations Match linear graphs with their equations Interpret and use information from graphs in the coordinate plane Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane **Functions:** Match graphs of basic trigonometric functions with their equations
B. determine the domain and range of functions using graphs, tables, and symbols;	**Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Calculate the average, given the number of data values and the sum of the data values Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs

TEXAS Precalculus Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Numbers: Concepts & Properties:
	Determine when an expression is undefined
	Expressions, Equations, & Inequalities:
	Substitute whole numbers for unknown quantities to evaluate expressions
	Evaluate algebraic expressions by substituting integers for unknown quantities
	Write expressions that require planning and/or manipulating to accurately model a situation
	Write equations and inequalities that require planning, manipulating, and/or solving
	Graphical Representations:
	Determine the slope of a line from points or equations
	Match linear graphs with their equations
	Interpret and use information from graphs in the coordinate plane
	Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane
	Functions:
	Evaluate quadratic functions, expressed in function notation, at integer values
	Evaluate polynomial functions, expressed in function notation, at integer values
C. <mark>describe symmetry of graphs of even and odd functions;</mark>	**Graphical Representations:**
	Interpret and use information from graphs in the coordinate plane
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane

TEXAS Precalculus Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
D. recognize and use connections among significant values of a function (zeros, maximum values, minimum values, etc.), points on the graph of a function, and the symbolic representation of a function; and	**Probability, Statistics, & Data Analysis:**
	Perform a single computation using information from a table or chart
	Calculate the average, given the number of data values and the sum of the data values
	Translate from one representation of data to another (e.g., a bar graph to a circle graph)
	Manipulate data from tables and graphs
	Interpret and use information from figures, tables, and graphs
	Analyze and draw conclusions based on information from figures, tables, and graphs
	Numbers: Concepts & Properties:
	Determine when an expression is undefined
	Graphical Representations:
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane
	Functions:
	Evaluate quadratic functions, expressed in function notation, at integer values
	Evaluate polynomial functions, expressed in function notation, at integer values
E. investigate the concepts of continuity, end behavior, asymptotes, and limits and connect these characteristics to functions represented graphically and numerically.	**Probability, Statistics, & Data Analysis:**
	Perform a single computation using information from a table or chart
	Calculate the average, given the number of data values and the sum of the data values
	Translate from one representation of data to another (e.g., a bar graph to a circle graph)
	Manipulate data from tables and graphs
	Interpret and use information from figures, tables, and graphs
	Analyze and draw conclusions based on information from figures, tables, and graphs
	Graphical Representations:
	Interpret and use information from graphs in the coordinate plane
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$

TEXAS Precalculus Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane
P.2. The student interprets the meaning of the symbolic representations of functions and operations on functions to solve meaningful problems. The student is expected to:	
A. apply basic transformations, including $a \cdot f(x)$, $f(x) + d$, $f(x - c)$, $f(b \cdot x)$, and compositions with absolute value functions, including $|f(x)|$, and $f(|x|)$, to the parent functions;	**Expressions, Equations, & Inequalities:** Solve absolute value equations Solve simple absolute value inequalities **Graphical Representations:** Interpret and use information from graphs in the coordinate plane Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane **Functions:** Evaluate quadratic functions, expressed in function notation, at integer values Evaluate polynomial functions, expressed in function notation, at integer values Evaluate composite functions at integer values Write an expression for the composite of two simple functions
B. perform operations including composition on functions, find inverses, and describe these procedures and results verbally, numerically, symbolically, and graphically; and	**Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Calculate the average, given the number of data values and the sum of the data values Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation

TEXAS Precalculus Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Write equations and inequalities that require planning, manipulating, and/or solving
	Functions:
	Evaluate quadratic functions, expressed in function notation, at integer values
	Evaluate polynomial functions, expressed in function notation, at integer values
	Evaluate composite functions at integer values
	Write an expression for the composite of two simple functions
C. ==investigate identities== graphically ==and verify them symbolically, including logarithmic properties, trigonometric identities, and exponential properties.==	**Numbers: Concepts & Properties:**
	Work with squares and square roots of numbers
	Work problems involving positive integer exponents
	Determine when an expression is undefined
	Apply rules of exponents
	Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers
	Exhibit knowledge of logarithms and geometric sequences
	Expressions, Equations, & Inequalities:
	Substitute whole numbers for unknown quantities to evaluate expressions
	Evaluate algebraic expressions by substituting integers for unknown quantities
	Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
	Manipulate expressions and equations
	Write expressions, equations, and inequalities for common algebra settings
	Write expressions that require planning and/or manipulating to accurately model a situation
	Write equations and inequalities that require planning, manipulating, and/or solving
	Functions:
	Use trigonometric concepts and basic identities to solve problems

TABLE 2H

TEXAS Precalculus Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
P.3. The student uses functions and their properties, tools and technology, to model and solve meaningful problems. The student is expected to:	
A. investigate properties of trigonometric and polynomial functions;	**Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Functions:** Evaluate quadratic functions, expressed in function notation, at integer values Evaluate polynomial functions, expressed in function notation, at integer values Express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given side lengths Apply basic trigonometric ratios to solve right-triangle problems Use trigonometric concepts and basic identities to solve problems Match graphs of basic trigonometric functions with their equations
B. use functions such as logarithmic, exponential, trigonometric, polynomial, etc. to model real-life data;	**Numbers: Concepts & Properties:** Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers Exhibit knowledge of logarithms and geometric sequences **Graphical Representations:** Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane **Functions:** Evaluate quadratic functions, expressed in function notation, at integer values Evaluate polynomial functions, expressed in function notation, at integer values

TEXAS Precalculus Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
C. <mark>use regression to determine the appropriateness of a linear function to model real-life data</mark> (including using technology to determine the correlation coefficient);	
D. <mark>use properties of functions to analyze and solve problems and make predictions; and</mark>	**Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Calculate the average, given the number of data values and the sum of the data values Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ **Functions:** Evaluate quadratic functions, expressed in function notation, at integer values Evaluate polynomial functions, expressed in function notation, at integer values Evaluate composite functions at integer values Write an expression for the composite of two simple functions

TEXAS Precalculus Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
E. solve problems from physical situations using trigonometry, including the use of Law of Sines, Law of Cosines, and area formulas and incorporate radian measure where needed.	**Properties of Plane Figures:**
	Draw conclusions based on a set of conditions
	Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
	Use relationships among angles, arcs, and distances in a circle
	Measurement:
	Compute the area of rectangles when whole number dimensions are given
	Compute the area and perimeter of triangles and rectangles in simple problems
	Use geometric formulas when all necessary information is given
	Compute the area of triangles and rectangles when one or more additional simple steps are required
	Compute the area and circumference of circles after identifying necessary information
	Use relationships involving area, perimeter, and volume of geometric figures to compute another measure
	Compute the area of composite geometric figures when planning or visualization is required
	Functions:
	Express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given side lengths
	Apply basic trigonometric ratios to solve right-triangle problems
	Use trigonometric concepts and basic identities to solve problems
	Exhibit knowledge of unit circle trigonometry

TABLE 2H

TEXAS Precalculus Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
P.4. The student uses sequences and series as well as tools and technology to represent, analyze, and solve real-life problems. The student is expected to:	
A. represent patterns using arithmetic and geometric sequences and series;	**Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor Exhibit knowledge of logarithms and geometric sequences **Expressions, Equations, & Inequalities:** Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
B. use arithmetic, geometric, and other sequences and series to solve real-life problems;	**Basic Operations & Applications:** Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) Solve word problems containing several rates, proportions, or percentages Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings) **Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor Exhibit knowledge of logarithms and geometric sequences
C. describe limits of sequences and apply their properties to investigate convergent and divergent series; and	**Numbers: Concepts & Properties:** Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor Exhibit knowledge of logarithms and geometric sequences

TEXAS Precalculus Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
D. apply sequences and series to solve problems including sums and binomial expansion.	**Basic Operations & Applications:**
	Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)
	Solve word problems containing several rates, proportions, or percentages
	Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings)
	Numbers: Concepts & Properties:
	Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor
	Exhibit knowledge of logarithms and geometric sequences
P.5. The student uses conic sections, their properties, and parametric representations, as well as tools and technology, to model physical situations. The student is expected to:	
A. use conic sections to model motion, such as the graph of velocity vs. position of a pendulum and motions of planets;	**Expressions, Equations, & Inequalities:**
	Manipulate expressions and equations
	Write expressions, equations, and inequalities for common algebra settings
	Write expressions that require planning and/or manipulating to accurately model a situation
	Write equations and inequalities that require planning, manipulating, and/or solving
	Graphical Representations:
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane

TEXAS Precalculus Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
B. use properties of conic sections to describe physical phenomena such as the reflective properties of light and sound;	**Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane
C. convert between parametric and rectangular forms of functions and equations to graph them; and	**Functions:** Evaluate composite functions at integer values Write an expression for the composite of two simple functions
D. use parametric functions to simulate problems involving motion.	
P.6. The student uses vectors to model physical situations. The student is expected to:	
A. use the concept of vectors to model situations defined by magnitude and direction; and	**Expressions, Equations, & Inequalities:** Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving
B. analyze and solve vector problems generated by real-life situations	**Expressions, Equations, & Inequalities:** Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane

TABLE 2I

TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
M.1. The student uses a variety of strategies and approaches to solve both routine and non-routine problems. The student is expected to:	
A. compare and analyze various methods for solving a real-life problem;	**Basic Operations & Applications:**
	Perform one-operation computation with whole numbers and decimals
	Solve problems in one or two steps using whole numbers
	Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent
	Solve some routine two-step arithmetic problems
	Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average
	Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)
	Solve word problems containing several rates, proportions, or percentages
	Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings)
	Probability, Statistics, & Data Analysis:
	Perform a single computation using information from a table or chart
	Calculate the average, given the number of data values and the sum of the data values
	Translate from one representation of data to another (e.g., a bar graph to a circle graph)
	Manipulate data from tables and graphs
	Interpret and use information from figures, tables, and graphs
	Analyze and draw conclusions based on information from figures, tables, and graphs
B. use multiple approaches (algebraic, graphical, and geometric methods) to solve problems from a variety of disciplines; and	**Basic Operations & Applications:**
	Perform one-operation computation with whole numbers and decimals
	Solve problems in one or two steps using whole numbers
	Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent
	Solve some routine two-step arithmetic problems
	Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average
	Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)

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TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Solve word problems containing several rates, proportions, or percentages
	Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings)
	Probability, Statistics, & Data Analysis:
	Perform a single computation using information from a table or chart
	Calculate the average, given the number of data values and the sum of the data values
	Translate from one representation of data to another (e.g., a bar graph to a circle graph)
	Manipulate data from tables and graphs
	Interpret and use information from figures, tables, and graphs
	Analyze and draw conclusions based on information from figures, tables, and graphs
	Numbers: Concepts & Properties:
	Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers
	Expressions, Equations, & Inequalities:
	Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$)
	Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals
	Substitute whole numbers for unknown quantities to evaluate expressions
	Solve one-step equations having integer or decimal answers
	Combine like terms (e.g., $2x + 5x$)
	Evaluate algebraic expressions by substituting integers for unknown quantities
	Add and subtract simple algebraic expressions
	Solve routine first-degree equations
	Perform straightforward word-to-symbol translations
	Multiply two binomials
	Solve real-world problems using first-degree equations
	Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
	Identify solutions to simple quadratic equations
	Add, subtract, and multiply polynomials
	Factor simple quadratics (e.g., the difference of squares and perfect square trinomials)

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TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Solve first-degree inequalities that do not require reversing the inequality sign
	Manipulate expressions and equations
	Write expressions, equations, and inequalities for common algebra settings
	Solve linear inequalities that require reversing the inequality sign
	Solve absolute value equations
	Solve quadratic equations
	Find solutions to systems of linear equations
	Write expressions that require planning and/or manipulating to accurately model a situation
	Write equations and inequalities that require planning, manipulating, and/or solving
	Solve simple absolute value inequalities
	Graphical Representations:
	Interpret and use information from graphs in the coordinate plane
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane
	Properties of Plane Figures:
	Draw conclusions based on a set of conditions
	Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
C. select a method to solve a problem, defend the method, and justify the reasonableness of the results.	**Basic Operations & Applications:**
	Perform one-operation computation with whole numbers and decimals
	Solve problems in one or two steps using whole numbers
	Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent
	Solve some routine two-step arithmetic problems
	Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average
	Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)
	Solve word problems containing several rates, proportions, or percentages
	Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings)

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TABLE 2I

TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Probability, Statistics, & Data Analysis:
	Perform a single computation using information from a table or chart
	Calculate the average, given the number of data values and the sum of the data values
	Translate from one representation of data to another (e.g., a bar graph to a circle graph)
	Manipulate data from tables and graphs
	Interpret and use information from figures, tables, and graphs
	Analyze and draw conclusions based on information from figures, tables, and graphs
	Numbers: Concepts & Properties:
	Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers
	Expressions, Equations, & Inequalities:
	Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$)
	Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals
	Substitute whole numbers for unknown quantities to evaluate expressions
	Solve one-step equations having integer or decimal answers
	Combine like terms (e.g., $2x + 5x$)
	Evaluate algebraic expressions by substituting integers for unknown quantities
	Add and subtract simple algebraic expressions
	Solve routine first-degree equations
	Perform straightforward word-to-symbol translations
	Multiply two binomials
	Solve real-world problems using first-degree equations
	Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
	Identify solutions to simple quadratic equations
	Add, subtract, and multiply polynomials
	Factor simple quadratics (e.g., the difference of squares and perfect square trinomials)
	Solve first-degree inequalities that do not require reversing the inequality sign
	Manipulate expressions and equations
	Write expressions, equations, and inequalities for common algebra settings
	Solve linear inequalities that require reversing the inequality sign

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TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Solve absolute value equations
	Solve quadratic equations
	Find solutions to systems of linear equations
	Write expressions that require planning and/or manipulating to accurately model a situation
	Write equations and inequalities that require planning, manipulating, and/or solving
	Solve simple absolute value inequalities
	Graphical Representations:
	Interpret and use information from graphs in the coordinate plane
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane
	Properties of Plane Figures:
	Draw conclusions based on a set of conditions
	Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
M.2. The student uses graphical and numerical techniques to study patterns and analyze data. The student is expected to:	
A. interpret information from various graphs, including line graphs, bar graphs, circle graphs, histograms, scatterplots, line plots, stem and leaf plots, and box and whisker plots to draw conclusions from the data;	**Probability, Statistics, & Data Analysis:**
	Perform a single computation using information from a table or chart
	Calculate the average, given the number of data values and the sum of the data values
	Translate from one representation of data to another (e.g., a bar graph to a circle graph)
	Manipulate data from tables and graphs
	Interpret and use information from figures, tables, and graphs
	Analyze and draw conclusions based on information from figures, tables, and graphs
	Graphical Representations:
	Interpret and use information from graphs in the coordinate plane
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
	Solve problems integrating multiple algebraic and/or geometric concepts
	Analyze and draw conclusions based on information from graphs in the coordinate plane

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TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
B. analyze numerical data using measures of central tendency, variability, and correlation in order to make inferences;	**Basic Operations & Applications:** Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average **Probability, Statistics, & Data Analysis:** Calculate the average of a list of positive whole numbers Calculate the average of a list of numbers Calculate the average, given the number of data values and the sum of the data values Calculate the missing data value, given the average and all data values but one Calculate the average, given the frequency counts of all the data values Calculate or use a weighted average Distinguish between mean, median, and mode for a list of numbers
C. analyze graphs from journals, newspapers, and other sources to determine the validity of stated arguments; and	**Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Calculate the average, given the number of data values and the sum of the data values Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs
D. use regression methods available through technology to describe various models for data such as linear, quadratic, exponential, etc., select the most appropriate model, and use the model to interpret information.	**Probability, Statistics, & Data Analysis:** Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Interpret and use information from graphs in the coordinate plane Solve problems integrating multiple algebraic and/or geometric concepts

TABLE 2I

TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Analyze and draw conclusions based on information from graphs in the coordinate plane
M.3. <mark>The student</mark> develops and implements a plan for collecting and <mark>analyzing data</mark> in order to make decisions. The student is expected to:	
A. formulate a meaningful question, determine the data needed to answer the question, gather the appropriate data, <mark>analyze the data, and draw reasonable conclusions;</mark>	**Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Calculate the average, given the number of data values and the sum of the data values Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Graphical Representations:** Analyze and draw conclusions based on information from graphs in the coordinate plane
B. communicate methods used, analyses conducted, and conclusions drawn for a data-analysis project by written report, visual display, oral report, or multi-media presentation; and	
C. <mark>determine the appropriateness of a model for making predictions from a given set of data.</mark>	**Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Calculate the average, given the number of data values and the sum of the data values Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs

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TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
M.4. The student uses probability models to describe everyday situations involving chance. The student is expected to:	
A. compare theoretical and empirical probability; and	**Probability, Statistics, & Data Analysis:**
	Use the relationship between the probability of an event and the probability of its complement
	Determine the probability of a simple event
	Exhibit knowledge of simple counting techniques
	Compute straightforward probabilities for common situations
	Use Venn diagrams in counting
	Apply counting techniques
	Compute a probability when the event and/or sample space are not given or obvious
	Exhibit knowledge of conditional and joint probability
B. use experiments to determine the reasonableness of a theoretical model such as binomial, geometric, etc.	

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TABLE 2I

TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
M.5. The student uses functional relationships to solve problems related to personal income. The student is expected to:	
A. use rates, linear functions, and direct variation to solve problems involving personal finance and budgeting, including compensations and deductions;	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) Solve word problems containing several rates, proportions, or percentages Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings) **Expressions, Equations, & Inequalities:** Substitute whole numbers for unknown quantities to evaluate expressions Evaluate algebraic expressions by substituting integers for unknown quantities **Functions:** Evaluate quadratic functions, expressed in function notation, at integer values Evaluate polynomial functions, expressed in function notation, at integer values

TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
B. solve problems involving personal taxes; and	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) Solve word problems containing several rates, proportions, or percentages Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings)
C. analyze data to make decisions about banking.	**Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Calculate the average, given the number of data values and the sum of the data values Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Graphical Representations:** Analyze and draw conclusions based on information from graphs in the coordinate plane

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TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
M.6. The student uses algebraic formulas, graphs, and amortization models to solve problems involving credit. The student is expected to:	
A. analyze methods of payment available in retail purchasing and compare relative advantages and disadvantages of each option;	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) Solve word problems containing several rates, proportions, or percentages Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings) **Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Calculate the average, given the number of data values and the sum of the data values Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs **Numbers: Concepts & Properties:** Work problems involving positive integer exponents Apply rules of exponents Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers **Expressions, Equations, & Inequalities:** Substitute whole numbers for unknown quantities to evaluate expressions Evaluate algebraic expressions by substituting integers for unknown quantities

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TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
B. use amortization models to investigate home financing and <mark>compare buying and renting a home</mark>; and	**Basic Operations & Applications:**
	Perform one-operation computation with whole numbers and decimals
	Solve problems in one or two steps using whole numbers
	Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent
	Solve some routine two-step arithmetic problems
	Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average
	Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)
	Solve word problems containing several rates, proportions, or percentages
	Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings)
	Probability, Statistics, & Data Analysis:
	Perform a single computation using information from a table or chart
	Calculate the average, given the number of data values and the sum of the data values
	Translate from one representation of data to another (e.g., a bar graph to a circle graph)
	Manipulate data from tables and graphs
	Interpret and use information from figures, tables, and graphs
	Analyze and draw conclusions based on information from figures, tables, and graphs
	Numbers: Concepts & Properties:
	Work problems involving positive integer exponents
	Apply rules of exponents
	Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers
	Expressions, Equations, & Inequalities:
	Substitute whole numbers for unknown quantities to evaluate expressions
	Evaluate algebraic expressions by substituting integers for unknown quantities

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TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
C. use amortization models to investigate automobile financing and <mark>compare buying and leasing a vehicle</mark>.	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) Solve word problems containing several rates, proportions, or percentages Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings) **Probability, Statistics, & Data Analysis:** Perform a single computation using information from a table or chart Calculate the average, given the number of data values and the sum of the data values Translate from one representation of data to another (e.g., a bar graph to a circle graph) Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs Distinguish between mean, median, and mode for a list of numbers **Numbers: Concepts & Properties:** Work problems involving positive integer exponents Apply rules of exponents Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers **Expressions, Equations, & Inequalities:** Substitute whole numbers for unknown quantities to evaluate expressions Evaluate algebraic expressions by substituting integers for unknown quantities

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TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
M.7. The student uses algebraic formulas, numerical techniques, and graphs to solve problems related to financial planning. The student is expected to:	
A. analyze types of savings options involving simple and compound interest and compare relative advantages of these options;	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) Solve word problems containing several rates, proportions, or percentages Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings) **Numbers: Concepts & Properties:** Work problems involving positive integer exponents Apply rules of exponents Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers **Expressions, Equations, & Inequalities:** Substitute whole numbers for unknown quantities to evaluate expressions Evaluate algebraic expressions by substituting integers for unknown quantities
B. analyze and compare coverage options and rates in insurance; and	
C. investigate and compare investment options including stocks, bonds, annuities, and retirement plans.	**Basic Operations & Applications:** Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent Solve some routine two-step arithmetic problems Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average

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TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
	Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)
	Solve word problems containing several rates, proportions, or percentages
	Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings)
	Numbers: Concepts & Properties:
	Work problems involving positive integer exponents
	Apply rules of exponents
	Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers
	Expressions, Equations, & Inequalities:
	Substitute whole numbers for unknown quantities to evaluate expressions
	Evaluate algebraic expressions by substituting integers for unknown quantities
M.8. The student uses algebraic and geometric models to describe situations and solve problems. The student is expected to:	
A. use geometric models available through technology to model growth and decay in areas such as population, biology, and ecology;	**Expressions, Equations, & Inequalities:**
	Manipulate expressions and equations
	Write expressions, equations, and inequalities for common algebra settings
	Write expressions that require planning and/or manipulating to accurately model a situation
	Write equations and inequalities that require planning, manipulating, and/or solving
	Graphical Representations:
	Solve problems integrating multiple algebraic and/or geometric concepts

TEXAS Mathematical Models with Applications Essential Knowledge and Skills	ACT Mathematics College Readiness Standards
B. use trigonometric ratios and functions available through technology to calculate distances and model periodic motion; and	**Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Functions:** Express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given side lengths Apply basic trigonometric ratios to solve right-triangle problems Use trigonometric concepts and basic identities to solve problems
C. use direct and inverse variation to describe physical laws such as Hook's, Newton's, and Boyle's laws.	**Expressions, Equations, & Inequalities:** Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings Write expressions that require planning and/or manipulating to accurately model a situation Write equations and inequalities that require planning, manipulating, and/or solving **Graphical Representations:** Solve problems integrating multiple algebraic and/or geometric concepts
M.9. The student uses algebraic and geometric models to represent patterns and structures. The student is expected to:	
A. use geometric transformations, symmetry, and perspective drawings to describe mathematical patterns and structure in art and architecture; and	**Graphical Representations:** Solve problems integrating multiple algebraic and/or geometric concepts **Properties of Plane Figures:** Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
B. use geometric transformations, proportions, and periodic motion to describe mathematical patterns and structure in music	**Graphical Representations:** Solve problems integrating multiple algebraic and/or geometric concepts **Functions:** Use trigonometric concepts and basic identities to solve problems

= Measured by the ACT Mathematics Test

TEXAS Grade 8 Science Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
1. Scientific Processes The student conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes The student uses scientific inquiry methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting and using equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment
B. collect data by observing and measuring;	
C. organize, analyze, evaluate, make inferences, and predict trends from direct and indirect evidence;	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
D. communicate valid conclusions; and	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
E. construct graphs, tables, maps, and charts using tools including computers to organize, examine, and evaluate data.	**Interpretation of Data:** Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Translate information into a table, graph, or diagram

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TABLE 3A

TEXAS Grade 8 Science Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
3. Scientific Processes	
The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. draw inferences based on data related to promotional materials for products and services;	
C. represent the natural world using models and identify their limitations;	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model Identify key issues or assumptions in a model Identify strengths and weaknesses in one or more models
D. evaluate the impact of research on scientific thought, society, and the environment; and	
E. connect Grade 8 science concepts with the history of science and contributions of scientists.	
4. Scientific Processes	
The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:	
A. collect, record, and analyze information using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, hot plates, dissecting equipment, test tubes, safety goggles, spring scales, balances, microscopes, telescopes, thermometers, calculators, field equipment, computers, computer probes, water test kits, and timing devices; and	
B. extrapolate from collected information to make predictions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
5. Scientific Processes	
The student knows that relationships exist between science and technology. The student is expected to:	
A. identify a design problem and propose a solution;	**Scientific Investigation:** Understand a simple experimental design

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TEXAS Grade 8 Science Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
B. design and test a model to solve the problem; and	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Identify strengths and weaknesses in one or more models
C. evaluate the model and make recommendations for improving the model.	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Identify strengths and weaknesses in one or more models
6. Science Concepts The student knows that interdependence occurs among living systems. The student is expected to:	
A. describe interactions among systems in the human organism;	
B. identify feedback mechanisms that maintain equilibrium of systems such as body temperature, turgor pressure, and chemical reactions; and	
C. describe interactions within ecosystems.	
7. Science Concepts The student knows that there is a relationship between force and motion. The student is expected to:	
A. demonstrate how unbalanced forces cause changes in the speed or direction of an object's motion; and	
B. recognize that waves are generated and can travel through different media.	
8. Science Concepts The student knows that matter is composed of atoms. The student is expected to:	
A. describe the structure and parts of an atom; and	
B. identify the properties of an atom including mass and electrical charge.	
9. Science Concepts The student knows that substances have chemical and physical properties. The student is expected to:	
A. demonstrate that substances may react chemically to form new substances;	
B. interpret information on the periodic table to understand that physical properties are used to group elements;	
C. recognize the importance of formulas and equations to express what happens in a chemical reaction; and	
D. identify that physical and chemical properties influence the development and application of everyday materials such as cooking surfaces, insulation, adhesives, and plastics.	

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TABLE 3A

TEXAS Grade 8 Science Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
10. Science Concepts The student knows that complex interactions occur between matter and energy. The student is expected to:	
A. illustrate interactions between matter and energy including specific heat;	
B. describe interactions among solar, weather, and ocean systems; and	
C. identify and demonstrate that loss or gain of heat energy occurs during exothermic and endothermic chemical reactions.	
11. Science Concepts The student knows that traits of species can change through generations and that the instructions for traits are contained in the genetic material of the organisms. The student is expected to:	
A. identify that change in environmental conditions can affect the survival of individuals and of species;	
B. distinguish between inherited traits and other characteristics that result from interactions with the environment; and	
C. make predictions about possible outcomes of various genetic combinations of inherited characteristics.	
12. Science Concepts The student knows that cycles exist in Earth systems. The student is expected to:	
A. analyze and predict the sequence of events in the lunar and rock cycles;	
B. relate the role of oceans to climatic changes; and	
C. predict the results of modifying the Earth's nitrogen, water, and carbon cycles.	
13. Science Concepts The student knows characteristics of the universe. The student is expected to:	
A. describe characteristics of the universe such as stars and galaxies;	
B. explain the use of light years to describe distances in the universe; and	
C. research and describe historical scientific theories of the origin of the universe.	
14. Science Concepts The student knows that natural events and human activities can alter Earth systems. The student is expected to:	
A. predict land features resulting from gradual changes such as mountain building, beach erosion, land subsidence, and continental drift;	

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TABLE 3A

TEXAS Grade 8 Science Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
B. analyze how natural or human events may have contributed to the extinction of some species; and	
C. describe how human activities have modified soil, water, and air quality	

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TEXAS Integrated Physics and Chemistry Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
1. Scientific Processes	
The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes	
The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
D. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Integrated Physics and Chemistry Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
3. Scientific Processes	
<mark>The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</mark>	
A. <mark>analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;</mark>	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. draw inferences based on data related to promotional materials for products and services;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe connections between physics and chemistry, and future careers; and	
E. research and describe the history of physics, chemistry, and contributions of scientists.	
4. Science Concepts	
The student knows concepts of force and motion evident in everyday life. The student is expected to:	
A. calculate speed, momentum, acceleration, work, and power in systems such as in the human body, moving toys, and machines;	
B. investigate and describe applications of Newton's laws such as in vehicle restraints, sports activities, geological processes, and satellite orbits;	
C. analyze the effects caused by changing force or distance in simple machines as demonstrated in household devices, the human body, and vehicles; and	
D. investigate and demonstrate mechanical advantage and efficiency of various machines such as levers, motors, wheels and axles, pulleys, and ramps.	
5. Science Concepts	
The student knows the effects of waves on everyday life. The student is expected to:	
A. demonstrate wave types and their characteristics through a variety of activities such as modeling with ropes and coils, activating tuning forks, and interpreting data on seismic waves;	
B. demonstrate wave interactions including interference, polarization, reflection, refraction, and resonance within various materials;	
C. identify uses of electromagnetic waves in various technological applications such as fiber optics, optical scanners, and microwaves; and	

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TEXAS Integrated Physics and Chemistry Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
D. demonstrate the application of acoustic principles such as in echolocation, musical instruments, noise pollution, and sonograms.	
6. Science Concepts	
The student knows the impact of energy transformations in everyday life. The student is expected to:	
A. describe the law of conservation of energy;	
B. investigate and demonstrate the movement of heat through solids, liquids, and gases by convection, conduction, and radiation;	
C. analyze the efficiency of energy conversions that are responsible for the production of electricity such as from radiant, nuclear, and geothermal sources, fossil fuels such as coal, gas, oil, and the movement of water or wind;	
D. investigate and compare economic and environmental impacts of using various energy sources such as rechargeable or disposable batteries and solar cells;	
E. measure the thermal and electrical conductivity of various materials and explain results;	
F. investigate and compare series and parallel circuits;	
G. analyze the relationship between an electric current and the strength of its magnetic field using simple electromagnets; and	
H. analyze the effects of heating and cooling processes in systems such as weather, living, and mechanical.	
7. Science Concepts	
The student knows relationships exist between properties of matter and its components. The student is expected to:	
A. investigate and identify properties of fluids including density, viscosity, and buoyancy;	
B. research and describe the historical development of the atomic theory;	
C. identify constituents of various materials or objects such as metal salts, light sources, fireworks displays, and stars using spectral-analysis techniques;	
D. relate the chemical behavior of an element including bonding, to its placement on the periodic table; and	
E. classify samples of matter from everyday life as being elements, compounds, or mixtures.	

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TEXAS Integrated Physics and Chemistry Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
8. Science Concepts	
The student knows that changes in matter affect everyday life. The student is expected to:	
A. distinguish between physical and chemical changes in matter such as oxidation, digestion, changes in states, and stages in the rock cycle;	
B. analyze energy changes that accompany chemical reactions such as those occurring in heat packs, cold packs, and glow sticks to classify them as endergonic or exergonic reactions;	
C. investigate and identify the law of conservation of mass;	
D. describe types of nuclear reactions such as fission and fusion and their roles in applications such as medicine and energy production; and	
E. research and describe the environmental and economic impact of the end-products of chemical reactions.	
9. Science Concepts	
The student knows how solution chemistry is a part of everyday life. The student is expected to:	
A. relate the structure of water to its function as the universal solvent;	
B. relate the concentration of ions in a solution to physical and chemical properties such as pH, electrolytic behavior, and reactivity;	
C. simulate the effects of acid rain on soil, buildings, statues, or microorganisms;	
D. demonstrate how various factors influence solubility including temperature, pressure, and nature of the solute and solvent; and	
E. demonstrate how factors such as particle size, influence the rate of dissolving	

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TEXAS Integrated Physics and Chemistry Essential Knowledge and Skills	PLAN Science College Readiness Standards
1. Scientific Processes	
The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes	
The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand precision and accuracy issues
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
D. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Integrated Physics and Chemistry Essential Knowledge and Skills	PLAN Science College Readiness Standards
3. Scientific Processes	
<mark>The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</mark>	
A. <mark>analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;</mark>	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. draw inferences based on data related to promotional materials for products and services;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe connections between physics and chemistry, and future careers; and	
E. research and describe the history of physics, chemistry, and contributions of scientists.	
4. Science Concepts	
The student knows concepts of force and motion evident in everyday life. The student is expected to:	
A. calculate speed, momentum, acceleration, work, and power in systems such as in the human body, moving toys, and machines;	
B. investigate and describe applications of Newton's laws such as in vehicle restraints, sports activities, geological processes, and satellite orbits;	
C. analyze the effects caused by changing force or distance in simple machines as demonstrated in household devices, the human body, and vehicles; and	
D. investigate and demonstrate mechanical advantage and efficiency of various machines such as levers, motors, wheels and axles, pulleys, and ramps.	
5. Science Concepts	
The student knows the effects of waves on everyday life. The student is expected to:	
A. demonstrate wave types and their characteristics through a variety of activities such as modeling with ropes and coils, activating tuning forks, and interpreting data on seismic waves;	
B. demonstrate wave interactions including interference, polarization, reflection, refraction, and resonance within various materials;	
C. identify uses of electromagnetic waves in various technological applications such as fiber optics, optical scanners, and microwaves; and	

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TEXAS Integrated Physics and Chemistry Essential Knowledge and Skills	PLAN Science College Readiness Standards
D. demonstrate the application of acoustic principles such as in echolocation, musical instruments, noise pollution, and sonograms.	
6. Science Concepts	
The student knows the impact of energy transformations in everyday life. The student is expected to:	
A. describe the law of conservation of energy;	
B. investigate and demonstrate the movement of heat through solids, liquids, and gases by convection, conduction, and radiation;	
C. analyze the efficiency of energy conversions that are responsible for the production of electricity such as from radiant, nuclear, and geothermal sources, fossil fuels such as coal, gas, oil, and the movement of water or wind;	
D. investigate and compare economic and environmental impacts of using various energy sources such as rechargeable or disposable batteries and solar cells;	
E. measure the thermal and electrical conductivity of various materials and explain results;	
F. investigate and compare series and parallel circuits;	
G. analyze the relationship between an electric current and the strength of its magnetic field using simple electromagnets; and	
H. analyze the effects of heating and cooling processes in systems such as weather, living, and mechanical.	
7. Science Concepts	
The student knows relationships exist between properties of matter and its components. The student is expected to:	
A. investigate and identify properties of fluids including density, viscosity, and buoyancy;	
B. research and describe the historical development of the atomic theory;	
C. identify constituents of various materials or objects such as metal salts, light sources, fireworks displays, and stars using spectral-analysis techniques;	
D. relate the chemical behavior of an element including bonding, to its placement on the periodic table; and	
E. classify samples of matter from everyday life as being elements, compounds, or mixtures.	

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TABLE 3C

TEXAS Integrated Physics and Chemistry Essential Knowledge and Skills	PLAN Science College Readiness Standards
8. Science Concepts	
The student knows that changes in matter affect everyday life. The student is expected to:	
A. distinguish between physical and chemical changes in matter such as oxidation, digestion, changes in states, and stages in the rock cycle;	
B. analyze energy changes that accompany chemical reactions such as those occurring in heat packs, cold packs, and glow sticks to classify them as endergonic or exergonic reactions;	
C. investigate and identify the law of conservation of mass;	
D. describe types of nuclear reactions such as fission and fusion and their roles in applications such as medicine and energy production; and	
E. research and describe the environmental and economic impact of the end-products of chemical reactions.	
9. Science Concepts	
The student knows how solution chemistry is a part of everyday life. The student is expected to:	
A. relate the structure of water to its function as the universal solvent;	
B. relate the concentration of ions in a solution to physical and chemical properties such as pH, electrolytic behavior, and reactivity;	
C. simulate the effects of acid rain on soil, buildings, statues, or microorganisms;	
D. demonstrate how various factors influence solubility including temperature, pressure, and nature of the solute and solvent; and	
E. demonstrate how factors such as particle size, influence the rate of dissolving	

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TEXAS Integrated Physics and Chemistry Essential Knowledge and Skills	ACT Science College Readiness Standards
1. Scientific Processes	
The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes	
The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand precision and accuracy issues
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Integrated Physics and Chemistry Essential Knowledge and Skills	ACT Science College Readiness Standards
D. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
3. Scientific Processes The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. draw inferences based on data related to promotional materials for products and services;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe connections between physics and chemistry, and future careers; and	
E. research and describe the history of physics, chemistry, and contributions of scientists.	
4. Science Concepts The student knows concepts of force and motion evident in everyday life. The student is expected to:	
A. calculate speed, momentum, acceleration, work, and power in systems such as in the human body, moving toys, and machines;	
B. investigate and describe applications of Newton's laws such as in vehicle restraints, sports activities, geological processes, and satellite orbits;	
C. analyze the effects caused by changing force or distance in simple machines as demonstrated in household devices, the human body, and vehicles; and	
D. investigate and demonstrate mechanical advantage and efficiency of various machines such as levers, motors, wheels and axles, pulleys, and ramps.	
5. Science Concepts The student knows the effects of waves on everyday life. The student is expected to:	
A. demonstrate wave types and their characteristics through a variety of activities such as modeling with ropes and coils, activating tuning forks, and interpreting data on seismic waves;	

TEXAS Integrated Physics and Chemistry Essential Knowledge and Skills	ACT Science College Readiness Standards
B. demonstrate wave interactions including interference, polarization, reflection, refraction, and resonance within various materials;	
C. identify uses of electromagnetic waves in various technological applications such as fiber optics, optical scanners, and microwaves; and	
D. demonstrate the application of acoustic principles such as in echolocation, musical instruments, noise pollution, and sonograms.	
6. Science Concepts	
The student knows the impact of energy transformations in everyday life. The student is expected to:	
A. describe the law of conservation of energy;	
B. investigate and demonstrate the movement of heat through solids, liquids, and gases by convection, conduction, and radiation;	
C. analyze the efficiency of energy conversions that are responsible for the production of electricity such as from radiant, nuclear, and geothermal sources, fossil fuels such as coal, gas, oil, and the movement of water or wind;	
D. investigate and compare economic and environmental impacts of using various energy sources such as rechargeable or disposable batteries and solar cells;	
E. measure the thermal and electrical conductivity of various materials and explain results;	
F. investigate and compare series and parallel circuits;	
G. analyze the relationship between an electric current and the strength of its magnetic field using simple electromagnets; and	
H. analyze the effects of heating and cooling processes in systems such as weather, living, and mechanical.	
7. Science Concepts	
The student knows relationships exist between properties of matter and its components. The student is expected to:	
A. investigate and identify properties of fluids including density, viscosity, and buoyancy;	
B. research and describe the historical development of the atomic theory;	
C. identify constituents of various materials or objects such as metal salts, light sources, fireworks displays, and stars using spectral-analysis techniques;	
D. relate the chemical behavior of an element including bonding, to its placement on the periodic table; and	

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TEXAS Integrated Physics and Chemistry Essential Knowledge and Skills	ACT Science College Readiness Standards
E. classify samples of matter from everyday life as being elements, compounds, or mixtures.	
8. Science Concepts	
The student knows that changes in matter affect everyday life. The student is expected to:	
A. distinguish between physical and chemical changes in matter such as oxidation, digestion, changes in states, and stages in the rock cycle;	
B. analyze energy changes that accompany chemical reactions such as those occurring in heat packs, cold packs, and glow sticks to classify them as endergonic or exergonic reactions;	
C. investigate and identify the law of conservation of mass;	
D. describe types of nuclear reactions such as fission and fusion and their roles in applications such as medicine and energy production; and	
E. research and describe the environmental and economic impact of the end-products of chemical reactions.	
9. Science Concepts	
The student knows how solution chemistry is a part of everyday life. The student is expected to:	
A. relate the structure of water to its function as the universal solvent;	
B. relate the concentration of ions in a solution to physical and chemical properties such as pH, electrolytic behavior, and reactivity;	
C. simulate the effects of acid rain on soil, buildings, statues, or microorganisms;	
D. demonstrate how various factors influence solubility including temperature, pressure, and nature of the solute and solvent; and	
E. demonstrate how factors such as particle size, influence the rate of dissolving	

TEXAS Biology Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
1. Scientific Processes	
The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes	
The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
D. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Biology Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
3. Scientific Processes	
The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. evaluate promotional claims that relate to biological issues such as product labeling and advertisements;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between biology and future careers;	
E. evaluate models according to their adequacy in representing biological objects or events; and	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Identify strengths and weaknesses in one or more models
F. research and describe the history of biology and contributions of scientists.	
4. Science Concepts	
The student knows that cells are the basic structures of all living things and have specialized parts that perform specific functions, and that viruses are different from cells and have different properties and functions. The student is expected to:	
A. identify the parts of prokaryotic and eukaryotic cells;	
B. investigate and identify cellular processes including homeostasis, permeability, energy production, transportation of molecules, disposal of wastes, function of cellular parts, and synthesis of new molecules;	
C. compare the structures and functions of viruses to cells and describe the role of viruses in causing diseases and conditions such as acquired immune deficiency syndrome, common colds, smallpox, influenza, and warts; and	
D. identify and describe the role of bacteria in maintaining health such as in digestion and in causing diseases such as in streptococcus infections and diphtheria.	

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TEXAS Biology Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
5. Science Concepts	
The student knows how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	
A. compare cells from different parts of plants and animals including roots, stems, leaves, epithelia, muscles, and bones to show specialization of structure and function;	
B. identify cell differentiation in the development of organisms; and	
C. sequence the levels of organization in multicellular organisms to relate the parts to each other and to the whole.	
6. Science Concepts	
The student knows the structures and functions of nucleic acids in the mechanisms of genetics. The student is expected to:	
A. describe components of deoxyribonucleic acid (DNA), and illustrate how information for specifying the traits of an organism is carried in the DNA;	
B. explain replication, transcription, and translation using models of DNA and ribonucleic acid (RNA);	
C. identify and illustrate how changes in DNA cause mutations and evaluate the significance of these changes;	
D. compare genetic variations observed in plants and animals;	
E. compare the processes of mitosis and meiosis and their significance to sexual and asexual reproduction; and	
F. identify and analyze karyotypes.	
7. Science Concepts	
The student knows the theory of biological evolution. The student is expected to:	
A. identify evidence of change in species using fossils, DNA sequences, anatomical similarities, physiological similarities, and embryology; and	
B. illustrate the results of natural selection in speciation, diversity, phylogeny, adaptation, behavior, and extinction.	
8. Science Concepts	
The student knows applications of taxonomy and can identify its limitations. The student is expected to:	
A. collect and classify organisms at several taxonomic levels such as species, phylum, and kingdom using dichotomous keys;	
B. analyze relationships among organisms and develop a model of a hierarchical classification system based on similarities and differences using taxonomic nomenclature; and	

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TEXAS Biology Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
C. identify characteristics of kingdoms including monerans, protists, fungi, plants, and animals.	
9. Science Concepts	
The student knows metabolic processes and energy transfers that occur in living organisms. The student is expected to:	
A. compare the structures and functions of different types of biomolecules such as carbohydrates, lipids, proteins, and nucleic acids;	
B. compare the energy flow in photosynthesis to the energy flow in cellular respiration;	
C. investigate and identify the effects of enzymes on food molecules; and	
D. analyze the flow of matter and energy through different trophic levels and between organisms and the physical environment.	
10. Science Concepts	
The student knows that, at all levels of nature, living systems are found within other living systems, each with its own boundary and limits. The student is expected to:	
A. interpret the functions of systems in organisms including circulatory, digestive, nervous, endocrine, reproductive, integumentary, skeletal, respiratory, muscular, excretory, and immune;	
B. compare the interrelationships of organ systems to each other and to the body as a whole; and	
C. analyze and identify characteristics of plant systems and subsystems.	
11. Science Concepts	
The student knows that organisms maintain homeostasis. The student is expected to:	
A. identify and describe the relationships between internal feedback mechanisms in the maintenance of homeostasis;	
B. investigate and identify how organisms, including humans, respond to external stimuli;	
C. analyze the importance of nutrition, environmental conditions, and physical exercise on health; and	
D. summarize the role of microorganisms in maintaining and disrupting equilibrium including diseases in plants and animals and decay in an ecosystem.	
12. Science Concepts	
The student knows that interdependence and interactions occur within an ecosystem. The student is expected to:	
A. analyze the flow of energy through various cycles including the carbon, oxygen, nitrogen, and water cycles;	

TEXAS Biology Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
B. interpret interactions among organisms exhibiting predation, parasitism, commensalism, and mutualism;	
C. compare variations, tolerances, and adaptations of plants and animals in different biomes;	
D. identify and illustrate that long-term survival of species is dependent on a resource base that may be limited; and	
E. investigate and explain the interactions in an ecosystem including food chains, food webs, and food pyramids.	
13. Science Concepts	
The student knows the significance of plants in the environment. The student is expected to:	
A. evaluate the significance of structural and physiological adaptations of plants to their environments; and	
B. survey and identify methods of reproduction, growth, and development of various types of plants.	

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TABLE 3F

TEXAS Biology Essential Knowledge and Skills	PLAN Science College Readiness Standards
1. Scientific Processes	
The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes	
The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand precision and accuracy issues
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
D. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Biology Essential Knowledge and Skills	PLAN Science College Readiness Standards
3. Scientific Processes	
The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. evaluate promotional claims that relate to biological issues such as product labeling and advertisements;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between biology and future careers;	
E. evaluate models according to their adequacy in representing biological objects or events; and	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Identify strengths and weaknesses in one or more models
F. research and describe the history of biology and contributions of scientists.	
4. Science Concepts	
The student knows that cells are the basic structures of all living things and have specialized parts that perform specific functions, and that viruses are different from cells and have different properties and functions. The student is expected to:	
A. identify the parts of prokaryotic and eukaryotic cells;	
B. investigate and identify cellular processes including homeostasis, permeability, energy production, transportation of molecules, disposal of wastes, function of cellular parts, and synthesis of new molecules;	
C. compare the structures and functions of viruses to cells and describe the role of viruses in causing diseases and conditions such as acquired immune deficiency syndrome, common colds, smallpox, influenza, and warts; and	
D. identify and describe the role of bacteria in maintaining health such as in digestion and in causing diseases such as in streptococcus infections and diphtheria.	

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TEXAS Biology Essential Knowledge and Skills	PLAN Science College Readiness Standards
5. Science Concepts The student knows how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	
A. compare cells from different parts of plants and animals including roots, stems, leaves, epithelia, muscles, and bones to show specialization of structure and function;	
B. identify cell differentiation in the development of organisms; and	
C. sequence the levels of organization in multicellular organisms to relate the parts to each other and to the whole.	
6. Science Concepts The student knows the structures and functions of nucleic acids in the mechanisms of genetics. The student is expected to:	
A. describe components of deoxyribonucleic acid (DNA), and illustrate how information for specifying the traits of an organism is carried in the DNA;	
B. explain replication, transcription, and translation using models of DNA and ribonucleic acid (RNA);	
C. identify and illustrate how changes in DNA cause mutations and evaluate the significance of these changes;	
D. compare genetic variations observed in plants and animals;	
E. compare the processes of mitosis and meiosis and their significance to sexual and asexual reproduction; and	
F. identify and analyze karyotypes.	
7. Science Concepts The student knows the theory of biological evolution. The student is expected to:	
A. identify evidence of change in species using fossils, DNA sequences, anatomical similarities, physiological similarities, and embryology; and	
B. illustrate the results of natural selection in speciation, diversity, phylogeny, adaptation, behavior, and extinction.	
8. Science Concepts The student knows applications of taxonomy and can identify its limitations. The student is expected to:	
A. collect and classify organisms at several taxonomic levels such as species, phylum, and kingdom using dichotomous keys;	
B. analyze relationships among organisms and develop a model of a hierarchical classification system based on similarities and differences using taxonomic nomenclature; and	

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TEXAS Biology Essential Knowledge and Skills	PLAN Science College Readiness Standards
C. identify characteristics of kingdoms including monerans, protists, fungi, plants, and animals.	
9. Science Concepts	
The student knows metabolic processes and energy transfers that occur in living organisms. The student is expected to:	
A. compare the structures and functions of different types of biomolecules such as carbohydrates, lipids, proteins, and nucleic acids;	
B. compare the energy flow in photosynthesis to the energy flow in cellular respiration;	
C. investigate and identify the effects of enzymes on food molecules; and	
D. analyze the flow of matter and energy through different trophic levels and between organisms and the physical environment.	
10. Science Concepts	
The student knows that, at all levels of nature, living systems are found within other living systems, each with its own boundary and limits. The student is expected to:	
A. interpret the functions of systems in organisms including circulatory, digestive, nervous, endocrine, reproductive, integumentary, skeletal, respiratory, muscular, excretory, and immune;	
B. compare the interrelationships of organ systems to each other and to the body as a whole; and	
C. analyze and identify characteristics of plant systems and subsystems.	
11. Science Concepts	
The student knows that organisms maintain homeostasis. The student is expected to:	
A. identify and describe the relationships between internal feedback mechanisms in the maintenance of homeostasis;	
B. investigate and identify how organisms, including humans, respond to external stimuli;	
C. analyze the importance of nutrition, environmental conditions, and physical exercise on health; and	
D. summarize the role of microorganisms in maintaining and disrupting equilibrium including diseases in plants and animals and decay in an ecosystem.	
12. Science Concepts	
The student knows that interdependence and interactions occur within an ecosystem. The student is expected to:	
A. analyze the flow of energy through various cycles including the carbon, oxygen, nitrogen, and water cycles;	

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TEXAS Biology Essential Knowledge and Skills	PLAN Science College Readiness Standards
B. interpret interactions among organisms exhibiting predation, parasitism, commensalism, and mutualism;	
C. compare variations, tolerances, and adaptations of plants and animals in different biomes;	
D. identify and illustrate that long-term survival of species is dependent on a resource base that may be limited; and	
E. investigate and explain the interactions in an ecosystem including food chains, food webs, and food pyramids.	
13. Science Concepts	
The student knows the significance of plants in the environment. The student is expected to:	
A. evaluate the significance of structural and physiological adaptations of plants to their environments; and	
B. survey and identify methods of reproduction, growth, and development of various types of plants.	

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TEXAS Biology Essential Knowledge and Skills	ACT Science College Readiness Standards
1. Scientific Processes The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand precision and accuracy issues
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Biology Essential Knowledge and Skills	ACT Science College Readiness Standards
D. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
3. Scientific Processes The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. evaluate promotional claims that relate to biological issues such as product labeling and advertisements;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between biology and future careers;	
E. evaluate models according to their adequacy in representing biological objects or events; and	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
F. research and describe the history of biology and contributions of scientists.	
4. Science Concepts The student knows that cells are the basic structures of all living things and have specialized parts that perform specific functions, and that viruses are different from cells and have different properties and functions. The student is expected to:	
A. identify the parts of prokaryotic and eukaryotic cells;	
B. investigate and identify cellular processes including homeostasis, permeability, energy production, transportation of molecules, disposal of wastes, function of cellular parts, and synthesis of new molecules;	

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TEXAS Biology Essential Knowledge and Skills	ACT Science College Readiness Standards
C. compare the structures and functions of viruses to cells and describe the role of viruses in causing diseases and conditions such as acquired immune deficiency syndrome, common colds, smallpox, influenza, and warts; and	
D. identify and describe the role of bacteria in maintaining health such as in digestion and in causing diseases such as in streptococcus infections and diphtheria.	
5. Science Concepts	
The student knows how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	
A. compare cells from different parts of plants and animals including roots, stems, leaves, epithelia, muscles, and bones to show specialization of structure and function;	
B. identify cell differentiation in the development of organisms; and	
C. sequence the levels of organization in multicellular organisms to relate the parts to each other and to the whole.	
6. Science Concepts	
The student knows the structures and functions of nucleic acids in the mechanisms of genetics. The student is expected to:	
A. describe components of deoxyribonucleic acid (DNA), and illustrate how information for specifying the traits of an organism is carried in the DNA;	
B. explain replication, transcription, and translation using models of DNA and ribonucleic acid (RNA);	
C. identify and illustrate how changes in DNA cause mutations and evaluate the significance of these changes;	
D. compare genetic variations observed in plants and animals;	
E. compare the processes of mitosis and meiosis and their significance to sexual and asexual reproduction; and	
F. identify and analyze karyotypes.	
7. Science Concepts	
The student knows the theory of biological evolution. The student is expected to:	
A. identify evidence of change in species using fossils, DNA sequences, anatomical similarities, physiological similarities, and embryology; and	
B. illustrate the results of natural selection in speciation, diversity, phylogeny, adaptation, behavior, and extinction.	

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TEXAS Biology Essential Knowledge and Skills	ACT Science College Readiness Standards
8. Science Concepts The student knows applications of taxonomy and can identify its limitations. The student is expected to:	
A. collect and classify organisms at several taxonomic levels such as species, phylum, and kingdom using dichotomous keys;	
B. analyze relationships among organisms and develop a model of a hierarchical classification system based on similarities and differences using taxonomic nomenclature; and	
C. identify characteristics of kingdoms including monerans, protists, fungi, plants, and animals.	
9. Science Concepts The student knows metabolic processes and energy transfers that occur in living organisms. The student is expected to:	
A. compare the structures and functions of different types of biomolecules such as carbohydrates, lipids, proteins, and nucleic acids;	
B. compare the energy flow in photosynthesis to the energy flow in cellular respiration;	
C. investigate and identify the effects of enzymes on food molecules; and	
D. analyze the flow of matter and energy through different trophic levels and between organisms and the physical environment.	
10. Science Concepts The student knows that, at all levels of nature, living systems are found within other living systems, each with its own boundary and limits. The student is expected to:	
A. interpret the functions of systems in organisms including circulatory, digestive, nervous, endocrine, reproductive, integumentary, skeletal, respiratory, muscular, excretory, and immune;	
B. compare the interrelationships of organ systems to each other and to the body as a whole; and	
C. analyze and identify characteristics of plant systems and subsystems.	
11. Science Concepts The student knows that organisms maintain homeostasis. The student is expected to:	
A. identify and describe the relationships between internal feedback mechanisms in the maintenance of homeostasis;	
B. investigate and identify how organisms, including humans, respond to external stimuli;	
C. analyze the importance of nutrition, environmental conditions, and physical exercise on health; and	

TEXAS Biology Essential Knowledge and Skills	ACT Science College Readiness Standards
D. summarize the role of microorganisms in maintaining and disrupting equilibrium including diseases in plants and animals and decay in an ecosystem.	
12. Science Concepts	
The student knows that interdependence and interactions occur within an ecosystem. The student is expected to:	
A. analyze the flow of energy through various cycles including the carbon, oxygen, nitrogen, and water cycles;	
B. interpret interactions among organisms exhibiting predation, parasitism, commensalism, and mutualism;	
C. compare variations, tolerances, and adaptations of plants and animals in different biomes;	
D. identify and illustrate that long-term survival of species is dependent on a resource base that may be limited; and	
E. investigate and explain the interactions in an ecosystem including food chains, food webs, and food pyramids.	
13. Science Concepts	
The student knows the significance of plants in the environment. The student is expected to:	
A. evaluate the significance of structural and physiological adaptations of plants to their environments; and	
B. survey and identify methods of reproduction, growth, and development of various types of plants.	

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TEXAS Environmental Systems Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
1. Scientific Processes	
The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes	
The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
D. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Environmental Systems Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
3. Scientific Processes	
<mark>The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</mark>	
A. <mark>analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;</mark>	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. make responsible choices in selecting everyday products and services using scientific information;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between environmental science and future careers; and	
E. research and describe the history of environmental science and contributions of scientists.	
4. Science Concepts	
The student knows the relationships of biotic and abiotic factors within habitats, ecosystems, and biomes. The student is expected to:	
A. identify indigenous plants and animals, assess their role within an ecosystem, and compare them to plants and animals in other ecosystems and biomes;	
B. make observations and compile data about fluctuations in abiotic cycles and evaluate the effects of abiotic factors on local ecosystems and biomes;	
C. evaluate the impact of human activity such as methods of pest control, hydroponics, organic gardening, or farming on ecosystems;	
D. predict how the introduction, removal, or reintroduction of an organism may alter the food chain and affect existing populations; and	
E. predict changes that may occur in an ecosystem if biodiversity is increased or reduced.	
5. Science Concepts	
The student knows the interrelationships among the resources within the local environmental system. The student is expected to:	
A. summarize methods of land use and management;	
B. identify source, use, quality, and conservation of water;	

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TEXAS Environmental Systems Essential Knowledge and Skills	EXPLORE Science College Readiness Standards
C. document the use and conservation of both renewable and non-renewable resources;	
D. identify renewable and non-renewable resources that must come from outside an ecosystem such as food, water, lumber, and energy;	
E. analyze and evaluate the economic significance and interdependence of components of the environmental system; and	
F. evaluate the impact of human activity and technology on land fertility and aquatic viability.	
6. Science Concepts	
The student knows the sources and flow of energy through an environmental system. The student is expected to:	
A. summarize forms and sources of energy;	
B. explain the flow of energy in an ecosystem;	
C. investigate and explain the effects of energy transformations within an ecosystem; and	
D. investigate and identify energy interactions in an ecosystem.	
7. Science Concepts	
The student knows the relationship between carrying capacity and changes in populations and ecosystems. The student is expected to:	
A. relate carrying capacity to population dynamics;	
B. calculate exponential growth of populations;	
C. evaluate the depletion of non-renewable resources and propose alternatives; and	
D. analyze and make predictions about the impact on populations of geographic locales, natural events, diseases, and birth and death rates.	
8. Science Concepts	
The student knows that environments change. The student is expected to:	
A. analyze and describe the effects on environments of events such as fires, hurricanes, deforestation, mining, population growth, and municipal development;	
B. explain how regional changes in the environment may have a global effect;	
C. describe how communities have restored an ecosystem; and	
D. examine and describe a habitat restoration or protection program	

TEXAS Environmental Systems Essential Knowledge and Skills	PLAN Science College Readiness Standards
1. Scientific Processes The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand precision and accuracy issues
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Environmental Systems Essential Knowledge and Skills	PLAN Science College Readiness Standards
D. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
3. Scientific Processes The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. make responsible choices in selecting everyday products and services using scientific information;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between environmental science and future careers; and	
E. research and describe the history of environmental science and contributions of scientists.	
4. Science Concepts The student knows the relationships of biotic and abiotic factors within habitats, ecosystems, and biomes. The student is expected to:	
A. identify indigenous plants and animals, assess their role within an ecosystem, and compare them to plants and animals in other ecosystems and biomes;	
B. make observations and compile data about fluctuations in abiotic cycles and evaluate the effects of abiotic factors on local ecosystems and biomes;	
C. evaluate the impact of human activity such as methods of pest control, hydroponics, organic gardening, or farming on ecosystems;	
D. predict how the introduction, removal, or reintroduction of an organism may alter the food chain and affect existing populations; and	
E. predict changes that may occur in an ecosystem if biodiversity is increased or reduced.	

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TEXAS Environmental Systems Essential Knowledge and Skills	PLAN Science College Readiness Standards
5. Science Concepts The student knows the interrelationships among the resources within the local environmental system. The student is expected to:	
A. summarize methods of land use and management;	
B. identify source, use, quality, and conservation of water;	
C. document the use and conservation of both renewable and non-renewable resources;	
D. identify renewable and non-renewable resources that must come from outside an ecosystem such as food, water, lumber, and energy;	
E. analyze and evaluate the economic significance and interdependence of components of the environmental system; and	
F. evaluate the impact of human activity and technology on land fertility and aquatic viability.	
6. Science Concepts The student knows the sources and flow of energy through an environmental system. The student is expected to:	
A. summarize forms and sources of energy;	
B. explain the flow of energy in an ecosystem;	
C. investigate and explain the effects of energy transformations within an ecosystem; and	
D. investigate and identify energy interactions in an ecosystem.	
7. Science Concepts The student knows the relationship between carrying capacity and changes in populations and ecosystems. The student is expected to:	
A. relate carrying capacity to population dynamics;	
B. calculate exponential growth of populations;	
C. evaluate the depletion of non-renewable resources and propose alternatives; and	
D. analyze and make predictions about the impact on populations of geographic locales, natural events, diseases, and birth and death rates.	
8. Science Concepts The student knows that environments change. The student is expected to:	
A. analyze and describe the effects on environments of events such as fires, hurricanes, deforestation, mining, population growth, and municipal development;	
B. explain how regional changes in the environment may have a global effect;	
C. describe how communities have restored an ecosystem; and	

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TEXAS Environmental Systems Essential Knowledge and Skills	PLAN Science College Readiness Standards
D. examine and describe a habitat restoration or protection program	

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TEXAS Environmental Systems Essential Knowledge and Skills	ACT Science College Readiness Standards
1. Scientific Processes The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand precision and accuracy issues
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TABLE 3J

TEXAS Environmental Systems Essential Knowledge and Skills	ACT Science College Readiness Standards
D. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
3. Scientific Processes The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. make responsible choices in selecting everyday products and services using scientific information;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between environmental science and future careers; and	
E. research and describe the history of environmental science and contributions of scientists.	
4. Science Concepts The student knows the relationships of biotic and abiotic factors within habitats, ecosystems, and biomes. The student is expected to:	
A. identify indigenous plants and animals, assess their role within an ecosystem, and compare them to plants and animals in other ecosystems and biomes;	
B. make observations and compile data about fluctuations in abiotic cycles and evaluate the effects of abiotic factors on local ecosystems and biomes;	
C. evaluate the impact of human activity such as methods of pest control, hydroponics, organic gardening, or farming on ecosystems;	
D. predict how the introduction, removal, or reintroduction of an organism may alter the food chain and affect existing populations; and	
E. predict changes that may occur in an ecosystem if biodiversity is increased or reduced.	

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TEXAS Environmental Systems Essential Knowledge and Skills	ACT Science College Readiness Standards
5. Science Concepts	
The student knows the interrelationships among the resources within the local environmental system. The student is expected to:	
A. summarize methods of land use and management;	
B. identify source, use, quality, and conservation of water;	
C. document the use and conservation of both renewable and non-renewable resources;	
D. identify renewable and non-renewable resources that must come from outside an ecosystem such as food, water, lumber, and energy;	
E. analyze and evaluate the economic significance and interdependence of components of the environmental system; and	
F. evaluate the impact of human activity and technology on land fertility and aquatic viability.	
6. Science Concepts	
The student knows the sources and flow of energy through an environmental system. The student is expected to:	
A. summarize forms and sources of energy;	
B. explain the flow of energy in an ecosystem;	
C. investigate and explain the effects of energy transformations within an ecosystem; and	
D. investigate and identify energy interactions in an ecosystem.	
7. Science Concepts	
The student knows the relationship between carrying capacity and changes in populations and ecosystems. The student is expected to:	
A. relate carrying capacity to population dynamics;	
B. calculate exponential growth of populations;	
C. evaluate the depletion of non-renewable resources and propose alternatives; and	
D. analyze and make predictions about the impact on populations of geographic locales, natural events, diseases, and birth and death rates.	
8. Science Concepts	
The student knows that environments change. The student is expected to:	
A. analyze and describe the effects on environments of events such as fires, hurricanes, deforestation, mining, population growth, and municipal development;	
B. explain how regional changes in the environment may have a global effect;	
C. describe how communities have restored an ecosystem; and	

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TEXAS Environmental Systems Essential Knowledge and Skills	ACT Science College Readiness Standards
D. examine and describe a habitat restoration or protection program	

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TABLE 3K

TEXAS Chemistry Essential Knowledge and Skills	PLAN Science College Readiness Standards
1. Scientific Processes The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment
C. express and manipulate chemical quantities using scientific conventions and mathematical procedures such as dimensional analysis, scientific notation, and significant figures;	**Interpretation of Data:** Understand basic scientific terminology Identify and/or use a simple (e.g., linear) mathematical relationship between data Identify and/or use a complex (e.g., nonlinear) mathematical relationship between data
D. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:**

TEXAS Chemistry Essential Knowledge and Skills	PLAN Science College Readiness Standards
	Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
E. ==communicate valid conclusions.==	**Evaluation of Models, Inferences, and Experimental Results:**
	Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
3. Scientific Processes	
==The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:==	
A. ==analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;==	**Evaluation of Models, Inferences, and Experimental Results:**
	Identify key issues or assumptions in a model
	Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why
	Identify strengths and weaknesses in one or more models
	Identify similarities and differences between models
	Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. make responsible choices in selecting everyday products and services using scientific information;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between chemistry and future careers; and	
E. research and describe the history of chemistry and contributions of scientists.	
4. Science Concepts	
The student knows the characteristics of matter. The student is expected to:	
A. differentiate between physical and chemical properties of matter;	
B. analyze examples of solids, liquids, and gases to determine their compressibility, structure, motion of particles, shape, and volume;	
C. investigate and identify properties of mixtures and pure substances; and	
D. describe the physical and chemical characteristics of an element using the periodic table and make inferences about its chemical behavior.	
5. Science Concepts	
The student knows that energy transformations occur during physical or chemical changes in matter. The student is expected to:	
A. identify changes in matter, determine the nature of the change, and examine the forms of energy involved;	
B. identify and measure energy transformations and exchanges involved in chemical reactions; and	

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TEXAS Chemistry Essential Knowledge and Skills	PLAN Science College Readiness Standards
C. measure the effects of the gain or loss of heat energy on the properties of solids, liquids, and gases.	
6. Science Concepts The student knows that atomic structure is determined by nuclear composition, allowable electron cloud, and subatomic particles. The student is expected to:	
A. describe the existence and properties of subatomic particles;	
B. analyze stable and unstable isotopes of an element to determine the relationship between the isotope's stability and its application; and	
C. summarize the historical development of the periodic table to understand the concept of periodicity.	
7. Science Concepts The student knows the variables that influence the behavior of gases. The student is expected to:	
A. describe interrelationships among temperature, particle number, pressure, and volume of gases contained within a closed system; and	
B. illustrate the data obtained from investigations with gases in a closed system and determine if the data are consistent with the Universal Gas Law.	
8. Science Concepts The student knows how atoms form bonds to acquire a stable arrangement of electrons. The student is expected to:	
A. identify characteristics of atoms involved in chemical bonding;	
B. investigate and compare the physical and chemical properties of ionic and covalent compounds;	
C. compare the arrangement of atoms in molecules, ionic crystals, polymers, and metallic substances; and	
D. describe the influence of intermolecular forces on the physical and chemical properties of covalent compounds.	
9. Science Concepts The student knows the processes, effects, and significance of nuclear fission and nuclear fusion. The student is expected to:	
A. compare fission and fusion reactions in terms of the masses of the reactants and products and the amount of energy released in the nuclear reactions;	
B. investigate radioactive elements to determine half-life;	
C. evaluate the commercial use of nuclear energy and medical uses of radioisotopes; and	

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TEXAS Chemistry Essential Knowledge and Skills	PLAN Science College Readiness Standards
D. evaluate environmental issues associated with the storage, containment, and disposal of nuclear wastes.	
10. Science Concepts	
The student knows common oxidation-reduction reactions. The student is expected to:	
A. identify oxidation-reduction processes; and	
B. demonstrate and document the effects of a corrosion process and evaluate the importance of electroplating metals.	
11. Science Concepts	
The student knows that balanced chemical equations are used to interpret and describe the interactions of matter. The student is expected to:	
A. identify common elements and compounds using scientific nomenclature;	
B. demonstrate the use of symbols, formulas, and equations in describing interactions of matter such as chemical and nuclear reactions; and	
C. explain and balance chemical and nuclear equations using number of atoms, masses, and charge.	
12. Science Concepts	
The student knows the factors that influence the solubility of solutes in a solvent. The student is expected to:	
A. demonstrate and explain effects of temperature and the nature of solid solutes on the solubility of solids;	
B. develop general rules for solubility through investigations with aqueous solutions; and	
C. evaluate the significance of water as a solvent in living organisms and in the environment.	
13. Science Concepts	
The student knows relationships among the concentration, electrical conductivity, and colligative properties of a solution. The student is expected to:	
A. compare unsaturated, saturated, and supersaturated solutions;	
B. interpret relationships among ionic and covalent compounds, electrical conductivity, and colligative properties of water; and	
C. measure and compare the rates of reaction of a solid reactant in solutions of varying concentration.	
14. Science Concepts	
The student knows the properties and behavior of acids and bases. The student is expected to:	
A. analyze and measure common household products using a variety of indicators to classify the products as acids or bases;	

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TEXAS Chemistry Essential Knowledge and Skills	PLAN Science College Readiness Standards
B. demonstrate the electrical conductivity of acids and <u>bases;</u>	
C. <u>identify the characteristics of a neutralization reaction; and</u>	
D. <u>describe effects of acids and bases on an ecological system.</u>	
15. Science Concepts	
<u>The student knows factors involved in chemical reactions. The student is expected to:</u>	
A. <u>verify the law of conservation of energy by evaluating the energy exchange that occurs as a consequence of a chemical reaction; and</u>	
B. <u>relate the rate of a chemical reaction to temperature, concentration, surface area, and presence of a catalyst.</u>	

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TEXAS Chemistry Essential Knowledge and Skills	ACT Science College Readiness Standards
1. Scientific Processes The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand precision and accuracy issues
C. express and manipulate chemical quantities using scientific conventions and mathematical procedures such as dimensional analysis, scientific notation, and significant figures;	**Interpretation of Data:** Understand basic scientific terminology Identify and/or use a simple (e.g., linear) mathematical relationship between data Identify and/or use a complex (e.g., nonlinear) mathematical relationship between data
D. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph

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TEXAS Chemistry Essential Knowledge and Skills	ACT Science College Readiness Standards
	Evaluation of Models, Inferences, and Experimental Results: Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
E. <mark>communicate valid conclusions.</mark>	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
3. Scientific Processes <mark>The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</mark>	
A. <mark>analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;</mark>	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. make responsible choices in selecting everyday products and services using scientific information;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between chemistry and future careers; and	
E. research and describe the history of chemistry and contributions of scientists.	
4. Science Concepts The student knows the characteristics of matter. The student is expected to:	
A. differentiate between physical and chemical properties of matter;	
B. analyze examples of solids, liquids, and gases to determine their compressibility, structure, motion of particles, shape, and volume;	
C. investigate and identify properties of mixtures and pure substances; and	
D. describe the physical and chemical characteristics of an element using the periodic table and make inferences about its chemical behavior.	
5. Science Concepts The student knows that energy transformations occur during physical or chemical changes in matter. The student is expected to:	
A. identify changes in matter, determine the nature of the change, and examine the forms of energy involved;	

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TEXAS Chemistry Essential Knowledge and Skills	ACT Science College Readiness Standards
B. identify and measure energy transformations and exchanges involved in chemical reactions; and	
C. measure the effects of the gain or loss of heat energy on the properties of solids, liquids, and gases.	
6. Science Concepts The student knows that atomic structure is determined by nuclear composition, allowable electron cloud, and subatomic particles. The student is expected to:	
A. describe the existence and properties of subatomic particles;	
B. analyze stable and unstable isotopes of an element to determine the relationship between the isotope's stability and its application; and	
C. summarize the historical development of the periodic table to understand the concept of periodicity.	
7. Science Concepts The student knows the variables that influence the behavior of gases. The student is expected to:	
A. describe interrelationships among temperature, particle number, pressure, and volume of gases contained within a closed system; and	
B. illustrate the data obtained from investigations with gases in a closed system and determine if the data are consistent with the Universal Gas Law.	
8. Science Concepts The student knows how atoms form bonds to acquire a stable arrangement of electrons. The student is expected to:	
A. identify characteristics of atoms involved in chemical bonding;	
B. investigate and compare the physical and chemical properties of ionic and covalent compounds;	
C. compare the arrangement of atoms in molecules, ionic crystals, polymers, and metallic substances; and	
D. describe the influence of intermolecular forces on the physical and chemical properties of covalent compounds.	
9. Science Concepts The student knows the processes, effects, and significance of nuclear fission and nuclear fusion. The student is expected to:	
A. compare fission and fusion reactions in terms of the masses of the reactants and products and the amount of energy released in the nuclear reactions;	
B. investigate radioactive elements to determine half-life;	

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TEXAS Chemistry Essential Knowledge and Skills	ACT Science College Readiness Standards
C. evaluate the commercial use of nuclear energy and medical uses of radioisotopes; and	
D. evaluate environmental issues associated with the storage, containment, and disposal of nuclear wastes.	
10. Science Concepts The student knows common oxidation-reduction reactions. The student is expected to:	
A. identify oxidation-reduction processes; and	
B. demonstrate and document the effects of a corrosion process and evaluate the importance of electroplating metals.	
11. Science Concepts The student knows that balanced chemical equations are used to interpret and describe the interactions of matter. The student is expected to:	
A. identify common elements and compounds using scientific nomenclature;	
B. demonstrate the use of symbols, formulas, and equations in describing interactions of matter such as chemical and nuclear reactions; and	
C. explain and balance chemical and nuclear equations using number of atoms, masses, and charge.	
12. Science Concepts The student knows the factors that influence the solubility of solutes in a solvent. The student is expected to:	
A. demonstrate and explain effects of temperature and the nature of solid solutes on the solubility of solids;	
B. develop general rules for solubility through investigations with aqueous solutions; and	
C. evaluate the significance of water as a solvent in living organisms and in the environment.	
13. Science Concepts The student knows relationships among the concentration, electrical conductivity, and colligative properties of a solution. The student is expected to:	
A. compare unsaturated, saturated, and supersaturated solutions;	
B. interpret relationships among ionic and covalent compounds, electrical conductivity, and colligative properties of water; and	
C. measure and compare the rates of reaction of a solid reactant in solutions of varying concentration.	

TEXAS Chemistry Essential Knowledge and Skills	ACT Science College Readiness Standards
14. Science Concepts	
The student knows the properties and behavior of acids and bases. The student is expected to:	
A. analyze and measure common household products using a variety of indicators to classify the products as acids or bases;	
B. demonstrate the electrical conductivity of acids and bases;	
C. identify the characteristics of a neutralization reaction; and	
D. describe effects of acids and bases on an ecological system.	
15. Science Concepts	
The student knows factors involved in chemical reactions. The student is expected to:	
A. verify the law of conservation of energy by evaluating the energy exchange that occurs as a consequence of a chemical reaction; and	
B. relate the rate of a chemical reaction to temperature, concentration, surface area, and presence of a catalyst.	

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TEXAS Aquatic Science Essential Knowledge and Skills	PLAN Science College Readiness Standards
1. Scientific Processes	
The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes	
The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment
C. express and manipulate quantities using mathematical procedures such as dimensional analysis, scientific notation, and significant figures;	**Interpretation of Data:** Understand basic scientific terminology Identify and/or use a simple (e.g., linear) mathematical relationship between data Identify and/or use a complex (e.g., nonlinear) mathematical relationship between data
D. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:**

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TEXAS Aquatic Science Essential Knowledge and Skills	PLAN Science College Readiness Standards
	Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
E. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
3. Scientific Processes The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. make responsible choices in selecting everyday products and services using scientific information;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between aquatic science and future careers; and	
E. research and describe the history of aquatic science and contributions of scientists.	
4. Science Concepts The student knows the components of aquatic ecosystems. The student is expected to:	
A. differentiate among freshwater, brackish, and saltwater ecosystems;	
B. research and identify biological, chemical, geological, and physical components of an aquatic ecosystem; and	
C. collect and analyze baseline quantitative data such as pH, salinity, temperature, mineral content, nitrogen compounds, and turbidity from an aquatic environment.	
5. Science Concepts The student knows the relationships within and among the aquatic habitats and ecosystems in an aquatic environment. The student is expected to:	
A. observe and compile data over a period of time from an established aquatic habitat documenting seasonal changes and the behavior of organisms;	
B. observe and evaluate patterns and interrelationships among producers, consumers, and decomposers in an aquatic ecosystem;	

TEXAS Aquatic Science Essential Knowledge and Skills	PLAN Science College Readiness Standards
C. identify the interdependence of organisms in an aquatic environment such as a pond, river, lake, ocean, or aquifer, and the biosphere; and	
D. evaluate trends in data to determine the factors that impact aquatic ecosystems.	
6. Science Concepts	
The student knows the roles of cycles in an aquatic environment. The student is expected to:	
A. identify the role of various cycles such as carbon, nitrogen, water, and nutrients in an aquatic environment;	
B. interpret the role of aquatic systems in climate and weather; and	
C. collect and evaluate global environmental data using technology.	
7. Science Concepts	
The student knows environmental adaptations of aquatic organisms. The student is expected to:	
A. classify different aquatic organisms using dichotomous keys;	
B. compare and describe how adaptations allow an organism to exist within an aquatic environment	
C. predict adaptations of an organism prompted by environmental changes; and	
D. compare differences in adaptations of aquatic organisms to fresh water and marine environments.	
8. Science Concepts	
The student knows that aquatic environments change. The student is expected to:	
A. predict effects of chemical, organic, physical, and thermal changes on the living and nonliving components of an aquatic ecosystem;	
B. analyze the cumulative impact of natural and human influence on an aquatic system;	
C. identify and describe a local or global issue affecting an aquatic system; and	
D. analyze and discuss human influences on an aquatic environment including fishing, transportation, and recreation.	
9. Science Concepts	
The student knows that geological phenomena and fluid dynamics affect aquatic systems. The student is expected to:	
A. demonstrate the principles of fluid dynamics including Archimedes' and Bernoulli's Principles and hydrostatic pressure;	
B. identify interrelationships of plate tectonics, ocean currents, climates, and biomes; and	

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TEXAS Aquatic Science Essential Knowledge and Skills	PLAN Science College Readiness Standards
C. research and describe fluid dynamics in an upwelling.	
10. Science Concepts The student knows the origin and use of water in a watershed. The student is expected to:	
A. identify sources and determine the amounts of water in a watershed including groundwater and surface water;	
B. research and identify the types of uses and volumes of water used in a watershed; and	
C. identify water quantity and quality in a local watershed.	

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TEXAS Aquatic Science Essential Knowledge and Skills	ACT Science College Readiness Standards
1. Scientific Processes	
The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes	
The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand precision and accuracy issues
C. express and manipulate quantities using mathematical procedures such as dimensional analysis, scientific notation, and significant figures;	**Interpretation of Data:** Understand basic scientific terminology Identify and/or use a simple (e.g., linear) mathematical relationship between data Identify and/or use a complex (e.g., nonlinear) mathematical relationship between data
D. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph

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TEXAS Aquatic Science Essential Knowledge and Skills	ACT Science College Readiness Standards
	Evaluation of Models, Inferences, and Experimental Results: Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
E. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
3. Scientific Processes The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. make responsible choices in selecting everyday products and services using scientific information;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between aquatic science and future careers; and	
E. research and describe the history of aquatic science and contributions of scientists.	
4. Science Concepts The student knows the components of aquatic ecosystems. The student is expected to:	
A. differentiate among freshwater, brackish, and saltwater ecosystems;	
B. research and identify biological, chemical, geological, and physical components of an aquatic ecosystem; and	
C. collect and analyze baseline quantitative data such as pH, salinity, temperature, mineral content, nitrogen compounds, and turbidity from an aquatic environment.	
5. Science Concepts The student knows the relationships within and among the aquatic habitats and ecosystems in an aquatic environment. The student is expected to:	
A. observe and compile data over a period of time from an established aquatic habitat documenting seasonal changes and the behavior of organisms;	

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TEXAS Aquatic Science Essential Knowledge and Skills	ACT Science College Readiness Standards
B. observe and evaluate patterns and interrelationships among producers, consumers, and decomposers in an aquatic ecosystem;	
C. identify the interdependence of organisms in an aquatic environment such as a pond, river, lake, ocean, or aquifer, and the biosphere; and	
D. evaluate trends in data to determine the factors that impact aquatic ecosystems.	
6. Science Concepts	
The student knows the roles of cycles in an aquatic environment. The student is expected to:	
A. identify the role of various cycles such as carbon, nitrogen, water, and nutrients in an aquatic environment;	
B. interpret the role of aquatic systems in climate and weather; and	
C. collect and evaluate global environmental data using technology.	
7. Science Concepts	
The student knows environmental adaptations of aquatic organisms. The student is expected to:	
A. classify different aquatic organisms using dichotomous keys;	
B. compare and describe how adaptations allow an organism to exist within an aquatic environment	
C. predict adaptations of an organism prompted by environmental changes; and	
D. compare differences in adaptations of aquatic organisms to fresh water and marine environments.	
8. Science Concepts	
The student knows that aquatic environments change. The student is expected to:	
A. predict effects of chemical, organic, physical, and thermal changes on the living and nonliving components of an aquatic ecosystem;	
B. analyze the cumulative impact of natural and human influence on an aquatic system;	
C. identify and describe a local or global issue affecting an aquatic system; and	
D. analyze and discuss human influences on an aquatic environment including fishing, transportation, and recreation.	
9. Science Concepts	
The student knows that geological phenomena and fluid dynamics affect aquatic systems. The student is expected to:	
A. demonstrate the principles of fluid dynamics including Archimedes' and Bernoulli's Principles and hydrostatic pressure;	

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TEXAS Aquatic Science Essential Knowledge and Skills	ACT Science College Readiness Standards
B. identify interrelationships of plate tectonics, ocean currents, climates, and biomes; and	
C. research and describe fluid dynamics in an upwelling.	
10. Science Concepts The student knows the origin and use of water in a watershed. The student is expected to:	
A. identify sources and determine the amounts of water in a watershed including groundwater and surface water;	
B. research and identify the types of uses and volumes of water used in a watershed; and	
C. identify water quantity and quality in a local watershed.	

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TEXAS Physics Essential Knowledge and Skills	PLAN Science College Readiness Standards
1. Scientific Processes	
The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes	
The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement experimental procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. make quantitative observations and measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment
C. organize, analyze, evaluate, make inferences, and predict trends from data;	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
D. communicate valid conclusions;	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Physics Essential Knowledge and Skills	PLAN Science College Readiness Standards
E. graph data to observe and identify relationships between variables; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
F. read the scale on scientific instruments with precision.	**Scientific Investigation:** Understand the methods and tools used in a simple experiment
3. Scientific Processes The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. express laws symbolically and employ mathematical procedures including vector addition and right-triangle geometry to solve physical problems;	**Interpretation of Data:** Identify and/or use a simple (e.g., linear) mathematical relationship between data Identify and/or use a complex (e.g., nonlinear) mathematical relationship between data
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between physics and future careers; and	
E. research and describe the history of physics and contributions of scientists.	

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TEXAS Physics Essential Knowledge and Skills	PLAN Science College Readiness Standards
4. Science Concepts	
The student knows the laws governing motion. The student is expected to:	
A. generate and interpret graphs describing motion including the use of real-time technology;	
B. analyze examples of uniform and accelerated motion including linear, projectile, and circular;	
C. demonstrate the effects of forces on the motion of objects;	
D. develop and interpret a free-body diagram for force analysis; and	
E. identify and describe motion relative to different frames of reference.	
5. Science Concepts	
The student knows that changes occur within a physical system and recognizes that energy and momentum are conserved. The student is expected to:	
A. interpret evidence for the work-energy theorem;	
B. observe and describe examples of kinetic and potential energy and their transformations;	
C. calculate the mechanical energy and momentum in a physical system such as billiards, cars, and trains; and	
D. demonstrate the conservation of energy and momentum.	
6. Science Concepts	
The student knows forces in nature. The student is expected to:	
A. identify the influence of mass and distance on gravitational forces;	
B. research and describe the historical development of the concepts of gravitational, electrical, and magnetic force;	
C. identify and analyze the influences of charge and distance on electric forces;	
D. demonstrate the relationship between electricity and magnetism;	
E. design and analyze electric circuits; and	
F. identify examples of electrical and magnetic forces in everyday life.	
7. Science Concepts	
The student knows the laws of thermodynamics. The student is expected to:	
A. analyze and explain everyday examples that illustrate the laws of thermodynamics; and	
B. evaluate different methods of heat energy transfer that result in an increasing amount of disorder.	

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TABLE 3O

TEXAS Physics Essential Knowledge and Skills	PLAN Science College Readiness Standards
8. Science Concepts	
The student knows the characteristics and behavior of waves. The student is expected to:	
A. examine and describe a variety of waves propagated in various types of media and describe wave characteristics such as velocity, frequency, amplitude, and behaviors such as reflection, refraction, and interference;	
B. identify the characteristics and behaviors of sound and electromagnetic waves; and	
C. interpret the role of wave characteristics and behaviors found in medicinal and industrial applications.	
9. Science Concepts	
The student knows simple examples of quantum physics. The student is expected to:	
A. describe the photoelectric effect; and	
B. explain the line spectra from different gas-discharge tubes	

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TEXAS Physics Essential Knowledge and Skills	ACT Science College Readiness Standards
1. Scientific Processes	
The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes	
The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement experimental procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. make quantitative observations and measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand precision and accuracy issues
C. organize, analyze, evaluate, make inferences, and predict trends from data;	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

TEXAS Physics Essential Knowledge and Skills	ACT Science College Readiness Standards
D. communicate valid conclusions;	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
E. graph data to observe and identify relationships between variables; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
F. read the scale on scientific instruments with precision.	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand precision and accuracy issues
3. Scientific Processes The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:	
A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. express laws symbolically and employ mathematical procedures including vector addition and right-triangle geometry to solve physical problems;	**Interpretation of Data:** Identify and/or use a simple (e.g., linear) mathematical relationship between data Identify and/or use a complex (e.g., nonlinear) mathematical relationship between data

TABLE 3P

TEXAS Physics Essential Knowledge and Skills	ACT Science College Readiness Standards
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between physics and future careers; and	
E. research and describe the history of physics and contributions of scientists.	
4. Science Concepts	
The student knows the laws governing motion. The student is expected to:	
A. generate and interpret graphs describing motion including the use of real-time technology;	
B. analyze examples of uniform and accelerated motion including linear, projectile, and circular;	
C. demonstrate the effects of forces on the motion of objects;	
D. develop and interpret a free-body diagram for force analysis; and	
E. identify and describe motion relative to different frames of reference.	
5. Science Concepts	
The student knows that changes occur within a physical system and recognizes that energy and momentum are conserved. The student is expected to:	
A. interpret evidence for the work-energy theorem;	
B. observe and describe examples of kinetic and potential energy and their transformations;	
C. calculate the mechanical energy and momentum in a physical system such as billiards, cars, and trains; and	
D. demonstrate the conservation of energy and momentum.	
6. Science Concepts	
The student knows forces in nature. The student is expected to:	
A. identify the influence of mass and distance on gravitational forces;	
B. research and describe the historical development of the concepts of gravitational, electrical, and magnetic force;	
C. identify and analyze the influences of charge and distance on electric forces;	
D. demonstrate the relationship between electricity and magnetism;	
E. design and analyze electric circuits; and	
F. identify examples of electrical and magnetic forces in everyday life.	

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TEXAS Physics Essential Knowledge and Skills	ACT Science College Readiness Standards
7. Science Concepts	
The student knows the laws of thermodynamics. The student is expected to:	
A. analyze and explain everyday examples that illustrate the laws of thermodynamics; and	
B. evaluate different methods of heat energy transfer that result in an increasing amount of disorder.	
8. Science Concepts	
The student knows the characteristics and behavior of waves. The student is expected to:	
A. examine and describe a variety of waves propagated in various types of media and describe wave characteristics such as velocity, frequency, amplitude, and behaviors such as reflection, refraction, and interference;	
B. identify the characteristics and behaviors of sound and electromagnetic waves; and	
C. interpret the role of wave characteristics and behaviors found in medicinal and industrial applications.	
9. Science Concepts	
The student knows simple examples of quantum physics. The student is expected to:	
A. describe the photoelectric effect; and	
B. explain the line spectra from different gas-discharge tubes	

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TABLE 3Q

TEXAS Astronomy Essential Knowledge and Skills	PLAN Science College Readiness Standards
1. Scientific Processes The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
D. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Astronomy Essential Knowledge and Skills	PLAN Science College Readiness Standards
3. **Scientific Processes**	
<mark>The student uses critical thinking and scientific problem solving skills to make informed decisions. The student is expected to:</mark>	
A. <mark>analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;</mark>	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. draw inferences based on data related to promotional materials for products and services;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between astronomy and future careers; and	
E. research and describe the history of astronomy and contributions of scientists.	
4. **Science Concepts**	
The student knows scientific information about the universe. The student is expected to:	
A. observe and record data about lunar phases and uses that information to model the earth, moon, and sun system; and	
B. describe characteristics of galaxies.	
5. **Science Concepts**	
The student knows the scientific theories of the evolution of the universe. The student is expected to:	
A. research and analyze scientific empirical data on the estimated age of the universe;	
B. research and describe the historical development of the Big Bang Theory; and	
C. interpret data concerning the formation of galaxies and our solar system.	
6. **Science Concepts**	
The student knows the characteristics and the life cycle of stars. The student is expected to:	
A. describe nuclear reactions in stars;	
B. identify the characteristics of stars such as temperature, age, relative size, composition, and radial velocity using spectral analysis; and	
C. identify the stages in the life cycle of stars by examining the Hertzsprung-Russell diagram.	

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TEXAS Astronomy Essential Knowledge and Skills	PLAN Science College Readiness Standards
7. Science Concepts	
The student knows how mathematical models, computer simulations, and exploration can be used to study the universe. The student is expected to:	
A. demonstrate the use of units of measurement in astronomy such as light year and Astronomical Units;	
B. research and describe the historical development of the laws of universal gravitation and planetary motion and the theory of special relativity;	
C. analyze a model that simulates planetary motion and universal gravitation;	
D. identify the historical origins of the perceived patterns of constellations and their role in ancient and modern navigation; and	
E. analyze the impact of the space program on the collection of data about the Earth and the universe.	
8. Science Concepts	
The student knows the role of the Sun in our solar system. The student is expected to:	
A. identify the approximate mass, size, motion, temperature, structure, and composition of the Sun;	
B. identify the source of energy within the Sun and explain that the Sun is the major source of energy for the Earth; and	
C. describe the Sun's effects on the Earth.	
9. Science Concepts	
The student knows that planets of different size, composition, and surface features orbit around the Sun. The student is expected to:	
A. observe the night-time sky to determine movement of the planets relative to stars;	
B. compare the planets in terms of orbit, size, composition, rotation, atmosphere, moons, and geologic activity;	
C. identify objects, other than planets, that orbit the Sun; and	
D. relate the role of gravitation to the motion of the planets around the Sun and to the motion of moons and satellites around the planets.	
10. Science Concepts	
The student knows how life on Earth is affected by its unique placement and orientation in our solar system. The student is expected to:	
A. compare the factors essential to life on Earth such as temperature, water, mass, and gases to conditions on other planets;	
B. determine the effects of the Earth's rotation, revolution, and tilt on its environment; and	

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TABLE 3Q

TEXAS Astronomy Essential Knowledge and Skills	PLAN Science College Readiness Standards
C. <u>identify the effects of the moon on tides</u>	

TEXAS Astronomy Essential Knowledge and Skills	ACT Science College Readiness Standards
1. Scientific Processes The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand precision and accuracy issues
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Astronomy Essential Knowledge and Skills	ACT Science College Readiness Standards
D. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
3. Scientific Processes The student uses critical thinking and scientific problem solving skills to make informed decisions. The student is expected to:	
A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. draw inferences based on data related to promotional materials for products and services;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connection between astronomy and future careers; and	
E. research and describe the history of astronomy and contributions of scientists.	
4. Science Concepts The student knows scientific information about the universe. The student is expected to:	
A. observe and record data about lunar phases and uses that information to model the earth, moon, and sun system; and	
B. describe characteristics of galaxies.	
5. Science Concepts The student knows the scientific theories of the evolution of the universe. The student is expected to:	
A. research and analyze scientific empirical data on the estimated age of the universe;	
B. research and describe the historical development of the Big Bang Theory; and	
C. interpret data concerning the formation of galaxies and our solar system.	
6. Science Concepts The student knows the characteristics and the life cycle of stars. The student is expected to:	
A. describe nuclear reactions in stars;	
B. identify the characteristics of stars such as temperature, age, relative size, composition, and radial velocity using spectral analysis; and	

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TEXAS Astronomy Essential Knowledge and Skills	ACT Science College Readiness Standards
C. identify the stages in the life cycle of stars by examining the Hertzsprung-Russell diagram.	
7. Science Concepts The student knows how mathematical models, computer simulations, and exploration can be used to study the universe. The student is expected to:	
A. demonstrate the use of units of measurement in astronomy such as light year and Astronomical Units;	
B. research and describe the historical development of the laws of universal gravitation and planetary motion and the theory of special relativity;	
C. analyze a model that simulates planetary motion and universal gravitation;	
D. identify the historical origins of the perceived patterns of constellations and their role in ancient and modern navigation; and	
E. analyze the impact of the space program on the collection of data about the Earth and the universe.	
8. Science Concepts The student knows the role of the Sun in our solar system. The student is expected to:	
A. identify the approximate mass, size, motion, temperature, structure, and composition of the Sun;	
B. identify the source of energy within the Sun and explain that the Sun is the major source of energy for the Earth; and	
C. describe the Sun's effects on the Earth.	
9. Science Concepts The student knows that planets of different size, composition, and surface features orbit around the Sun. The student is expected to:	
A. observe the night-time sky to determine movement of the planets relative to stars;	
B. compare the planets in terms of orbit, size, composition, rotation, atmosphere, moons, and geologic activity;	
C. identify objects, other than planets, that orbit the Sun; and	
D. relate the role of gravitation to the motion of the planets around the Sun and to the motion of moons and satellites around the planets.	
10. Science Concepts The student knows how life on Earth is affected by its unique placement and orientation in our solar system. The student is expected to:	
A. compare the factors essential to life on Earth such as temperature, water, mass, and gases to conditions on other planets;	

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TEXAS Astronomy Essential Knowledge and Skills	ACT Science College Readiness Standards
B. determine the effects of the Earth's rotation, revolution, and tilt on its environment; and	
C. identify the effects of the moon on tides	

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TABLE 3S

TEXAS Geology, Meteorology, Oceanography Essential Knowledge and Skills	PLAN Science College Readiness Standards
1. Scientific Processes	
The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes	
The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment. Understand a simple experimental design. Identify a control in an experiment. Determine the hypothesis for an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram). Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels). Select two or more pieces of data from a simple data presentation. Understand basic scientific terminology. Find basic information in a brief body of text. Determine how the value of one variable changes as the value of another variable changes in a simple data presentation. Compare or combine data from a simple data presentation (e.g., order or sum data from a table). Translate information into a table, graph, or diagram. Interpolate between data points in a table or graph. Extrapolate from data points in a table or graph. **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
D. communicate valid conclusions.	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Geology, Meteorology, Oceanography Essential Knowledge and Skills	PLAN Science College Readiness Standards
3. Scientific Processes	
<mark>The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</mark>	
A. <mark>analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;</mark>	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. draw inferences based on data related to promotional materials for products and services;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connections between geology, meteorology, oceanography, and future careers; and	
E. research and describe the history of geology, meteorology, oceanography, and contributions of scientists.	
4. Science Concepts	
The student knows the Earth's unique characteristics and conditions. The student is expected to:	
A. research and describe the Earth's unique placement in the solar system; and	
B. analyze conditions on Earth that enable organisms to survive.	
5. Science Concepts	
The student knows about the formation and history of the Earth. The student is expected to:	
A. research and describe the historical development of scientific theories of the Earth's formation; and	
B. use current theories to design and construct a geologic time scale.	
6. Science Concepts	
The student knows the processes of plate tectonics. The student is expected to:	
A. research and describe the historical development of the theories of plate tectonics including continental drift and sea-floor spreading;	
B. analyze the processes that power the movement of the Earth's continental and oceanic plates and identify the effects of this movement including faulting, folding, earthquakes, and volcanic activity; and	

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TEXAS Geology, Meteorology, Oceanography Essential Knowledge and Skills	PLAN Science College Readiness Standards
C. analyze methods of tracking continental and oceanic plate movement.	
7. Science Concepts	
The student knows the origin and composition of minerals and rocks and the significance of the rock cycle. The student is expected to:	
A. demonstrate the density, hardness, streak, and cleavage of particular minerals;	
B. identify common minerals and describe their economic significance;	
C. classify rocks according to how they are formed during a rock cycle; and	
D. examine and describe conditions such as depth of formation, rate of cooling, and mineral composition that are factors in the formation of rock types.	
8. Science Concepts	
The student knows the processes and end products of weathering. The student is expected to:	
A. distinguish chemical from mechanical weathering and identify the role of weathering agents such as wind, water, and gravity;	
B. identify geologic formations that result from differing weathering processes; and	
C. illustrate the role of weathering in soil formation.	
9. Science Concepts	
The student knows the role of natural energy resources. The student is expected to:	
A. research and describe the origin of fossil fuels such as coal, oil, and natural gas;	
B. analyze issues regarding the use of fossil fuels and other renewable, non-renewable, or alternative energy resources; and	
C. analyze the significance and economic impact of the use of fossil fuels and alternative energy resources.	
10. Science Concepts	
The student knows the interactions that occur in a watershed. The student is expected to:	
A. identify the characteristics of a local watershed such as average annual rainfall, run-off patterns, aquifers, locations of river basins, and surface water reservoirs;	
B. analyze the impact of floods, droughts, irrigation, and industrialization on a watershed; and	
C. describe the importance and sources of surface and subsurface water.	

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TABLE 3S

TEXAS Geology, Meteorology, Oceanography Essential Knowledge and Skills	PLAN Science College Readiness Standards
11. Science Concepts	
The student knows characteristics of oceans. The student is expected to:	
A. identify physical characteristics of ocean water including salinity, solubility, heat capacity, colligative properties, and density;	
B. evaluate the effects of tides, tidal bores, and tsunamis; and	
C. compare the topography of the ocean floor to the topography of the continents.	
12. Science Concepts	
The student knows the characteristics of the atmosphere. The student is expected to:	
A. identify the atmosphere as a mixture of gases, water vapor, and particulate matter;	
B. analyze the range of atmospheric conditions that organisms will tolerate including types of gases, temperature, particulate matter, and moisture; and	
C. determine the impact on the atmosphere of natural events and human activity.	
13. Science Concepts	
The student knows the role of energy in governing weather and climate. The student is expected to:	
A. describe the transfer of heat energy at the boundaries between the atmosphere, land masses, and oceans resulting in layers of different temperatures and densities in both the ocean and atmosphere;	
B. identify, describe, and compare climatic zones; and	
C. describe the effects of phenomena such as El Niño and the Jet Stream on local weather	

TEXAS Geology, Meteorology, Oceanography Essential Knowledge and Skills	ACT Science College Readiness Standards
1. Scientific Processes The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
A. demonstrate safe practices during field and laboratory investigations; and	
B. make wise choices in the use and conservation of resources and the disposal or recycling of materials.	
2. Scientific Processes The student uses scientific methods during field and laboratory investigations. The student is expected to:	
A. plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Determine the hypothesis for an experiment
B. collect data and make measurements with precision;	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand precision and accuracy issues
C. organize, analyze, evaluate, make inferences, and predict trends from data; and	**Interpretation of Data:** Select a single piece of data (numerical or nonnumerical) from a simple data presentation (e.g., a table or graph with two or three variables; a food web diagram) Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, axis labels) Select two or more pieces of data from a simple data presentation Understand basic scientific terminology Find basic information in a brief body of text Determine how the value of one variable changes as the value of another variable changes in a simple data presentation Compare or combine data from a simple data presentation (e.g., order or sum data from a table) Translate information into a table, graph, or diagram Interpolate between data points in a table or graph Extrapolate from data points in a table or graph **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model

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TEXAS Geology, Meteorology, Oceanography Essential Knowledge and Skills	ACT Science College Readiness Standards
D. <mark>communicate valid conclusions.</mark>	**Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
3. Scientific Processes <mark>The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</mark>	
A. <mark>analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;</mark>	**Evaluation of Models, Inferences, and Experimental Results:** Identify key issues or assumptions in a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Identify strengths and weaknesses in one or more models Identify similarities and differences between models Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
B. draw inferences based on data related to promotional materials for products and services;	
C. evaluate the impact of research on scientific thought, society, and the environment;	
D. describe the connections between geology, meteorology, oceanography, and future careers; and	
E. research and describe the history of geology, meteorology, oceanography, and contributions of scientists.	
4. Science Concepts The student knows the Earth's unique characteristics and conditions. The student is expected to:	
A. research and describe the Earth's unique placement in the solar system; and	
B. analyze conditions on Earth that enable organisms to survive.	
5. Science Concepts The student knows about the formation and history of the Earth. The student is expected to:	
A. research and describe the historical development of scientific theories of the Earth's formation; and	
B. use current theories to design and construct a geologic time scale.	
6. Science Concepts The student knows the processes of plate tectonics. The student is expected to:	
A. research and describe the historical development of the theories of plate tectonics including continental drift and sea-floor spreading;	

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TABLE 3T

TEXAS Geology, Meteorology, Oceanography Essential Knowledge and Skills	ACT Science College Readiness Standards
B. analyze the processes that power the movement of the Earth's continental and oceanic plates and identify the effects of this movement including faulting, folding, earthquakes, and volcanic activity; and	
C. analyze methods of tracking continental and oceanic plate movement.	
7. Science Concepts	
The student knows the origin and composition of minerals and rocks and the significance of the rock cycle. The student is expected to:	
A. demonstrate the density, hardness, streak, and cleavage of particular minerals;	
B. identify common minerals and describe their economic significance;	
C. classify rocks according to how they are formed during a rock cycle; and	
D. examine and describe conditions such as depth of formation, rate of cooling, and mineral composition that are factors in the formation of rock types.	
8. Science Concepts	
The student knows the processes and end products of weathering. The student is expected to:	
A. distinguish chemical from mechanical weathering and identify the role of weathering agents such as wind, water, and gravity;	
B. identify geologic formations that result from differing weathering processes; and	
C. illustrate the role of weathering in soil formation.	
9. Science Concepts	
The student knows the role of natural energy resources. The student is expected to:	
A. research and describe the origin of fossil fuels such as coal, oil, and natural gas;	
B. analyze issues regarding the use of fossil fuels and other renewable, non-renewable, or alternative energy resources; and	
C. analyze the significance and economic impact of the use of fossil fuels and alternative energy resources.	
10. Science Concepts	
The student knows the interactions that occur in a watershed. The student is expected to:	
A. identify the characteristics of a local watershed such as average annual rainfall, run-off patterns, aquifers, locations of river basins, and surface water reservoirs;	
B. analyze the impact of floods, droughts, irrigation, and industrialization on a watershed; and	

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TEXAS Geology, Meteorology, Oceanography Essential Knowledge and Skills	ACT Science College Readiness Standards
C. describe the importance and sources of surface and subsurface water.	
11. Science Concepts	
The student knows characteristics of oceans. The student is expected to:	
A. identify physical characteristics of ocean water including salinity, solubility, heat capacity, colligative properties, and density;	
B. evaluate the effects of tides, tidal bores, and tsunamis; and	
C. compare the topography of the ocean floor to the topography of the continents.	
12. Science Concepts	
The student knows the characteristics of the atmosphere. The student is expected to:	
A. identify the atmosphere as a mixture of gases, water vapor, and particulate matter;	
B. analyze the range of atmospheric conditions that organisms will tolerate including types of gases, temperature, particulate matter, and moisture; and	
C. determine the impact on the atmosphere of natural events and human activity.	
13. Science Concepts	
The student knows the role of energy in governing weather and climate. The student is expected to:	
A. describe the transfer of heat energy at the boundaries between the atmosphere, land masses, and oceans resulting in layers of different temperatures and densities in both the ocean and atmosphere;	
B. identify, describe, and compare climatic zones; and	
C. describe the effects of phenomena such as El Niño and the Jet Stream on local weather	

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