STATE MATCH SUPPLEMENT

Montana Content Standards

Communication Arts,
Mathematics, and Science
Grades 8–12

and

EXPLORE®, PLAN®, the ACT®, and WorkKeys®

June 2010

ACT®

List of Supplement Tables

ACT

Preface

This document is a supplement to the *State Match Montana Content Standards Communication Arts, Mathematics, and Science Grades 8–12 and EXPLORE, PLAN, the ACT, and WorkKeys (June 2010)*. This supplement identifies specific ACT College Readiness Standards that correspond to each Montana Standard in a side-by-side format. The left side of each page presents the Montana Content Standards (highlighted if measured by ACT's corresponding testing program). The right side of each page presents the specific ACT College Readiness Standard(s) and WorkKeys skill(s) that correspond to each Montana Standard.

Montana Content Standards listed here are from the Montana Content Standards as presented on the Montana Office of Public Instruction website in April 2010.

Montana Content Standards	Adopted
Communication Arts	January 2010
Mathematics	September 2009
Science	November 2006

SUPPLEMENT
TABLES 1A–1D:
COMMUNICATION ARTS

TABLE 1A

Montana Communication Arts Content Standards End of Grade 8	EXPLORE College Readiness Standards
Standard 1: Speaking and Listening Students know and understand the role of the communication process and demonstrate effective speaking and listening skills.	
Students will:	
1.1. analyze and explain how the components of the communication process affect communication	
1.2. apply verbal and nonverbal delivery techniques to communicate effectively	
1.3. apply effective listening strategies to fit the purpose, situation, and setting of the communication	
1.4. select and narrow topics for specific occasions and develop an appropriate introduction, body and conclusion to deliver speeches	
1.5. adapt communication to a variety of formal and informal audiences, settings and purposes	
1.6. use feedback to monitor and adjust speaking and listening effectiveness	
1.7. compare and contrast the verbal and nonverbal aspects of storytellers, the behaviors of audiences, and the settings and purposes of stories in the oral traditions of different cultures, including Montana American Indians	
1.8. explain the importance of communicating ethically, including effectively referencing sources and displaying respectful communication to individuals and groups	

TABLE 1A

Montana Communication Arts Content Standards End of Grade 8	EXPLORE Reading College Readiness Standards
Content Standard 2: Reading Students read by applying foundational skills and strategies to comprehend, interpret, analyze, and evaluate texts.	
Students will:	
2.1. apply knowledge of word and sentence structure, analysis of word parts and context to decode unknown words	**Meanings of Words:** 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
2.2. expand and apply general and specialized vocabulary through the use of context clues, analysis of word parts, and reference sources	
2.3. adjust fluency based on purpose and content	
2.4. identify when comprehension breaks down, analyze causes and self correct using effective strategies	
2.5. activate prior knowledge to connect text to self, text to text, and text to world	
2.6. make, revise, and explain predictions	
2.7. generate and answer literal, inferential, critical, and interpretive questions	**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 **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 and interpret minor or subtly stated details in uncomplicated passages

TABLE 1A

Montana Communication Arts Content Standards End of Grade 8	EXPLORE Reading College Readiness Standards
Content Standard 2: 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 Understand implied or subtly stated cause-effect relationships in uncomplicated 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 **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 subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
2.8. recall and explain a series of events or the sequence of information to draw conclusions	**Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Order simple sequences of events in uncomplicated literary narratives Order sequences of events in uncomplicated passages

TABLE 1A

Montana Communication Arts Content Standards End of Grade 8	EXPLORE Reading College Readiness Standards
Content Standard 2: Reading	
2.9. summarize by stating main ideas and supporting details	**Main Ideas and Author's Approach:** 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 Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages Summarize basic events and ideas in more challenging passages
2.10. make and justify inferences based on context clues and/or background knowledge	**Main Ideas and Author's Approach:** 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 Summarize basic events and ideas in more challenging passages **Supporting Details:** Make simple inferences about how details are used in passages **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Order simple sequences of events in uncomplicated literary narratives 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 **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 **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

TABLE 1A

Montana Communication Arts Content Standards End of Grade 8	EXPLORE Reading College Readiness Standards
Content Standard 2: Reading	
	Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives
2.11. analyze text features to enhance comprehension	
2.12. identify and explain the impact of the organizational structure of a selection, including order of importance, spatial, problem-solution, and cause-effect	**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
2.13. compare and contrast information to explain relationships and draw conclusions within and/or across texts	**Sequential, Comparative, and Cause-Effect Relationships:** Identify relationships between main characters in uncomplicated literary narratives Identify clear relationships between people, ideas, and so on in uncomplicated passages Understand relationships between people, ideas, and so on in uncomplicated passages
2.14. analyze author's purpose, point of view, language use, and credibility in culturally diverse texts, including those by and about Montana American Indians	
2.15. set and monitor goals and reading progress	

TABLE 1A

Montana Communication Arts Content Standards End of Grade 8	EXPLORE Reading College Readiness Standards
Content Standard 3: Literature Students select, interpret, and respond to a range of literature.	
Students will:	
3.1. compare and contrast the literary elements (setting, plot, character, conflict, resolution, point of view, mood) across texts	
3.2. analyze how authors' choices of words, uses of figurative language and stylistic devices contribute to the meaning of literary works	**Sequential, Comparative, and Cause-Effect Relationships:** Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives Identify clear relationships between people, ideas, and so on in uncomplicated 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
3.3. understand and define the characteristics of literary genres	
3.4. interpret how literature influences societies and, conversely, how factors such as history and culture influence literature, including works of Montana American Indians	
3.5. compare and contrast a variety of perspectives among culturally diverse literary works, including the works of Montana American Indians	
3.6. express personal ideas and feelings generated as a result of engaging with literature and offer justification	

TABLE 1A

Montana Communication Arts Content Standards End of Grade 8	EXPLORE College Readiness Standards
Content Standard 4: Media Literacy Students effectively evaluate and create media messages.	
Students will:	
4.1. interpret and differentiate how techniques and technologies impact media messages	
4.2. analyze the credibility of the sources of media messages	
4.3. analyze the purpose of and recognize the effects of fact, fiction, opinion, bias and stereotypes in media messages on diverse groups of people, including Montana American Indians	
4.4. apply appropriate norms, rules, laws and etiquette in the use and creation of media messages	
4.5. analyze the inherent consequences to self and others in the use and creation of media messages	
4.6. create and analyze media messages for specific audiences and purposes	
4.7. identify how media messages embed values and influence individuals, cultures and societies	

TABLE 1A

Montana Communication Arts Content Standards End of Grade 8	EXPLORE English College Readiness Standards
Content Standard 5: Writing Students will write to communicate effectively for a variety of purposes and audiences.	
Students will:	
5.1. apply the steps of the writing process in a variety of written work	
5.2. select appropriate topics and generate thesis statements that indicate the writer's purpose for writing	
5.3. generate and develop main ideas using a variety of relevant supporting details	**Topic Development in Terms of Purpose and Focus:** Identify the basic purpose or role of a specified phrase or sentence Identify the central idea or main topic of a straightforward piece of writing 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 Add a sentence to accomplish a fairly straightforward purpose such as illustrating a given statement
5.4. organize writing using transitions and a logical progression of ideas	**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
5.5. demonstrate knowledge of language choices and their impact on writing through control of voice, strong sentence fluency, and effective word choice	**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”) Use the word or phrase most consistent with the style and tone of a fairly straightforward essay

TABLE 1A

Montana Communication Arts Content Standards End of Grade 8	EXPLORE English College Readiness Standards
Content Standard 5: Writing	
	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
5.6. apply conventions of standard written English (e.g., usage, punctuation, spelling) appropriate for purpose, audience, and form	**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* **Conventions of Punctuation:** Delete commas that create basic sense problems (e.g., between verb and direct object)

TABLE 1A

Montana Communication Arts Content Standards End of Grade 8	EXPLORE English College Readiness Standards
Content Standard 5: Writing	
	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
5.7. identify and describe the purpose, audience, format, and tone in one's own writing	
5.8. analyze the characteristics of different writing forms and genres and write in a variety of forms and genres	
5.9. compose written works demonstrating ability to sustain focus throughout a variety of forms and genres	
5.10. use information problem solving process to collect and utilize information to research a topic	
5.11. obtain and use information legally and respectfully, and appropriately credit ideas and works of others, including those of Montana American Indians	
5.12. set goals, seek feedback and monitor writing progress	
5.13. use writing as a means of clarifying thought and reflecting on learning	

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN College Readiness Standards
Standard 1: Speaking and Listening Students know and understand the role of the communication process and demonstrate effective speaking and listening skills.	
Students will:	
1.1. analyze the complex relationship of the components of the communication process and evaluate their impact on effectiveness	
1.2. adapt verbal and nonverbal delivery techniques to effectively enhance messages of varying lengths and formats	
1.3. apply and evaluate effective listening strategies to fit the purpose, situation, and setting of the communication	
1.4. select, test and refine topics for specific purposes and occasions, choose credible sources for supporting materials, effectively organize and deliver speeches	
1.5. adapt communication to a variety of public, group and interpersonal audiences, settings and purposes	
1.6. use feedback to monitor, adjust, and evaluate speaking and listening effectiveness	
1.7. use appropriate strategies to listen to stories from different cultures; analyze how oral traditions, including Montana American Indian oral traditions, shape culture and influence individuals	
1.8. analyze the legal and ethical issues associated with responsible communication	

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN Reading College Readiness Standards
Content Standard 2: Reading Students read by applying foundational skills and strategies to comprehend, interpret, analyze, and evaluate texts.	
Students will:	
2.1. select and apply knowledge of syntax clues, word origins, roots and affixes, and context to decode unknown words	**Meanings of Words:** 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 Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts
2.2. expand and utilize general and specialized vocabulary through the use of context clues, analysis of word origins, and reference sources	
2.3. adjust fluency based on purpose, complexity, and technical content	
2.4. recognize when comprehension breaks down, select strategy to self correct and evaluate effectiveness of the selected strategy	
2.5. recognize the need for background knowledge and research to enhance comprehension	
2.6. make, revise, and justify predictions	
2.7. generate and answer complex literal, inferential, evaluative, and interpretive questions	**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 Summarize events and ideas in virtually any passage

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN Reading College Readiness Standards
Content Standard 2: Reading	
	Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in virtually any passage
	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
	Use details from different sections of some complex informational passages to support a specific point or argument
	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

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN Reading College Readiness Standards
Content Standard 2: Reading	
	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 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
2.8. recall and explain a series of events or the sequence of information to hypothesize and/or justify conclusions	**Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Order simple sequences of events in uncomplicated literary narratives Order sequences of events in uncomplicated passages Order sequences of events in more challenging passages

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN Reading College Readiness Standards
Content Standard 2: Reading	
2.9. summarize text by determining main idea and analyzing essential and nonessential supporting details	**Main Ideas and Author's Approach:** 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 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 Infer the main idea or purpose of more challenging passages or their paragraphs Summarize events and ideas in virtually any passage
2.10. make and justify complex inferences within and among multiple texts and/or forms of media	**Main Ideas and Author's Approach:** 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 Infer the main idea or purpose of straightforward paragraphs 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 Summarize events and ideas in virtually any passage Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in virtually any passage **Supporting Details:** 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 Use details from different sections of some complex informational passages to support a specific point or argument **Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Order sequences of events in uncomplicated passages

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN Reading College Readiness Standards
Content Standard 2: Reading	
	Understand relationships between people, ideas, and so on in uncomplicated passages Understand implied or subtly stated cause-effect relationships in uncomplicated 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:** 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 generalizations and conclusions about people, ideas, and so on in uncomplicated 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
2.11. analyze and evaluate relevant text features of multiple forms of media to enhance comprehension	
2.12. evaluate and compare the effectiveness of organizational structures within and across complex 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 Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in virtually any passage

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN Reading College Readiness Standards
Content Standard 2: Reading	
2.13. compare and contrast information, draw conclusions and synthesize ideas within and across texts to synthesize information and draw conclusions	**Sequential, Comparative, and Cause-Effect Relationships:** Identify relationships between main characters in uncomplicated literary narratives 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 **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 Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
2.14. critique author's purpose, point of view, bias, language use, and credibility to deepen understanding within and across culturally diverse texts, including those by and about Montana American Indians	
2.15. set goals and evaluate reading progress	

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN Reading College Readiness Standards
Content Standard 3: Literature Students select, interpret, and respond to a range of literature.	
Students will:	
3.1. analyze the ways in which authors develop literary elements (setting, plot, character, conflict, point of view, mood, tone, theme) to impact works and readers	**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 Summarize events and ideas in virtually any passage Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in virtually any passage **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 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN Reading College Readiness Standards
Content Standard 3: Literature	
	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 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN Reading College Readiness Standards
Content Standard 3: Literature	
	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
3.2. evaluate how diction, figurative language, imagery, detail, organization, and style shape meaning and impact works and readers	**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 Summarize events and ideas in virtually any passage Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in virtually any passage **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

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN Reading College Readiness Standards
Content Standard 3: Literature	
	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
	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

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN Reading College Readiness Standards
Content Standard 3: Literature	
	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 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
3.3. analyze and define the characteristics of literary genres and evaluate the effect of genres on readers	
3.4. evaluate how literature reflects a society, including literature by and about Montana American Indians	
3.5. analyze diverse literature to compare common human experiences among time periods, literary movements, places, and cultures, including Montana American Indians	
3.6. create and support critical and emotive responses to ideas and feelings generated as a result of engaging with literature	

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN College Readiness Standards
Content Standard 4: Media Literacy Students effectively evaluate and create media messages.	
Students will:	
4.1. evaluate how techniques and technologies influence the meaning and effectiveness of the media messages	
4.2. evaluate the credibility of the sources of media messages	
4.3. evaluate the impact of fact, opinion, bias and stereotypes in media messages about diverse groups of people, including Montana American Indians	
4.4. apply knowledge and evaluate the impact of norms, rules, laws and etiquette in the use and creation of media messages	
4.5. evaluate the inherent consequences to individuals and societies in the use and creation of media messages	
4.6. create and evaluate media messages for a variety of audiences and purposes	
4.7. analyze the embedded values and evaluate the media's role in shaping perceptions of reality for individuals, cultures, and societies	

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN English College Readiness Standards
Content Standard 5: Writing Students will write to communicate effectively for a variety of purposes and audiences.	
Students will:	
5.1. apply the steps of the writing process to develop, evaluate, and refine writing	**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 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN English College Readiness Standards
Content Standard 5: 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 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN English College Readiness Standards
Content Standard 5: 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
5.2. independently select topics and generate complex thesis statements that indicate the writer's purpose for writing	
5.3. generate, develop and elaborate upon main ideas using relevant and specific supporting details	**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

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN English College Readiness Standards
Content Standard 5: 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
5.4. organize writing using a logical progression of ideas and transitions to effectively convey the relationships among them	**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
5.5. demonstrate knowledge of language choices and their impact on writing by showing purposeful control of voice, sentence fluency, and word choice	**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”) 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

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN English College Readiness Standards
Content Standard 5: Writing	
	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
5.6. apply conventions of standard written English (e.g., usage, punctuation, spelling) appropriate for purpose, audience, and form	**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 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

TABLE 1B

Montana Communication Arts Content Standards Upon Graduation	PLAN English College Readiness Standards
Content Standard 5: Writing	
	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
5.7. articulate and evaluate the purpose and audience, and select and use appropriate format, and tone in one's own writing	
5.8. write using a variety of forms and genres and evaluate one's own and others' writing for effectiveness of form and genre	
5.9. compose a variety of written works utilizing complex ideas and detailed support that demonstrate the ability to maintain a sustained focus	
5.10. use information problem solving process to effectively synthesize information to research a topic	
5.11. follow copyright laws and fair use guidelines when using the intellectual property of others, including that of Montana American Indians, and appropriately credit ideas and words of others	
5.12. set goals, seek feedback and evaluate writing progress	
5.13. select and use forms of writing to clarify thought, to extend learning, and to reflect on experience	

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT College Readiness Standards
Standard 1: Speaking and Listening Students know and understand the role of the communication process and demonstrate effective speaking and listening skills.	
Students will:	
1.1. analyze the complex relationship of the components of the communication process and evaluate their impact on effectiveness	
1.2. adapt verbal and nonverbal delivery techniques to effectively enhance messages of varying lengths and formats	
1.3. apply and evaluate effective listening strategies to fit the purpose, situation, and setting of the communication	
1.4. select, test and refine topics for specific purposes and occasions, choose credible sources for supporting materials, effectively organize and deliver speeches	
1.5. adapt communication to a variety of public, group and interpersonal audiences, settings and purposes	
1.6. use feedback to monitor, adjust, and evaluate speaking and listening effectiveness	
1.7. use appropriate strategies to listen to stories from different cultures; analyze how oral traditions, including Montana American Indian oral traditions, shape culture and influence individuals	
1.8. analyze the legal and ethical issues associated with responsible communication	

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 2: Reading Students read by applying foundational skills and strategies to comprehend, interpret, analyze, and evaluate texts.	
Students will:	
2.1. select and apply knowledge of syntax clues, word origins, roots and affixes, and context to decode unknown 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 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
2.2. expand and utilize general and specialized vocabulary through the use of context clues, analysis of word origins, and reference sources	
2.3. adjust fluency based on purpose, complexity, and technical content	
2.4. recognize when comprehension breaks down, select strategy to self correct and evaluate effectiveness of the selected strategy	
2.5. recognize the need for background knowledge and research to enhance comprehension	
2.6. make, revise, and justify predictions	
2.7. generate and answer complex literal, inferential, evaluative, and interpretive questions	**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

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 2: Reading	
	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
	Summarize events and ideas in virtually any passage
	Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in virtually any passage
	Identify clear main ideas or purposes of complex 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
	Use details from different sections of some complex informational passages to support a specific point or argument
	Locate and interpret details in complex passages
	Understand the function of a part of a passage when the function is subtle or complex
	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

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 2: 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
	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
	Order sequences of events in complex passages
	Understand the subtleties in relationships between people, ideas, and so on in virtually any passage
	Understand implied, subtle, or complex cause-effect relationships in virtually any passage
	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 the main characters in uncomplicated literary narratives
	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 2: Reading	
	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 Draw complex or subtle generalizations and conclusions about people, ideas, and so on, often by synthesizing information from different portions of the passage Understand and generalize about portions of a complex literary narrative
2.8. recall and explain a series of events or the sequence of information to hypothesize and/or justify conclusions	**Sequential, Comparative, and Cause-Effect Relationships:** Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages Order simple sequences of events in uncomplicated literary narratives Order sequences of events in uncomplicated passages Order sequences of events in more challenging passages Order sequences of events in complex passages
2.9. summarize text by determining main idea and analyzing essential and nonessential supporting details	**Main Ideas and Author's Approach:** 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 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 Infer the main idea or purpose of more challenging passages or their paragraphs Summarize events and ideas in virtually any passage Identify clear main ideas or purposes of complex passages or their paragraphs
2.10. make and justify complex inferences within and among multiple texts and/or forms of media	**Main Ideas and Author's Approach:** 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

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 2: Reading	
	Infer the main idea or purpose of straightforward paragraphs 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
	Summarize events and ideas in virtually any passage
	Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in virtually any passage
	Identify clear main ideas or purposes of complex passages or their paragraphs
	Supporting Details:
	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
	Use details from different sections of some complex informational passages to support a specific point or argument
	Locate and interpret details in complex passages
	Understand the function of a part of a passage when the function is subtle or complex
	Sequential, Comparative, and Cause-Effect Relationships:
	Determine when (e.g., first, last, before, after) or if an event occurred 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
	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
	Order sequences of events in complex passages
	Understand the subtleties in relationships between people, ideas, and so on in virtually any passage
	Understand implied, subtle, or complex cause-effect relationships in virtually any passage
	Meanings of Words:
	Use context to understand basic figurative language

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 2: Reading	
	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 generalizations and conclusions about people, ideas, and so on in uncomplicated 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 Draw complex or subtle generalizations and conclusions about people, ideas, and so on, often by synthesizing information from different portions of the passage Understand and generalize about portions of a complex literary narrative
2.11. analyze and evaluate relevant text features of multiple forms of media to enhance comprehension	
2.12. evaluate and compare the effectiveness of organizational structures within and across complex 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 Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in more challenging passages Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in virtually any passage
2.13. compare and contrast information, draw conclusions and synthesize ideas within and across texts to synthesize information and draw conclusions	**Sequential, Comparative, and Cause-Effect Relationships:** Identify relationships between main characters in uncomplicated literary narratives Identify clear relationships between people, ideas, and so on in uncomplicated passages

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 2: Reading	
	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 Understand the subtleties in relationships between people, ideas, and so on in virtually any passage **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 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 Understand and generalize about portions of a complex literary narrative
2.14. critique author's purpose, point of view, bias, language use, and credibility to deepen understanding within and across culturally diverse texts, including those by and about Montana American Indians	
2.15. set goals and evaluate reading progress	

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 3: Literature Students select, interpret, and respond to a range of literature.	
Students will:	
3.1. analyze the ways in which authors develop literary elements (setting, plot, character, conflict, point of view, mood, tone, theme) to impact works and readers	**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 Summarize events and ideas in virtually any passage Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in virtually any passage Identify clear main ideas or purposes of complex 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

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 3: Literature	
	Locate and interpret details in complex passages
	Understand the function of a part of a passage when the function is subtle or complex
	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
	Order sequences of events in complex passages
	Understand the subtleties in relationships between people, ideas, and so on in virtually any passage
	Understand implied, subtle, or complex cause-effect relationships in virtually any passage
	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

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 3: Literature	
	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 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 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 Understand and generalize about portions of a complex literary narrative
3.2. evaluate how diction, figurative language, imagery, detail, organization, and style shape meaning and impact works and readers	**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

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 3: Literature	
	Infer the main idea or purpose of more challenging passages or their paragraphs
	Summarize events and ideas in virtually any passage
	Understand the overall approach taken by an author or narrator (e.g., point of view, kinds of evidence used) in virtually any passage
	Identify clear main ideas or purposes of complex 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
	Locate and interpret details in complex passages
	Understand the function of a part of a passage when the function is subtle or complex
	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

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 3: Literature	
	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
	Order sequences of events in complex passages
	Understand the subtleties in relationships between people, ideas, and so on in virtually any passage
	Understand implied, subtle, or complex cause-effect relationships in virtually any passage
	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 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 1C

Montana Communication Arts Content Standards Upon Graduation	ACT Reading College Readiness Standards
Content Standard 3: Literature	
	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 Understand and generalize about portions of a complex literary narrative
3.3. analyze and define the characteristics of literary genres and evaluate the effect of genres on readers	
3.4. evaluate how literature reflects a society, including literature by and about Montana American Indians	
3.5. analyze diverse literature to compare common human experiences among time periods, literary movements, places, and cultures, including Montana American Indians	
3.6. create and support critical and emotive responses to ideas and feelings generated as a result of engaging with literature	

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT College Readiness Standards
Content Standard 4: Media Literacy Students effectively evaluate and create media messages.	
Students will:	
4.1. evaluate how techniques and technologies influence the meaning and effectiveness of the media messages	
4.2. evaluate the credibility of the sources of media messages	
4.3. evaluate the impact of fact, opinion, bias and stereotypes in media messages about diverse groups of people, including Montana American Indians	
4.4. apply knowledge and evaluate the impact of norms, rules, laws and etiquette in the use and creation of media messages	
4.5. evaluate the inherent consequences to individuals and societies in the use and creation of media messages	
4.6. create and evaluate media messages for a variety of audiences and purposes	
4.7. analyze the embedded values and evaluate the media's role in shaping perceptions of reality for individuals, cultures, and societies	

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT English and Writing College Readiness Standards
Content Standard 5: Writing Students will write to communicate effectively for a variety of purposes and audiences.	
Students will:	
5.1. apply the steps of the writing process to develop, evaluate, and refine writing	**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 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

Montana Communication Arts Content Standards Upon Graduation	ACT English and Writing College Readiness Standards
Content Standard 5: 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

Montana Communication Arts Content Standards Upon Graduation	ACT English and Writing College Readiness Standards
Content Standard 5: 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
5.2. independently select topics and generate complex thesis statements that indicate the writer's purpose for writing	**Writing** College Readiness Standards **Expressing Judgments:** 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 **Focusing on the Topic:** Present a critical thesis that clearly establishes the focus on the writer's position on the issue

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT English and Writing College Readiness Standards
Content Standard 5: Writing	
5.3. generate, develop and elaborate upon main ideas using relevant and specific supporting details	**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 **Writing** College Readiness Standards **Developing a Position:** Develop several ideas fully, using specific and relevant reasons, details, and examples
5.4. organize writing using a logical progression of ideas and transitions to effectively convey the relationships among them	**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 **Writing** College Readiness Standards **Organizing Ideas:** Provide unity and coherence throughout the essay, often with a logical progression of ideas

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT English and Writing College Readiness Standards
Content Standard 5: Writing	
	Use relevant transitional words, phrases, and sentences to convey logical relationships between ideas
5.5. demonstrate knowledge of language choices and their impact on writing by showing purposeful control of voice, sentence fluency, and word choice	**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") 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 **Writing** College Readiness Standards **Using Language:** 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
5.6. apply conventions of standard written English (e.g., usage, punctuation, spelling) appropriate for purpose, audience, and form	**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

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT English and Writing College Readiness Standards
Content Standard 5: Writing	
	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
	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*)

TABLE 1C

Montana Communication Arts Content Standards Upon Graduation	ACT English and Writing College Readiness Standards
Content Standard 5: Writing	
	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 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
5.7. articulate and evaluate the purpose and audience, and select and use appropriate format, and tone in one's own writing	
5.8. write using a variety of forms and genres and evaluate one's own and others' writing for effectiveness of form and genre	
5.9. compose a variety of written works utilizing complex ideas and detailed support that demonstrate the ability to maintain a sustained focus	**Writing** College Readiness Standards **Developing a Position:** Develop several ideas fully, using specific and relevant reasons, details, and examples Show effective movement between general and specific ideas and examples **Focusing on the Topic:** Maintain a clear focus on discussion of the specific topic and issue in the prompt throughout the essay
5.10. use information problem solving process to effectively synthesize information to research a topic	
5.11. follow copyright laws and fair use guidelines when using the intellectual property of others, including that of Montana American Indians, and appropriately credit ideas and words of others	
5.12. set goals, seek feedback and evaluate writing progress	
5.13. select and use forms of writing to clarify thought, to extend learning, and to reflect on experience	

TABLE 1D

Montana Communication Arts Content Standards Upon Graduation	WorkKeys *Reading for Information* Skills
Standard 1: Speaking and Listening Students know and understand the role of the communication process and demonstrate effective speaking and listening skills.	
Students will:	
1.1. analyze the complex relationship of the components of the communication process and evaluate their impact on effectiveness	
1.2. adapt verbal and nonverbal delivery techniques to effectively enhance messages of varying lengths and formats	
1.3. apply and evaluate effective listening strategies to fit the purpose, situation, and setting of the communication	
1.4. select, test and refine topics for specific purposes and occasions, choose credible sources for supporting materials, effectively organize and deliver speeches	
1.5. adapt communication to a variety of public, group and interpersonal audiences, settings and purposes	
1.6. use feedback to monitor, adjust, and evaluate speaking and listening effectiveness	
1.7. use appropriate strategies to listen to stories from different cultures; analyze how oral traditions, including Montana American Indian oral traditions, shape culture and influence individuals	
1.8. analyze the legal and ethical issues associated with responsible communication	

TABLE 1D

Montana Communication Arts Content Standards Upon Graduation	WorkKeys *Reading for Information* Skills
Content Standard 2: Reading Students read by applying foundational skills and strategies to comprehend, interpret, analyze, and evaluate texts.	
Students will:	
2.1. select and apply knowledge of syntax clues, word origins, roots and affixes, and context to decode unknown words	Choose the correct meaning of common, everyday and workplace words Use the reading material to figure out the meaning of words that are not defined Figure out the correct meaning of a word based on how the word is used Figure out the less common meaning of a word based on the context Figure out the definitions of difficult, uncommon words based on how they are used Figure out the meaning of jargon or technical terms based on how they are used
2.2. expand and utilize general and specialized vocabulary through the use of context clues, analysis of word origins, and reference sources	Apply technical terms and jargon and relate them to stated situations Use technical terms and jargon in new situations
2.3. adjust fluency based on purpose, complexity, and technical content	
2.4. recognize when comprehension breaks down, select strategy to self correct and evaluate effectiveness of the selected strategy	
2.5. recognize the need for background knowledge and research to enhance comprehension	
2.6. make, revise, and justify predictions	Apply straightforward instructions to a new situation that is similar to the one described in the material Apply complicated instructions to new situations Apply general principles from the materials to similar and new situations
2.7. generate and answer complex literal, inferential, evaluative, and interpretive questions	Choose what to do when changing conditions call for a different action (follow directions that include “if-then” statements) Identify implied details Figure out the principles behind policies, rules, and procedures
2.8. recall and explain a series of events or the sequence of information to hypothesize and/or justify conclusions	Choose when to perform each step in a short series of steps
2.9. summarize text by determining main idea and analyzing essential and nonessential supporting details	Identify main ideas and clearly stated details Identify important details that may not be clearly stated
2.10. make and justify complex inferences within and among multiple texts and/or forms of media	Explain the rationale behind a procedure, policy, or communication

TABLE 1D

Montana Communication Arts Content Standards Upon Graduation	WorkKeys *Reading for Information* Skills
Content Standard 2: Reading	
2.11. analyze and evaluate relevant text features of multiple forms of media to enhance comprehension	Choose the correct meaning of a word that is clearly defined in the reading Identify the correct meaning of an acronym that is defined in the document Identify the paraphrased definition of a technical term or jargon that is defined in the document
2.12. evaluate and compare the effectiveness of organizational structures within and across complex texts	
2.13. compare and contrast information, draw conclusions and synthesize ideas within and across texts to synthesize information and draw conclusions	Apply instructions to a situation that is the same as the one in the reading materials Apply instructions with several steps to a situation that is the same as the situation in the reading materials Apply complex instructions that include conditionals to situations described in the materials
2.14. critique author's purpose, point of view, bias, language use, and credibility to deepen understanding within and across culturally diverse texts, including those by and about Montana American Indians	Explain the rationale behind a procedure, policy, or communication
2.15. set goals and evaluate reading progress	

TABLE 1D

Montana Communication Arts Content Standards Upon Graduation	WorkKeys *Reading for Information* Skills
Content Standard 3: Literature Students select, interpret, and respond to a range of literature.	
Students will:	
3.1. analyze the ways in which authors develop literary elements (setting, plot, character, conflict, point of view, mood, tone, theme) to impact works and readers	
3.2. evaluate how diction, figurative language, imagery, detail, organization, and style shape meaning and impact works and readers	
3.3. analyze and define the characteristics of literary genres and evaluate the effect of genres on readers	
3.4. evaluate how literature reflects a society, including literature by and about Montana American Indians	
3.5. analyze diverse literature to compare common human experiences among time periods, literary movements, places, and cultures, including Montana American Indians	
3.6. create and support critical and emotive responses to ideas and feelings generated as a result of engaging with literature	

TABLE 1D

Montana Communication Arts Content Standards Upon Graduation	WorkKeys *Reading for Information* Skills
Content Standard 4: Media Literacy Students effectively evaluate and create media messages.	
Students will:	
4.1. evaluate how techniques and technologies influence the meaning and effectiveness of the media messages	
4.2. evaluate the credibility of the sources of media messages	
4.3. evaluate the impact of fact, opinion, bias and stereotypes in media messages about diverse groups of people, including Montana American Indians	
4.4. apply knowledge and evaluate the impact of norms, rules, laws and etiquette in the use and creation of media messages	
4.5. evaluate the inherent consequences to individuals and societies in the use and creation of media messages	
4.6. create and evaluate media messages for a variety of audiences and purposes	
4.7. analyze the embedded values and evaluate the media's role in shaping perceptions of reality for individuals, cultures, and societies	

TABLE 1D

Montana Communication Arts Content Standards Upon Graduation	WorkKeys *Reading for Information* Skills
Content Standard 5: Writing Students will write to communicate effectively for a variety of purposes and audiences.	
Students will:	
5.1. apply the steps of the writing process to develop, evaluate, and refine writing	
5.2. independently select topics and generate complex thesis statements that indicate the writer's purpose for writing	
5.3. generate, develop and elaborate upon main ideas using relevant and specific supporting details	
5.4. organize writing using a logical progression of ideas and transitions to effectively convey the relationships among them	
5.5. demonstrate knowledge of language choices and their impact on writing by showing purposeful control of voice, sentence fluency, and word choice	
5.6. apply conventions of standard written English (e.g., usage, punctuation, spelling) appropriate for purpose, audience, and form	
5.7. articulate and evaluate the purpose and audience, and select and use appropriate format, and tone in one's own writing	
5.8. write using a variety of forms and genres and evaluate one's own and others' writing for effectiveness of form and genre	
5.9. compose a variety of written works utilizing complex ideas and detailed support that demonstrate the ability to maintain a sustained focus	
5.10. use information problem solving process to effectively synthesize information to research a topic	
5.11. follow copyright laws and fair use guidelines when using the intellectual property of others, including that of Montana American Indians, and appropriately credit ideas and words of others	
5.12. set goals, seek feedback and evaluate writing progress	
5.13. select and use forms of writing to clarify thought, to extend learning, and to reflect on experience	

SUPPLEMENT
TABLES 2A–2D:
MATHEMATICS

TABLE 2A

Montana Mathematics Content Standards End of Grade 8	EXPLORE Mathematics College Readiness Standards
Content Standard 1: Number Sense and Operation A student, applying reasoning and problem solving, will use number sense and operations to represent numbers in multiple ways, understand relationships among numbers and number systems, make reasonable estimates, and compute fluently within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
1.1. Rational Number Relationships: Recognize, model, and compare different forms of integers and rational numbers including percents, fractions, decimals, and numbers using exponents and scientific notation.	**Numbers: Concepts & Properties:** Recognize equivalent fractions and fractions in lowest terms Recognize one-digit factors of a number 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 Work with numerical factors Work with scientific notation Work with squares and square roots of numbers
1.2. Estimation and Reasonableness: Select and apply appropriate estimation strategies to judge the reasonableness of solutions to problems including those computed on a calculator. Demonstrate correct use of order of operations.	**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) **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
1.3. Number Theory: Use number theory concepts such as prime factorization, greatest common factor, and least common multiple in problem situations.	**Numbers: Concepts & Properties:** 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

TABLE 2A

Montana Mathematics Content Standards End of Grade 8	EXPLORE Mathematics College Readiness Standards
Content Standard 1: Number Sense and Operation	
1.4. Rational Number Operations: Compute fluently and solve multi-step problems using integers, fractions, decimals, and numbers in exponential form.	**Basic Operations & Applications:** 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)
1.5. Metric and Standard Measurement: Use metric and standard units of measurement in relevant scientific and cultural situations, including those of Montana American Indians, compare and convert within systems, and use appropriate technology.	**Basic Operations & Applications:** Perform common conversions (e.g., inches to feet or hours to minutes) Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)
1.6. Proportional Reasoning: Understand and apply proportional relationships to model real world situations and to solve problems involving rates, ratios, proportions, percents, and direct variation.	**Basic Operations & Applications:** Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent 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:** 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 2A

Montana Mathematics Content Standards End of Grade 8	EXPLORE Mathematics College Readiness Standards
Content Standard 2: Data Analysis A student, applying reasoning and problem solving, will use data representation and analysis, simulations, probability, statistics, and statistical methods to evaluate information and make informed decisions within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
2.1. Representing and Comparing Data: Collect data from a variety of contexts (e.g., science, history, and culture, including Montana American Indians). Organize and represent data in box plots, scatter plots, histograms, and circle graphs using technology when appropriate.	**Probability, Statistics, & Data Analysis:** Translate from one representation of data to another (e.g., a bar graph to a circle graph)
2.2. Evaluating Data and Making Conjectures: Interpret, analyze, and evaluate data using mean, median, range, and quartiles to identify trends and make decisions and predictions about data within scientific and cultural contexts, including those of Montana American Indians.	**Probability, Statistics, & Data Analysis:** Calculate the average of a list of positive whole numbers Perform a single computation using information from a table or chart Calculate the average of a list of numbers Calculate the average, given the number of data values and the sum of the data values Perform computations on data from tables and graphs Calculate the average, given the frequency counts of all the data values
2.3. Finding Probability and Predicting: Create sample spaces and simulations from events found in different cultures, including those of Montana American Indians, determine experimental and theoretical probabilities, and use probability to make predictions.	**Probability, Statistics, & Data Analysis:** Determine the probability of a simple event Compute straightforward probabilities for common situations

TABLE 2A

Montana Mathematics Content Standards End of Grade 8	EXPLORE Mathematics College Readiness Standards
Content Standard 3: Geometric Reasoning A student, applying reasoning and problem solving, will understand geometric properties, spatial relationships, and transformation of shapes, and will use spatial reasoning and geometric models to analyze mathematical situations within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
3.1. Properties of Solids and Figures: Define, classify and compare properties of solids and plane figures, including lines and angles.	**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 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
3.2. Congruence and Similarity: Use spatial reasoning to determine congruence, similarity, and symmetry of objects in mathematics, art, science, and culture, including Montana American Indians.	
3.3. Transformations including Dilations: Define, identify, and execute transformations including translations, rotations, reflections, and dilations with appropriate technology.	
3.4. Angles, Surface Area, and Volume: Measure and compute angles, perimeter, area, surface area, and volume including the use of formulas and choosing appropriate units.	**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 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

TABLE 2A

Montana Mathematics Content Standards End of Grade 8	EXPLORE Mathematics College Readiness Standards
Content Standard 3: Geometric Reasoning	
3.5. Justifying Relationships: Develop informal arguments to verify geometric relationships and solve problems such as an informal justification of the Pythagorean Theorem in a variety of contexts.	

TABLE 2A

Montana Mathematics Content Standards End of Grade 8	EXPLORE Mathematics College Readiness Standards
Content Standard 4: Algebraic and Functional Reasoning A student, applying reasoning and problem solving, will use algebraic concepts and procedures to understand processes involving number, operation, and variables and will use procedures and function concepts to model the quantitative and functional relationships that describe change within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
4.1. Representing and Generalizing Patterns: Create and use tables, graphs or diagrams, symbolic expressions, and verbal descriptions to represent, analyze, and generalize a variety of patterns involving numbers and operations.	**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 $b + g$) Evaluate algebraic expressions by substituting integers for unknown quantities 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) **Graphical Representations:** Locate points in the coordinate plane
4.2. Linear Functions: Identify linear and non-linear functional relationships and contrast their properties using tables, graphs, or equations with appropriate technology.	**Probability, Statistics, & Data Analysis:** Perform computations on data from tables and graphs
4.3. Multi-step equations and inequalities: Use number properties and inverse operations to solve multi-step equations and inequalities involving a single variable.	**Expressions, Equations, & Inequalities:** Solve routine first-degree equations Solve real-world problems using first-degree equations
4.4. Equivalent Algebraic Expressions: Recognize, simplify, and generate equivalent forms of algebraic expressions, justifying each step with properties of operations.	**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
4.5. Linear Modeling: Identify and compute rate of change/slope and intercepts from equations, graphs, and tables; model and solve contextual problems involving linear proportions or direct variation using cultural contexts, including those of Montana American Indians.	**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:** Perform computations on 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)

TABLE 2B

Montana Mathematics Content Standards Upon Graduation	PLAN Mathematics College Readiness Standards
Content Standard 1: Number Sense and Operation A student, applying reasoning and problem solving, will use number sense and operations to represent numbers in multiple ways, understand relationships among numbers and number systems, make reasonable estimates, and compute fluently within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
1.1. Quantification: Use multiple notations to perform and interpret the effects of operations on very large and very small numbers with and without technology.	**Numbers: Concepts & Properties:** Work with scientific notation Work with squares and square roots of numbers Work problems involving positive integer exponents Work with cubes and cube roots of numbers Apply number properties involving prime factorization Apply number properties involving even/odd numbers and factors/multiples Apply number properties involving positive/negative numbers Apply rules of exponents
1.2. Estimation and Accuracy: Identify situations where estimation is appropriate and determine the degree of accuracy needed for a given problem situation (and the appropriate precision in which to report answers).	**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
1.3. Equivalence with Multiple Notation: Given a representation of a number or expression, find equivalent representations using multiple notations (e.g., $x^{1/2}$ vs. $\sqrt{x}$ and visual representation of multiplying binomials).	**Numbers: Concepts & Properties:** Work with numerical factors Work with scientific notation Work with squares and square roots of numbers Work problems involving positive integer exponents Work with cubes and cube roots of numbers Apply number properties involving prime factorization Apply number properties involving even/odd numbers and factors/multiples Apply number properties involving positive/negative numbers Apply rules of exponents **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

TABLE 2B

Montana Mathematics Content Standards Upon Graduation	PLAN Mathematics College Readiness Standards
Content Standard 1: Number Sense and Operation	
1.4. Properties of Numbers and Number Systems: Analyze and apply the properties of numbers and number systems.	**Numbers: Concepts & Properties:** Determine when an expression is undefined Apply number properties involving prime factorization Apply number properties involving even/odd numbers and factors/multiples Apply number properties involving positive/negative numbers Apply rules of exponents
1.5. Modeling Relationships and Change: Identify givens and unknowns in familiar and unfamiliar situations (e.g., finance, culture, including Montana American Indians, and nature) and describe relationships between variables.	**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

TABLE 2B

Montana Mathematics Content Standards Upon Graduation	PLAN Mathematics College Readiness Standards
Content Standard 2: Data Analysis A student, applying reasoning and problem solving, will use data representation and analysis, simulations, probability, statistics, and statistical methods to evaluate information and make informed decisions within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
2.1. Representing and Analyzing Data: Select, create, and compare graphical or numerical representations of data sets using technology when appropriate. Reason about distributions using measures of central tendency and spread (e.g., percentiles, quartiles, inter-quartile range, and standard deviation).	**Probability, Statistics, & Data Analysis:** Calculate the average of a list of positive whole numbers Perform a single computation using information from a table or chart Calculate the average of a list of numbers Calculate the average, given the number of data values and the sum of the data values Read tables and graphs Perform computations on data from tables and graphs Calculate the missing data value, given the average and all data values but one Translate from one representation of data to another (e.g., a bar graph to a circle graph) Calculate the average, given the frequency counts of all the data values Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs
2.2. Evaluating Validity: Evaluate the validity of reports based on collected and/or published data by considering the source of the data, the design of the study, and the way data are displayed, analyzed, and interpreted.	
2.3. Rules of Probability and Expected Value: Make, evaluate, and justify decisions based on probabilities in multicultural situations, including those of Montana American Indians (e.g., finding expected value and using rules of probability).	**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 Compute a probability when the event and/or sample space are not given or obvious
2.4. Counting Methods: Use technology as needed to determine the possible number of outcomes for an event or compound event using the fundamental counting principle, permutations, combinations, and other systematic counting methods.	**Probability, Statistics, & Data Analysis:** Exhibit knowledge of simple counting techniques Use Venn diagrams in counting Apply counting techniques

TABLE 2B

Montana Mathematics Content Standards Upon Graduation	PLAN Mathematics College Readiness Standards
Content Standard 2: Data Analysis	
2.5. Curve Fitting: Model two-variable data using curve fitting with and without technology. Write an equation for a given model and decide when or if predictions based on this equation are valid.	**Probability, Statistics, & Data Analysis:** Perform computations on data from tables and graphs Manipulate data from tables and graphs Interpret and use information from figures, tables, and graphs **Graphical Representations:** 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

TABLE 2B

Montana Mathematics Content Standards Upon Graduation	PLAN Mathematics College Readiness Standards
Content Standard 3: Geometric Reasoning A student, applying reasoning and problem solving, will understand geometric properties, spatial relationships, and transformation of shapes, and will use spatial reasoning and geometric models to analyze mathematical situations within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
3.1. Conjectures and Inductive Reasoning: Formulate and evaluate conjectures about geometric objects and their properties, with and without technology, applying inductive reasoning when appropriate.	
3.2. Applications of Geometric Models: Use spatial reasoning and geometric models to solve problems with and without technology in the contexts of art, science, and culture, including Montana American Indians.	
3.3. Multiple Geometric Approaches: Identify, analyze, and use transformational, coordinate, and synthetic geometric approaches to solve problems.	**Graphical Representations:** Interpret and use information from graphs in the coordinate plane
3.4. Indirect Measurement: Determine measures of two- and three-dimensional objects and their elements using trigonometric ratios, proportionality, the Pythagorean Theorem, and angle relationships.	**Properties of Plane Figures:** Find the measure of an angle using properties of parallel lines 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 Use the Pythagorean theorem **Measurement:** Estimate or calculate the length of a line segment based on other lengths given on a geometric figure Use relationships involving area, perimeter, and volume of geometric figures to compute another measure
3.5. Methods of Proof: Establish the validity of geometric conjectures using deductive reasoning, indirect proof, and counterexamples, and critique arguments made by others.	

TABLE 2B

Montana Mathematics Content Standards Upon Graduation	PLAN Mathematics College Readiness Standards
Content Standard 4: Algebraic and Functional Reasoning A student, applying reasoning and problem solving, will use algebraic concepts and procedures to understand processes involving number, operation, and variables and will use procedures and function concepts to model the quantitative and functional relationships that describe change within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
4.1. Representing Functions: Represent functions in a variety of ways including tables, graphs or diagrams, verbal descriptions, and symbolic expressions in recursive and explicit form. Justify the choice of an appropriate form for solving a given problem.	**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) Manipulate expressions and equations Write expressions, equations, and inequalities for common algebra settings **Graphical Representations:** Match linear graphs with their equations Interpret and use information from graphs in the coordinate plane
4.2. Variables and Parameters: Determine the appropriate symbolic representation of a given contextual situation (e.g., variables and parameters in equations, inequalities, functions, and matrices).	**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) Write expressions, equations, and inequalities for common algebra settings
4.3. Solving Systems of Equations and Inequalities: Solve a variety of equations, inequalities and systems of equations and inequalities, justify the solution process, and interpret the solution in context.	**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 Identify solutions to simple quadratic equations 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 absolute value equations Solve quadratic equations Find solutions to systems of linear equations

TABLE 2B

Montana Mathematics Content Standards Upon Graduation	PLAN Mathematics College Readiness Standards
Content Standard 4: Algebraic and Functional Reasoning	
4.4. Families of Functions and Transformations: Analyze the effects of transformations on families of functions and recognize their characteristics. Represent and use functions in equivalent forms to identify and perform transformations.	**Graphical Representations:** Match linear graphs with their equations
4.5. Analyzing and Conjecturing with Models: Given data or a problem situation, select and use an appropriate function model to analyze results or make a prediction with and without technology using cultural contexts, including those of Montana American Indians.	**Probability, Statistics, & Data Analysis:** Perform computations on data from tables and graphs 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 2C

Montana Mathematics Content Standards Upon Graduation	ACT Mathematics College Readiness Standards
Content Standard 1: Number Sense and Operation A student, applying reasoning and problem solving, will use number sense and operations to represent numbers in multiple ways, understand relationships among numbers and number systems, make reasonable estimates, and compute fluently within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
1.1. Quantification: Use multiple notations to perform and interpret the effects of operations on very large and very small numbers with and without technology.	**Numbers: Concepts & Properties:** Work with scientific notation Work with squares and square roots of numbers Work problems involving positive integer exponents Work with cubes and cube roots of numbers Apply number properties involving prime factorization Apply number properties involving even/odd numbers and factors/multiples Apply number properties involving positive/negative numbers Apply rules of exponents
1.2. Estimation and Accuracy: Identify situations where estimation is appropriate and determine the degree of accuracy needed for a given problem situation (and the appropriate precision in which to report answers).	**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
1.3. Equivalence with Multiple Notation: Given a representation of a number or expression, find equivalent representations using multiple notations (e.g., $x^{1/2}$ vs. $\sqrt{x}$ and visual representation of multiplying binomials).	**Numbers: Concepts & Properties:** Work with numerical factors Work with scientific notation Work with squares and square roots of numbers Work problems involving positive integer exponents Work with cubes and cube roots of numbers Apply number properties involving prime factorization Apply number properties involving even/odd numbers and factors/multiples Apply number properties involving positive/negative numbers Apply rules of exponents **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

TABLE 2C

Montana Mathematics Content Standards Upon Graduation	ACT Mathematics College Readiness Standards
Content Standard 1: Number Sense and Operation	
1.4. Properties of Numbers and Number Systems: Analyze and apply the properties of numbers and number systems.	**Numbers: Concepts & Properties:** Determine when an expression is undefined Apply number properties involving prime factorization Apply number properties involving even/odd numbers and factors/multiples Apply number properties involving positive/negative numbers 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 Apply properties of complex numbers
1.5. Modeling Relationships and Change: Identify givens and unknowns in familiar and unfamiliar situations (e.g., finance, culture, including Montana American Indians, and nature) and describe relationships between variables.	**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

TABLE 2C

Montana Mathematics Content Standards Upon Graduation	ACT Mathematics College Readiness Standards
Content Standard 2: Data Analysis A student, applying reasoning and problem solving, will use data representation and analysis, simulations, probability, statistics, and statistical methods to evaluate information and make informed decisions within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
2.1. Representing and Analyzing Data: Select, create, and compare graphical or numerical representations of data sets using technology when appropriate. Reason about distributions using measures of central tendency and spread (e.g., percentiles, quartiles, inter-quartile range, and standard deviation).	**Probability, Statistics, & Data Analysis:** Calculate the average of a list of positive whole numbers Perform a single computation using information from a table or chart Calculate the average of a list of numbers Calculate the average, given the number of data values and the sum of the data values Read tables and graphs Perform computations on data from tables and graphs Calculate the missing data value, given the average and all data values but one Translate from one representation of data to another (e.g., a bar graph to a circle graph) Calculate the average, given the frequency counts of all the data values 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 Analyze and draw conclusions based on information from figures, tables, and graphs
2.2. Evaluating Validity: Evaluate the validity of reports based on collected and/or published data by considering the source of the data, the design of the study, and the way data are displayed, analyzed, and interpreted.	**Probability, Statistics, & Data Analysis:** Analyze and draw conclusions based on information from figures, tables, and graphs
2.3. Rules of Probability and Expected Value: Make, evaluate, and justify decisions based on probabilities in multicultural situations, including those of Montana American Indians (e.g., finding expected value and using rules of probability).	**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 Compute a probability when the event and/or sample space are not given or obvious Exhibit knowledge of conditional and joint probability
2.4. Counting Methods: Use technology as needed to determine the possible number of outcomes for an event or compound event using the fundamental counting principle, permutations, combinations, and other systematic counting methods.	**Probability, Statistics, & Data Analysis:** Exhibit knowledge of simple counting techniques Use Venn diagrams in counting Apply counting techniques

TABLE 2C

Montana Mathematics Content Standards Upon Graduation	ACT Mathematics College Readiness Standards
Content Standard 2: Data Analysis	
2.5. Curve Fitting: Model two-variable data using curve fitting with and without technology. Write an equation for a given model and decide when or if predictions based on this equation are valid.	**Probability, Statistics, & Data Analysis:** Perform computations on data from tables and graphs 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 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 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 2C

Montana Mathematics Content Standards Upon Graduation	ACT Mathematics College Readiness Standards
Content Standard 3: Geometric Reasoning A student, applying reasoning and problem solving, will understand geometric properties, spatial relationships, and transformation of shapes, and will use spatial reasoning and geometric models to analyze mathematical situations within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
3.1. Conjectures and Inductive Reasoning: Formulate and evaluate conjectures about geometric objects and their properties, with and without technology, applying inductive reasoning when appropriate.	**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
3.2. Applications of Geometric Models: Use spatial reasoning and geometric models to solve problems with and without technology in the contexts of art, science, and culture, including Montana American Indians.	**Properties of Plane Figures:** Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
3.3. Multiple Geometric Approaches: Identify, analyze, and use transformational, coordinate, and synthetic geometric approaches to solve problems.	**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:** Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas
3.4. Indirect Measurement: Determine measures of two- and three-dimensional objects and their elements using trigonometric ratios, proportionality, the Pythagorean Theorem, and angle relationships.	**Properties of Plane Figures:** Find the measure of an angle using properties of parallel lines 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 Use the Pythagorean theorem **Measurement:** Estimate or calculate the length of a line segment based on other lengths given on a geometric figure 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

TABLE 2C

Montana Mathematics Content Standards Upon Graduation	ACT Mathematics College Readiness Standards
Content Standard 3: Geometric Reasoning	
	Apply basic trigonometric ratios to solve right-triangle problems Use trigonometric concepts and basic identities to solve problems
3.5. Methods of Proof: Establish the validity of geometric conjectures using deductive reasoning, indirect proof, and counterexamples, and critique arguments made by others.	**Properties of Plane Figures:** Draw conclusions based on a set of conditions

TABLE 2C

Montana Mathematics Content Standards Upon Graduation	ACT Mathematics College Readiness Standards
Content Standard 4: Algebraic and Functional Reasoning A student, applying reasoning and problem solving, will use algebraic concepts and procedures to understand processes involving number, operation, and variables and will use procedures and function concepts to model the quantitative and functional relationships that describe change within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
4.1. Representing Functions: Represent functions in a variety of ways including tables, graphs or diagrams, verbal descriptions, and symbolic expressions in recursive and explicit form. Justify the choice of an appropriate form for solving a given problem.	**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) 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:** Match linear graphs with their equations 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
4.2. Variables and Parameters: Determine the appropriate symbolic representation of a given contextual situation (e.g., variables and parameters in equations, inequalities, functions, and matrices).	**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) 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 2C

Montana Mathematics Content Standards Upon Graduation	ACT Mathematics College Readiness Standards
Content Standard 4: Algebraic and Functional Reasoning	
4.3. Solving Systems of Equations and Inequalities: Solve a variety of equations, inequalities and systems of equations and inequalities, justify the solution process, and interpret the solution in context.	**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 Identify solutions to simple quadratic equations 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 absolute value equations Solve quadratic equations Find solutions to systems of linear equations Solve simple absolute value inequalities
4.4. Families of Functions and Transformations: Analyze the effects of transformations on families of functions and recognize their characteristics. Represent and use functions in equivalent forms to identify and perform transformations.	**Graphical Representations:** Match linear graphs with their equations 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
4.5. Analyzing and Conjecturing with Models: Given data or a problem situation, select and use an appropriate function model to analyze results or make a prediction with and without technology using cultural contexts, including those of Montana American Indians.	**Probability, Statistics, & Data Analysis:** Perform computations on data from tables and graphs 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 2D

Montana Mathematics Content Standards Upon Graduation	WorkKeys *Applied Mathematics* Skills
Content Standard 1: Number Sense and Operation A student, applying reasoning and problem solving, will use number sense and operations to represent numbers in multiple ways, understand relationships among numbers and number systems, make reasonable estimates, and compute fluently within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
1.1. Quantification: Use multiple notations to perform and interpret the effects of operations on very large and very small numbers with and without technology.	
1.2. Estimation and Accuracy: Identify situations where estimation is appropriate and determine the degree of accuracy needed for a given problem situation (and the appropriate precision in which to report answers).	
1.3. Equivalence with Multiple Notation: Given a representation of a number or expression, find equivalent representations using multiple notations (e.g., $x^{1/2}$ vs. $\sqrt{x}$ and visual representation of multiplying binomials).	Change numbers from one form to another using whole numbers, fractions, decimals, or percentages
1.4. Properties of Numbers and Number Systems: Analyze and apply the properties of numbers and number systems.	
1.5. Modeling Relationships and Change: Identify givens and unknowns in familiar and unfamiliar situations (e.g., finance, culture, including Montana American Indians, and nature) and describe relationships between variables.	

TABLE 2D

Montana Mathematics Content Standards Upon Graduation	WorkKeys *Applied Mathematics* Skills
Content Standard 2: Data Analysis A student, applying reasoning and problem solving, will use data representation and analysis, simulations, probability, statistics, and statistical methods to evaluate information and make informed decisions within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
2.1. Representing and Analyzing Data: Select, create, and compare graphical or numerical representations of data sets using technology when appropriate. Reason about distributions using measures of central tendency and spread (e.g., percentiles, quartiles, inter-quartile range, and standard deviation).	Calculate averages, simple ratios, simple proportions, or rates using whole numbers and decimals Apply basic statistical concepts
2.2. Evaluating Validity: Evaluate the validity of reports based on collected and/or published data by considering the source of the data, the design of the study, and the way data are displayed, analyzed, and interpreted.	
2.3. Rules of Probability and Expected Value: Make, evaluate, and justify decisions based on probabilities in multicultural situations, including those of Montana American Indians (e.g., finding expected value and using rules of probability).	
2.4. Counting Methods: Use technology as needed to determine the possible number of outcomes for an event or compound event using the fundamental counting principle, permutations, combinations, and other systematic counting methods.	Apply basic statistical concepts
2.5. Curve Fitting: Model two-variable data using curve fitting with and without technology. Write an equation for a given model and decide when or if predictions based on this equation are valid.	

TABLE 2D

Montana Mathematics Content Standards Upon Graduation	WorkKeys *Applied Mathematics* Skills
Content Standard 3: Geometric Reasoning A student, applying reasoning and problem solving, will understand geometric properties, spatial relationships, and transformation of shapes, and will use spatial reasoning and geometric models to analyze mathematical situations within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
3.1. Conjectures and Inductive Reasoning: Formulate and evaluate conjectures about geometric objects and their properties, with and without technology, applying inductive reasoning when appropriate.	
3.2. Applications of Geometric Models: Use spatial reasoning and geometric models to solve problems with and without technology in the contexts of art, science, and culture, including Montana American Indians.	Calculate perimeters and areas of basic shapes (rectangles and circles) Find areas of basic shapes when it may be necessary to rearrange the formula, convert units of measurement in the calculations, or use the result in further calculations Find the volume of rectangular solids Calculate multiple areas and volumes of spheres, cylinders, or cones
3.3. Multiple Geometric Approaches: Identify, analyze, and use transformational, coordinate, and synthetic geometric approaches to solve problems.	
3.4. Indirect Measurement: Determine measures of two- and three-dimensional objects and their elements using trigonometric ratios, proportionality, the Pythagorean Theorem, and angle relationships.	Calculate averages, simple ratios, simple proportions, or rates using whole numbers and decimals Set up and manipulate complex ratios or proportions
3.5. Methods of Proof: Establish the validity of geometric conjectures using deductive reasoning, indirect proof, and counterexamples, and critique arguments made by others.	

TABLE 2D

Montana Mathematics Content Standards Upon Graduation	WorkKeys *Applied Mathematics* Skills
Content Standard 4: Algebraic and Functional Reasoning A student, applying reasoning and problem solving, will use algebraic concepts and procedures to understand processes involving number, operation, and variables and will use procedures and function concepts to model the quantitative and functional relationships that describe change within a variety of relevant cultural contexts, including those of Montana American Indians.	
A proficient student will:	
4.1. Representing Functions: Represent functions in a variety of ways including tables, graphs or diagrams, verbal descriptions, and symbolic expressions in recursive and explicit form. Justify the choice of an appropriate form for solving a given problem.	
4.2. Variables and Parameters: Determine the appropriate symbolic representation of a given contextual situation (e.g., variables and parameters in equations, inequalities, functions, and matrices).	
4.3. Solving Systems of Equations and Inequalities: Solve a variety of equations, inequalities and systems of equations and inequalities, justify the solution process, and interpret the solution in context.	Solve problems that require a single type of mathematics operation (addition, subtraction, multiplication, and division) using whole numbers Add or subtract negative numbers Change numbers from one form to another using whole numbers, fractions, decimals, or percentages Solve problems that require one or two operations Put the information in the right order before performing calculations Decide what information, calculations, or unit conversions to use to solve the problem Look up a formula and perform single-step conversions within or between systems of measurement Find the best deal using one- and two-step calculations and then comparing results Calculate percentage discounts or markups Rearrange a formula before solving a problem Use two formulas to change from one unit to another within the same system of measurement Use two formulas to change from one unit in one system of measurement to a unit in another system of measurement Find the best deal and use the result for another calculation Calculate multiple rates Solve problems that include nonlinear functions and/or that involve more than one unknown Convert between systems of measurement that involve fractions, mixed numbers, decimals, and/or percentages Set up and manipulate complex ratios or proportions Find the best deal when there are several choices

TABLE 2D

Montana Mathematics Content Standards Upon Graduation	WorkKeys *Applied Mathematics* Skills
Content Standard 4: Algebraic and Functional Reasoning	
4.4. Families of Functions and Transformations: Analyze the effects of transformations on families of functions and recognize their characteristics. Represent and use functions in equivalent forms to identify and perform transformations.	
4.5. Analyzing and Conjecturing with Models: Given data or a problem situation, select and use an appropriate function model to analyze results or make a prediction with and without technology using cultural contexts, including those of Montana American Indians.	

SUPPLEMENT
TABLES 3A–3D:

SCIENCE

TABLE 3A

Montana Science Content Standards End of Grade 8	EXPLORE Science College Readiness Standards
Content Standard 1 Students, through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate the results and form reasonable conclusions of scientific investigations.	
A proficient student will:	
1.1. identify a question, determine relevant variables and a control, formulate a testable hypothesis, plan and predict the outcome of an investigation, safely conduct scientific investigation, and compare and analyze 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 **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 experimental conditions that would produce specified results **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
1.2. select and use appropriate tools including technology to make measurements (in metric units), gather, process and analyze data from scientific investigations	**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)

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TABLE 3A

Montana Science Content Standards End of Grade 8	EXPLORE Science College Readiness Standards
Content Standard 1	
	Translate information into a table, graph, or diagram **Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
1.3. review, communicate and defend results of investigations, including considering alternative explanations	**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 **Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model Select a simple hypothesis, prediction, or conclusion that is supported by two or more data presentations or models 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

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TABLE 3A

Montana Science Content Standards End of Grade 8	EXPLORE Science College Readiness Standards
Content Standard 1	
1.4. create models to illustrate scientific concepts and use the model to predict change (e.g., computer simulation, stream table, graphic representation)	**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 **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model Select a simple hypothesis, prediction, or conclusion that is supported by two or more data presentations or models
1.5. identify strengths and weakness in an investigation design	**Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment
1.6. compare how observations of nature form an essential base of knowledge among the Montana American Indians	

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TABLE 3A

Montana Science Content Standards End of Grade 8	EXPLORE Science College Readiness Standards
Content Standard 2 Students, through the inquiry process, demonstrate knowledge of properties, forms, changes and interactions of physical and chemical systems.	
A proficient student will:	
2.1. classify, describe, and manipulate the physical models of matter in terms of: elements, and compounds, pure substances and mixtures, atoms, and molecules	
2.2. examine, describe, compare and classify objects and substances based on common physical properties and simple chemical properties	
2.3. describe energy and compare and contrast the energy transformations and the characteristics of light, heat, motion, magnetism, electricity, sound and mechanical waves	
2.4. model and explain the states of matter are dependent upon the quantity of energy present in the system and describe what will change and what will remain unchanged at the particulate level when matter experiences an external force or energy change	
2.5. describe and explain the motion of an object in terms of its position, direction, and speed as well as the forces acting upon it	
2.6. identify, build, describe, measure, and analyze mechanical systems (e.g., simple and complex compound machines) and describe the forces acting within those systems	
2.7. give examples and describe how energy is transferred and conserved (e.g.; electric to light and heat [light bulb], chemical to mechanical [fuel to propulsion])	

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TABLE 3A

Montana Science Content Standards End of Grade 8	EXPLORE Science College Readiness Standards
Content Standard 3 Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.	
A proficient student will:	
3.1. compare the structure and function of prokaryotic cells (bacteria) and eukaryotic cells (plant, animal, etc.) including the levels of organization of the structure and function, particularly with humans	
3.2. explain how organisms and systems of organisms obtain and use energy resources to maintain stable conditions (e.g., food webs, photosynthesis, respiration)	
3.3. communicate the differences in the repro-ductive processes of a variety of plants and animals using the principles of genetic modeling (e.g., Punnett squares)	
3.4. investigate and explain the interdependent nature of populations and communities in the environment and describe how species in these populations adapt by evolving	
3.5. create and use a basic classification scheme to identify plants and animals	

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TABLE 3A

Montana Science Content Standards End of Grade 8	EXPLORE Science College Readiness Standards
Content Standard 4 Students, through the inquiry process, demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space.	
A proficient student will:	
4.1. model and explain the internal structure of the Earth and describe the formation and composition of Earth's external features in terms of the rock cycle and plate tectonics and constructive and destructive forces	
4.2. differentiate between rock types and mineral types and classify both by how they are formed and the utilization by humans	
4.3. use fossils to describe the geological timeline	
4.4. describe the water cycle, the composition and structure of the atmosphere, and the impact of oceans on large-scale weather patterns	
4.5. describe and model the motion and tilt of Earth in relation to the sun, and explain the concepts of day, night, seasons, year, and climatic changes	
4.6. describe the Earth, moon, planets and other objects in space in terms of size, force of gravity, structure, and movement in relation to the sun	
4.7. identify scientific theories about the origin and evolution of the Earth and the solar system	

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TABLE 3A

Montana Science Content Standards End of Grade 8	EXPLORE Science College Readiness Standards
Content Standard 5 Students, through the inquiry process, understand how scientific knowledge and technological developments impact communities, cultures and societies.	
A proficient student will:	
5.1. describe the specific fields of science and technology as they relate to occupations within those fields	
5.2. apply scientific knowledge and process skills to understand issues and everyday events	**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 **Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
5.3. simulate collaborative problem solving and give examples of how scientific knowledge and technology are shared with other scientists and the public	
5.4. use scientific knowledge to investigate problems and their proposed solutions and evaluate those solutions while considering environmental impacts	
5.5. describe how the knowledge of science and technology influences the development of the Montana American Indian cultures	

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TABLE 3A

Montana Science Content Standards End of Grade 8	EXPLORE Science College Readiness Standards
Content Standard 6 Students understand historical developments in science and technology.	
A proficient student will:	
6.1. give examples of scientific discoveries and describe the interrelationship between technological advances and scientific understanding, including Montana American Indian examples	
6.2. identify major milestones in science that have impacted science, technology, and society	
6.3. describe and explain science as a human endeavor and an ongoing process	

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TABLE 3B

Montana Science Content Standards Upon Graduation	PLAN Science College Readiness Standards
Content Standard 1 Students, through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate the results and form reasonable conclusions of scientific investigations.	
A proficient student will:	
1.1. generate a question, identify dependent and independent variables, formulate testable, multiple hypotheses, plan an investigation, predict its outcome, safely conduct the scientific investigations, and collect and analyze 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 **Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand the methods and tools used in a moderately complex experiment Understand a simple experimental design Identify a control in an experiment Understand the methods and tools used in a complex experiment Understand a complex experimental design Determine the experimental conditions that would produce specified results Determine the hypothesis for an experiment **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model Select a simple hypothesis, prediction, or conclusion that is supported by two or more data presentations or models
1.2. select and use appropriate tools including technology to make measurements (in metric units), gather, process and analyze data from scientific investigations using appropriate mathematical analysis, error analysis, and graphical representation	**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)

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TABLE 3B

Montana Science Content Standards Upon Graduation	PLAN Science College Readiness Standards
Content Standard 1	
	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 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 **Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
1.3. review evidence, communicate and defend results, and recognize that the results of a scientific investigation are always open to revision by further investigations. (e.g., through graphical representation or charts)	**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 **Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Identify similarities and differences between experiments

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TABLE 3B

Montana Science Content Standards Upon Graduation	PLAN Science College Readiness Standards
Content Standard 1	
	Predict the results of an additional trial or measurement in an experiment Identify an alternate method for testing a hypothesis **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion Use new information to make a prediction based on a model
1.4. analyze observations and explain with scientific understanding to develop a plausible model (e.g., atom, expanding universe)	**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 **Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment **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 Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion

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TABLE 3B

Montana Science Content Standards Upon Graduation	PLAN Science College Readiness Standards
Content Standard 1	
1.5. identify strengths, weaknesses, and assess the validity of the experimental design of an investigation through analysis and evaluation	**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
1.6. explain how observations of nature form an essential base of knowledge among the Montana American Indians	

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TABLE 3B

Montana Science Content Standards Upon Graduation	PLAN Science College Readiness Standards
Content Standard 2 Students, through the inquiry process, demonstrate knowledge of properties, forms, changes and interactions of physical and chemical systems.	
A proficient student will:	
2.1. describe the structure of atoms, including knowledge of (a) subatomic particles and their relative masses, charges, and locations within the atom, (b) the electrical and nuclear forces that hold the atom together, (c) fission and fusion, and (d) radioactive decay	
2.2. explain how the particulate-level structure and properties of matter affect its macroscopic properties, including the effect of (a) valence electrons on the chemical properties of elements and the resulting periodic trends in these properties, (b) chemical bonding,(c) molecular geometry and intermolecular forces, (d) kinetic molecular theory on phases of matter, and (e) carbon-carbon atom bonding on biomolecules	
2.3. describe the major features associated with chemical reactions, including (a) giving examples of reactions important to industry and living organisms, (b) energy changes associated with chemical changes, (c) classes of chemical reactions, (d) rates of reactions, and (e) the role of catalysts	
2.4. identify, measure, calculate, and analyze relationships associated with matter and energy transfer or transformations, and the associated conservation of mass	
2.5. explain the interactions between motions and forces, including (a) the laws of motion and (b) an understanding of the gravitational and electromagnetic forces	
2.6. explain how energy is stored, transferred, and transformed, including (a) the conservation of energy, (b) kinetic and potential energy and energy contained by a field, (c) heat energy and atomic and molecular motion, and (d) energy tends to change from concentrated to diffuse	
2.7. describe how energy and matter interact, including (a) waves, (b) the electromagnetic spectrum, (c) quantization of energy, and (d) insulators and conductors	

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TABLE 3B

Montana Science Content Standards Upon Graduation	PLAN Science College Readiness Standards
Content Standard 3 Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.	
A proficient student will:	
3.1. investigate and use appropriate technology to demonstrate that cells have common features including differences that determine function and that they are composed of common building blocks (e.g., proteins, carbohydrates, nucleic acids, lipids)	
3.2. describe and explain the complex processes involved in energy use in cell maintenance, growth, repair and development	
3.3. model the structure of DNA and protein synthesis, discuss the molecular basis of heredity, and explain how it contributes to the diversity of life	
3.4. predict and model the interaction of biotic and abiotic factors that affect populations through natural selection, and explain how this contributes to the evolution of species over time	
3.5. generate and apply biological classification schemes to infer and discuss the degree of divergence between ecosystems	

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TABLE 3B

Montana Science Content Standards Upon Graduation	PLAN Science College Readiness Standards
Content Standard 4 Students, through the inquiry process, demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space.	
A proficient student will:	
4.1. understand the theory of plate tectonics and how it explains the inter-relationship between earthquakes, volcanoes, and sea floor spreading	
4.2. identify and classify rocks and minerals based on physical and chemical properties and the utilization by humans (e.g., natural resources, building materials)	
4.3. explain scientific theories about how fossils are used as evidence of changes over time	
4.4. collect and analyze local and regional weather data to make inferences and predictions about weather patterns; explain factors influencing global weather and climate; and describe the impact on Earth of fluctuations in weather and climate (e.g., drought, surface and ground water, glacial instability)	
4.5. explain the impact of terrestrial, solar, oceanic, and atmosphere conditions on global climatic patterns	
4.6. describe the origin, location, and evolution of stars and their planetary systems in respect to the solar system, the milky way, the local galactic group, and the universe	
4.7. relate how evidence from advanced technology applied to scientific investigations (e.g., large telescopes and space-borne observatories), has dramatically impacted our understanding of the origin, size, and evolution of the universe	
Content Standard 5 Students, through the inquiry process, understand how scientific knowledge and technological developments impact communities, cultures and societies.	
A proficient student will:	
5.1. predict how key factors (e.g., technology, competitiveness, and world events) affect the development and acceptance of scientific thought	
5.2. give examples of scientific innovation challenging commonly held perceptions	
5.3. evaluate the ongoing, collaborative scientific process by gathering and critiquing information	
5.4. analyze benefits, limitations, costs, consequences, and ethics involved in using scientific and technological innovations (e.g., biotechnology, environmental issues)	
5.5. explain how the knowledge of science and technology applies to contemporary Montana American Indian communities (e.g., natural resources development, management and conservation)	

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TABLE 3B

Montana Science Content Standards Upon Graduation	PLAN Science College Readiness Standards
Content Standard 6 Students understand historical developments in science and technology.	
A proficient student will:	
6.1. analyze and illustrate the historical impact of scientific and technological advances, including Montana American Indian examples	
6.2. trace developments that demonstrate scientific knowledge is subject to change as new evidence becomes available	
6.3. describe, explain, and analyze science as a human endeavor and an ongoing process	

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TABLE 3C

Montana Science Content Standards Upon Graduation	ACT Science College Readiness Standards
Content Standard 1 Students, through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate the results and form reasonable conclusions of scientific investigations.	
A proficient student will:	
1.1. generate a question, identify dependent and independent variables, formulate testable, multiple hypotheses, plan an investigation, predict its outcome, safely conduct the scientific investigations, and collect and analyze 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 **Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand the methods and tools used in a moderately complex experiment Understand a simple experimental design Identify a control in an experiment Understand the methods and tools used in a complex experiment Understand a complex experimental design Determine the experimental conditions that would produce specified results Determine the hypothesis for an experiment Understand precision and accuracy issues **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model Select a simple hypothesis, prediction, or conclusion that is supported by two or more data presentations or models
1.2. select and use appropriate tools including technology to make measurements (in metric units), gather, process and analyze data from scientific investigations using appropriate mathematical analysis, error analysis, and graphical representation	**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)

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TABLE 3C

Montana Science Content Standards Upon Graduation	ACT Science College Readiness Standards
Content Standard 1	
	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 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 **Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model
1.3. review evidence, communicate and defend results, and recognize that the results of a scientific investigation are always open to revision by further investigations. (e.g., through graphical representation or charts)	**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 **Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment Identify similarities and differences between experiments

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TABLE 3C

Montana Science Content Standards Upon Graduation	ACT Science College Readiness Standards
Content Standard 1	
	Predict the results of an additional trial or measurement in an experiment Identify an alternate method for testing a hypothesis **Evaluation of Models, Inferences, and Experimental Results:** Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion Use new information to make a prediction based on a model
1.4. analyze observations and explain with scientific understanding to develop a plausible model (e.g., atom, expanding universe)	**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 **Scientific Investigation:** Understand the methods and tools used in a simple experiment Understand a simple experimental design Identify a control in an experiment **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 Determine whether given information supports or contradicts a simple hypothesis or conclusion, and why Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion

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TABLE 3C

Montana Science Content Standards Upon Graduation	ACT Science College Readiness Standards
Content Standard 1	
1.5. identify strengths, weaknesses, and assess the validity of the experimental design of an investigation through analysis and evaluation	**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
1.6. explain how observations of nature form an essential base of knowledge among the Montana American Indians	

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TABLE 3C

Montana Science Content Standards Upon Graduation	ACT Science College Readiness Standards
Content Standard 2 Students, through the inquiry process, demonstrate knowledge of properties, forms, changes and interactions of physical and chemical systems.	
A proficient student will:	
2.1. describe the structure of atoms, including knowledge of (a) subatomic particles and their relative masses, charges, and locations within the atom, (b) the electrical and nuclear forces that hold the atom together, (c) fission and fusion, and (d) radioactive decay	
2.2. explain how the particulate-level structure and properties of matter affect its macroscopic properties, including the effect of (a) valence electrons on the chemical properties of elements and the resulting periodic trends in these properties, (b) chemical bonding,(c) molecular geometry and intermolecular forces, (d) kinetic molecular theory on phases of matter, and (e) carbon-carbon atom bonding on biomolecules	
2.3. describe the major features associated with chemical reactions, including (a) giving examples of reactions important to industry and living organisms, (b) energy changes associated with chemical changes, (c) classes of chemical reactions, (d) rates of reactions, and (e) the role of catalysts	
2.4. identify, measure, calculate, and analyze relationships associated with matter and energy transfer or transformations, and the associated conservation of mass	
2.5. explain the interactions between motions and forces, including (a) the laws of motion and (b) an understanding of the gravitational and electromagnetic forces	
2.6. explain how energy is stored, transferred, and transformed, including (a) the conservation of energy, (b) kinetic and potential energy and energy contained by a field, (c) heat energy and atomic and molecular motion, and (d) energy tends to change from concentrated to diffuse	
2.7. describe how energy and matter interact, including (a) waves, (b) the electromagnetic spectrum, (c) quantization of energy, and (d) insulators and conductors	

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TABLE 3C

Montana Science Content Standards Upon Graduation	ACT Science College Readiness Standards
Content Standard 3 Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.	
A proficient student will:	
3.1. investigate and use appropriate technology to demonstrate that cells have common features including differences that determine function and that they are composed of common building blocks (e.g., proteins, carbohydrates, nucleic acids, lipids)	
3.2. describe and explain the complex processes involved in energy use in cell maintenance, growth, repair and development	
3.3. model the structure of DNA and protein synthesis, discuss the molecular basis of heredity, and explain how it contributes to the diversity of life	
3.4. predict and model the interaction of biotic and abiotic factors that affect populations through natural selection, and explain how this contributes to the evolution of species over time	
3.5. generate and apply biological classification schemes to infer and discuss the degree of divergence between ecosystems	

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TABLE 3C

Montana Science Content Standards Upon Graduation	ACT Science College Readiness Standards
Content Standard 4 Students, through the inquiry process, demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space.	
A proficient student will:	
4.1. understand the theory of plate tectonics and how it explains the inter-relationship between earthquakes, volcanoes, and sea floor spreading	
4.2. identify and classify rocks and minerals based on physical and chemical properties and the utilization by humans (e.g., natural resources, building materials)	
4.3. explain scientific theories about how fossils are used as evidence of changes over time	
4.4. collect and analyze local and regional weather data to make inferences and predictions about weather patterns; explain factors influencing global weather and climate; and describe the impact on Earth of fluctuations in weather and climate (e.g., drought, surface and ground water, glacial instability)	
4.5. explain the impact of terrestrial, solar, oceanic, and atmosphere conditions on global climatic patterns	
4.6. describe the origin, location, and evolution of stars and their planetary systems in respect to the solar system, the milky way, the local galactic group, and the universe	
4.7. relate how evidence from advanced technology applied to scientific investigations (e.g., large telescopes and space-borne observatories), has dramatically impacted our understanding of the origin, size, and evolution of the universe	

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TABLE 3C

Montana Science Content Standards Upon Graduation	ACT Science College Readiness Standards
Content Standard 5 Students, through the inquiry process, understand how scientific knowledge and technological developments impact communities, cultures and societies.	
A proficient student will:	
5.1. predict how key factors (e.g., technology, competitiveness, and world events) affect the development and acceptance of scientific thought	
5.2. give examples of scientific innovation challenging commonly held perceptions	
5.3. evaluate the ongoing, collaborative scientific process by gathering and critiquing information	
5.4. analyze benefits, limitations, costs, consequences, and ethics involved in using scientific and technological innovations (e.g., biotechnology, environmental issues)	
5.5. explain how the knowledge of science and technology applies to contemporary Montana American Indian communities (e.g., natural resources development, management and conservation)	

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TABLE 3C

Montana Science Content Standards Upon Graduation	ACT Science College Readiness Standards
Content Standard 6 Students understand historical developments in science and technology.	
A proficient student will:	
6.1. analyze and illustrate the historical impact of scientific and technological advances, including Montana American Indian examples	
6.2. trace developments that demonstrate scientific knowledge is subject to change as new evidence becomes available	
6.3. describe, explain, and analyze science as a human endeavor and an ongoing process	

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TABLE 3D

Montana Science Content Standards Upon Graduation	WorkKeys *Locating Information* Skills
Content Standard 1 Students, through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate the results and form reasonable conclusions of scientific investigations.	
A proficient student will:	
1.1. generate a question, identify dependent and independent variables, formulate testable, multiple hypotheses, plan an investigation, predict its outcome, safely conduct the scientific investigations, and collect and analyze data	
1.2. select and use appropriate tools including technology to make measurements (in metric units), gather, process and analyze data from scientific investigations using appropriate mathematical analysis, error analysis, and graphical representation	Find one or two pieces of information in a graphic Fill in one or two pieces of information that are missing from a graphic Find several pieces of information in one or two graphics Understand how graphics are related to each other Summarize information from one or two straightforward graphics Identify trends shown in one or two straightforward graphics Compare information and trends shown in one or two straightforward graphics Sort through distracting information Summarize information from one or more detailed graphics Identify trends shown in one or more detailed or complicated graphics Compare information and trends from one or more complicated graphics Draw conclusions based on one complicated graphic or several related graphics Apply information from one or more complicated graphics to specific situations Use the information to make decisions
1.3. review evidence, communicate and defend results, and recognize that the results of a scientific investigation are always open to revision by further investigations. (e.g., through graphical representation or charts)	
1.4. analyze observations and explain with scientific understanding to develop a plausible model (e.g., atom, expanding universe)	
1.5. identify strengths, weaknesses, and assess the validity of the experimental design of an investigation through analysis and evaluation	
1.6. explain how observations of nature form an essential base of knowledge among the Montana American Indians	

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2.1. describe the structure of atoms, including knowledge of (a) subatomic particles and their relative masses, charges, and locations within the atom, (b) the electrical and nuclear forces that hold the atom together, (c) fission and fusion, and (d) radioactive decay	
2.2. explain how the particulate-level structure and properties of matter affect its macroscopic properties, including the effect of (a) valence electrons on the chemical properties of elements and the resulting periodic trends in these properties, (b) chemical bonding,(c) molecular geometry and intermolecular forces, (d) kinetic molecular theory on phases of matter, and (e) carbon-carbon atom bonding on biomolecules	
2.3. describe the major features associated with chemical reactions, including (a) giving examples of reactions important to industry and living organisms, (b) energy changes associated with chemical changes, (c) classes of chemical reactions, (d) rates of reactions, and (e) the role of catalysts	
2.4. identify, measure, calculate, and analyze relationships associated with matter and energy transfer or transformations, and the associated conservation of mass	
2.5. explain the interactions between motions and forces, including (a) the laws of motion and (b) an understanding of the gravitational and electromagnetic forces	
2.6. explain how energy is stored, transferred, and transformed, including (a) the conservation of energy, (b) kinetic and potential energy and energy contained by a field, (c) heat energy and atomic and molecular motion, and (d) energy tends to change from concentrated to diffuse	
2.7. describe how energy and matter interact, including (a) waves, (b) the electromagnetic spectrum, (c) quantization of energy, and (d) insulators and conductors	

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3.1. investigate and use appropriate technology to demonstrate that cells have common features including differences that determine function and that they are composed of common building blocks (e.g., proteins, carbohydrates, nucleic acids, lipids)	
3.2. describe and explain the complex processes involved in energy use in cell maintenance, growth, repair and development	
3.3. model the structure of DNA and protein synthesis, discuss the molecular basis of heredity, and explain how it contributes to the diversity of life	
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4.4. collect and analyze local and regional weather data to make inferences and predictions about weather patterns; explain factors influencing global weather and climate; and describe the impact on Earth of fluctuations in weather and climate (e.g., drought, surface and ground water, glacial instability)	
4.5. explain the impact of terrestrial, solar, oceanic, and atmosphere conditions on global climatic patterns	
4.6. describe the origin, location, and evolution of stars and their planetary systems in respect to the solar system, the milky way, the local galactic group, and the universe	
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5.2. give examples of scientific innovation challenging commonly held perceptions	
5.3. evaluate the ongoing, collaborative scientific process by gathering and critiquing information	
5.4. analyze benefits, limitations, costs, consequences, and ethics involved in using scientific and technological innovations (e.g., biotechnology, environmental issues)	
5.5. explain how the knowledge of science and technology applies to contemporary Montana American Indian communities (e.g., natural resources development, management and conservation)	

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