The Condition of STEM 2014

Indiana

ACT®

The Condition of STEM 2014

Indiana

ACT has been a leader in measuring college and career readiness trends since 1959. Each August, we release *The Condition of College & Career Readiness* (**www.act.org/newsroom/data/2014**), our annual report on the progress of the ACT-tested graduating class relative to college readiness. Nationally, 57% of the 2014 graduating class took the ACT® college readiness assessment. The continued increase of test takers enhances the breadth and depth of our data pool, providing a comprehensive picture of the current college readiness levels of the graduating class as well as offering a glimpse of the emerging national educational and STEM pipeline. It also allows us to review various aspects of the ACT-tested 2014 graduating class.

This report reviews the graduating class in the context of STEM (Science, Technology, Engineering, Mathematics)-related fields. ACT is uniquely positioned to deliver this report for two key reasons. First is our commitment to science by the inclusion of subject-level science tests in our assessments. Second is our research-based measure of interests, the ACT Interest Inventory, which is delivered with the ACT and determines inherent interest in occupations and majors. With the inventory, we can determine student interest levels in specific STEM fields and, more importantly, readiness in math and science among students interested in STEM careers. The report breaks the graduating class into three STEM-related cohorts:[1]

1. Students who have an expressed and measured interest in STEM.
2. Students who have an expressed interest only—those who chose a major or occupation (out of the 294 listed in the Standard Profile Section of the ACT) that corresponds with STEM fields.
3. Students who have a measured interest only—those who indicated STEM interest on the ACT Interest Inventory.

Refining the Definition of STEM[2]

As we've continued our STEM research, we've renewed our focus on the inconsistency of STEM definitions across the country. In order to maintain consistency and offer states the opportunity to use this report as a baseline for state-level STEM initiatives, we created areas within our STEM fields in 2013. The table on page 28 describes how ACT chose to categorize them, based on the occupations and majors listed on the ACT. We determined four key areas:

Science, Computer Science and Mathematics, Medical and Health, and **Engineering and Technology**. This report will show achievement levels in each of these areas on a national level. In addition, the actual number and percentage of students interested in specific majors and occupations are provided. We include this so that STEM councils and other state officials can more accurately assess the numbers of students in specific major/occupational pipelines. The report will assist officials in documenting success of STEM initiatives that focus on generating interest in specific STEM fields.

ACT's Commitment to STEM

ACT recently launched ACT Aspire™, an assessment system focused on grades 3–10. ACT Aspire covers the same subjects as the ACT: English, reading, math, science, and writing. Based on the ACT College and Career Readiness Standards and aligned to the Common Core State Standards, ACT Aspire will provide an early indicator as well as a longitudinal overview of statewide and national college and career readiness. To complement the information in this report, ACT created a STEM score within the ACT Aspire reporting format and will make STEM scores an integral part of the ACT college readiness assessment reporting format in 2015. These steps will give educators and STEM leaders an early and ongoing view of the STEM pipeline within their states.

Upcoming projects at ACT include the development of ACT College and Career Readiness Benchmarks focused on the skills and knowledge students will need to be successful in STEM majors and occupations. In addition, we continue to provide additional research and data on the importance of developing a more holistic view of college and career readiness.

Our goal is to help educators, parents, and STEM councils and organizations broaden STEM opportunities for students at all levels. We must work together to get more students prepared to succeed in STEM careers. This is a critical step if the United States is to remain a world leader, and ACT is committed to research and assessment practices that make enhanced STEM opportunities for students a reality.

Please note that reporting achievement by combinations of student characteristics may give rise to small N counts. As a result, outcomes in this report should be interpreted with caution.

Key Findings
from the National *Condition of STEM 2014* Report

1. **Interest in STEM remains high.** Similar to last year, approximately half (49%) of ACT-tested 2014 graduates—nearly 900,000 students—had an interest in STEM. While this level of interest is encouraging, the findings suggest more must be done to keep interested students engaged in STEM fields as they move into postsecondary education and transition into the workplace.

   - Of those students interested in STEM, nearly half (49%) had only an expressed interest, not a measured interest. In other words, these students express an interest in pursuing a STEM major or occupation, but their ACT Interest Inventory results do not reveal an inherent interest in STEM. Ideal intervention strategies for these students will allow them to understand what takes place in a specific major or occupation and define an educational plan for them.

   - In comparison, 17% of STEM-interested students had only a measured interest, not an expressed interest. ACT Interest Inventory results suggest those students have an inherent interest in STEM, but they have not expressed an interest in pursuing a STEM major or occupation. A wider net must be cast with the goal of guiding and nurturing all students so they have an opportunity to experience success and gain interest in STEM fields. More must be done to identify and foster this interest earlier in students' educational experiences.

   The percentage of students interested in STEM has increased slightly over the past five years. The biggest increases were in the Engineering and Technology area, with engineering majors driving most of the growth—especially mechanical engineering.

2. **Achievement levels in math and science need to improve.** While large numbers of students are interested in STEM, achievement levels remain far too low to foster success in most STEM fields. Overall, just 43% of ACT-tested 2014 graduates met the ACT College Readiness Benchmark in math, and only 37% met the Benchmark in science. Among graduates interested in STEM, Benchmark attainment was only slightly higher: 50% in math and 43% in science.

3. **Achievement levels are highest when STEM interest is both expressed and measured.** Students who have both expressed and measured interest in STEM are more likely to meet three or more ACT College Readiness Benchmarks, suggesting they are better prepared for success in college coursework. Furthermore, STEM students who aspire to higher levels of education are more likely to have an expressed and measured interest than those with lower aspirations.

Overall and Expressed/Measured STEM Interest by Level of Educational Aspiration

	Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Voc-tech Degree
Overall STEM Interest *N*	277,885	141,852	372,858	35,157	11,818
Expressed/Measured *N*	133,745	50,101	106,729	7,190	1,720
Expressed/Measured Percent	48.1%	35.3%	28.6%	20.5%	14.6%

   Previous ACT research has shown a similar pattern in college outcomes where students who enter a major that matches their interests are more likely to remain in their major, persist in college, and complete their degree in a timely manner than students whose major and interests do not match.

4. **Female interest in STEM is high.** Males are more likely than females to be interested in STEM, but the actual number of females who are interested in STEM is quite high. Male interest in STEM tends to be driven by engineering and math, while female interest is driven by medical/health and, surprisingly, the sciences. Nursing is the single biggest interest area for females in medical/health, while biology is the biggest interest area for them in the sciences. Other STEM areas of particularly strong interest to females are animal sciences, biochemistry and biophysics, cell/cellular biology, chemistry, genetics, and marine aquatic biology.

5. **Interest in teaching STEM subject areas is low.** The number of graduates who are interested in teaching math or science is low compared to the likely future demand for such teachers. The proposed federal STEM Teacher Pathways program seeks to produce 100,000 high-quality math and science teachers in the next decade. Out of the more than 1.8 million 2014 graduates tested, however, only 4,424 students expressed an interest in teaching math, while a meager 1,115 expressed an interest in teaching science.

ACT

Indiana STEM Report
Attainment of College and Career Readiness

Overall STEM Interest

- Between 2010 and 2014, the percent of students interested in STEM decreased by 1%.

Student STEM Interest Trends: 2010–2014, State vs. Nation

		2010	2011	2012	2013	2014
Percent	Indiana	52%	52%	52%	51%	51%
	Nation	48%	48%	48%	48%	49%
N Count	Indiana	9,682	10,565	11,668	13,251	13,752
	Nation	749,292	780,541	804,507	868,194	899,684

Overall STEM Interest

- 13,752 of your graduates have an interest in STEM.

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Subject
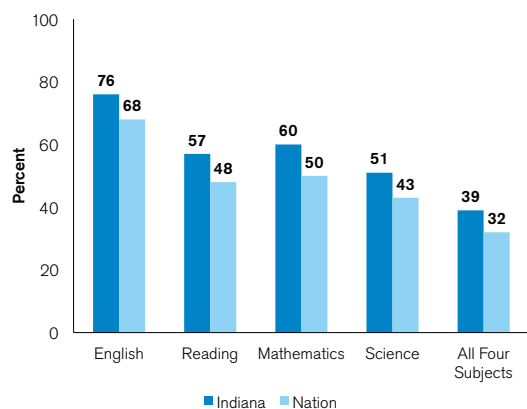
Expressed and Measured Interest

- 5,059 of your graduates have an expressed and measured interest in STEM, which is 37% of the overall interest.

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Subject

Expressed Interest Only

- 6,708 of your graduates have an expressed interest in STEM, which is 49% of the overall interest.

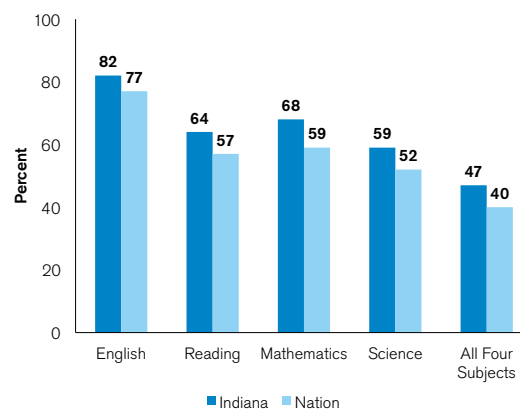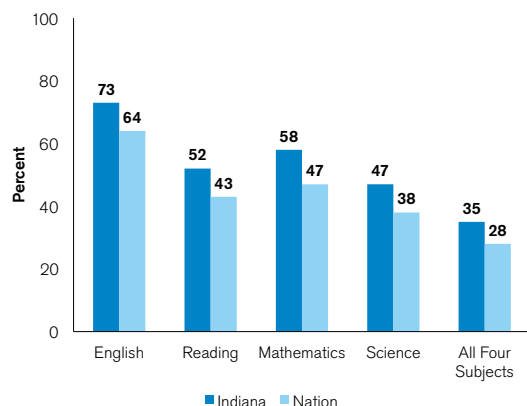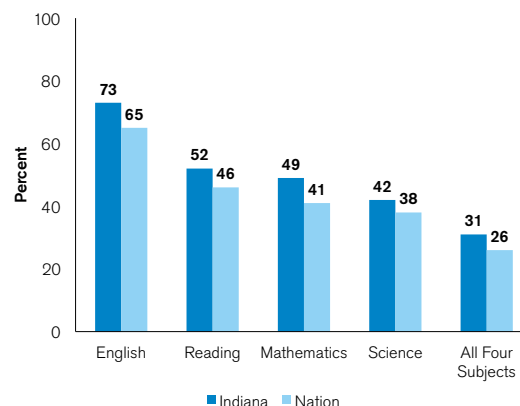**Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Subject**

Measured Interest Only

- 1,985 of your graduates have a measured interest in STEM, which is 14% of the overall interest.

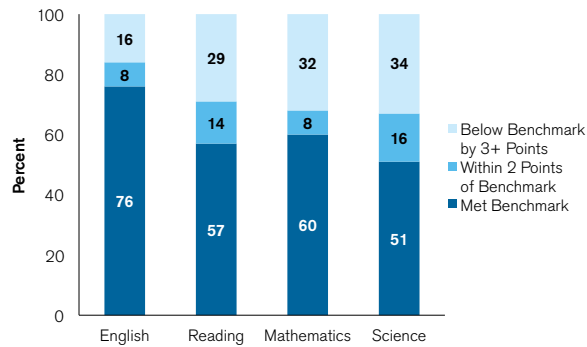**Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Subject**

Note: Percents in this report may not sum to 100% due to rounding.

Indiana STEM Report

Attainment of College and Career Readiness

Overall STEM Interest (*N* = 13,752)

Percent of 2014 ACT-Tested High School Graduates by ACT College Readiness Benchmark Attainment and Subject

Percent

Subject	Below Benchmark by 3+ Points	Within 2 Points of Benchmark	Met Benchmark
English	16	8	76
Reading	29	14	57
Mathematics	32	8	60
Science	34	16	51

Legend:
- Below Benchmark by 3+ Points
- Within 2 Points of Benchmark
- Met Benchmark

Percent of 2014 ACT-Tested High School Graduates by Number of ACT College Readiness Benchmarks Attained

Percent

Benchmarks Met	Indiana	Nation
0	19	26
1	13	15
2	13	14
3	16	14
4	39	32

Indiana / Nation

Expressed and Measured Interest (*N* = 5,059)

Percent of 2014 ACT-Tested High School Graduates by ACT College Readiness Benchmark Attainment and Subject

Percent

Subject	Below Benchmark by 3+ Points	Within 2 Points of Benchmark	Met Benchmark
English	11	7	82
Reading	22	13	64
Mathematics	25	7	68
Science	26	14	59

Legend:
- Below Benchmark by 3+ Points
- Within 2 Points of Benchmark
- Met Benchmark

Percent of 2014 ACT-Tested High School Graduates by Number of ACT College Readiness Benchmarks Attained

Percent

Benchmarks Met	Indiana	Nation
0	13	19
1	11	13
2	13	13
3	16	15
4	47	40

Indiana / Nation
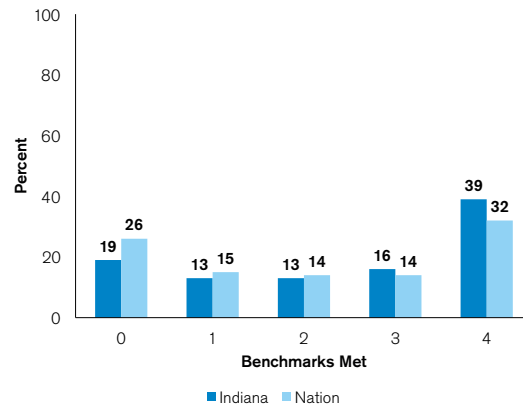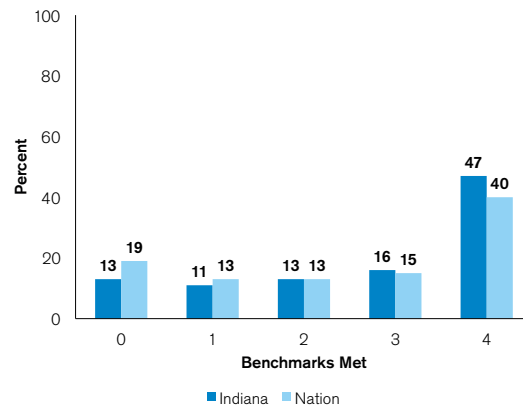
ACT®

Indiana STEM Report
Attainment of College and Career Readiness

Overall STEM Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Race/Ethnicity and Subject*

African American — Mathematics 20, Science 14
American Indian — Mathematics 42, Science 29
Asian — Mathematics 80, Science 66
Hispanic — Mathematics 40, Science 30
Pacific Islander — Mathematics 69, Science 46
White — Mathematics 67, Science 57
Two or More Races — Mathematics 52, Science 43

■ Mathematics
■ Science

African American	American Indian	Asian	Hispanic	Pacific Islander	White	Two or More Races
N = 1,270	N = 31	N = 434	N = 997	N = 13	N = 10,069	N = 423

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Gender and Subject

Male — Mathematics 67, Science 57
Female — Mathematics 55, Science 45

■ Mathematics
■ Science

Male	Female
N = 6,427	N = 7,245

Expressed and Measured Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Race/Ethnicity and Subject*

African American — Mathematics 27, Science 21
American Indian — Mathematics 71, Science 43
Asian — Mathematics 83, Science 71
Hispanic — Mathematics 51, Science 38
Pacific Islander — Mathematics 67, Science 50
White — Mathematics 72, Science 64
Two or More Races — Mathematics 59, Science 50

■ Mathematics
■ Science
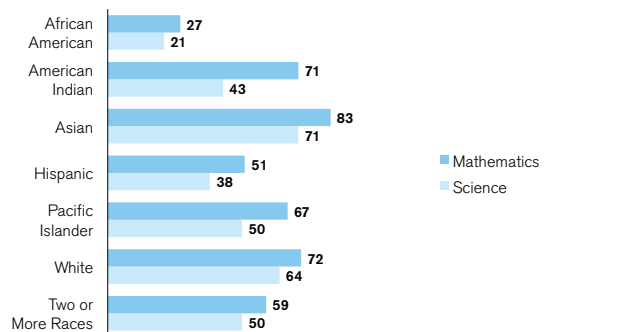
African American	American Indian	Asian	Hispanic	Pacific Islander	White	Two or More Races
N = 323	N = 7	N = 205	N = 360	N = 6	N = 3,845	N = 154

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Gender and Subject

Male — Mathematics 76, Science 67
Female — Mathematics 61, Science 52

■ Mathematics
■ Science
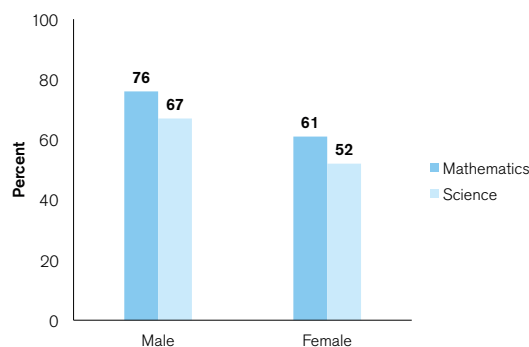
Male	Female
N = 2,302	N = 2,744

* Race/ethnicity categories changed for the 2010–2011 academic year to reflect updated US Department of Education reporting requirements.
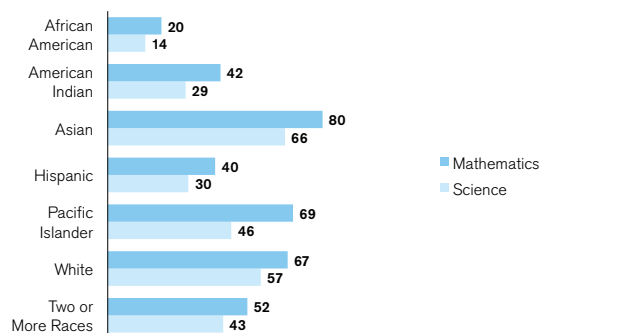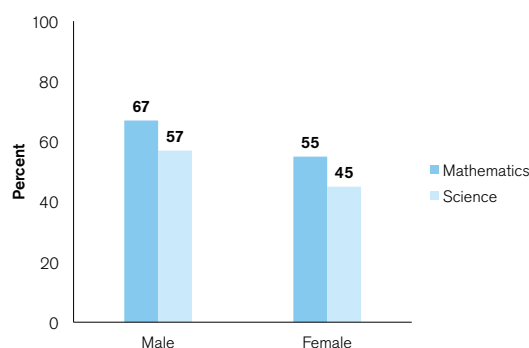
Indiana STEM Report
Attainment of College and Career Readiness

Overall STEM Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Educational Aspirations and Subject

Legend: ■ Mathematics ■ Science

- Professional Degree: Mathematics 74, Science 64
- Master's Degree: Mathematics 74, Science 63
- Bachelor's Degree: Mathematics 48, Science 39
- Associate's Degree: Mathematics 14, Science 15
- Voc-tech Degree: Mathematics 12, Science 9

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Voc-tech Degree
N = 4,406	N = 2,258	N = 6,055	N = 256	N = 76

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Highest Parental Education Level and Subject

Legend: ■ Mathematics ■ Science

- Professional Degree: Mathematics 84, Science 76
- Master's Degree: Mathematics 77, Science 66
- Bachelor's Degree: Mathematics 67, Science 57
- Associate's Degree: Mathematics 49, Science 39
- Certification or Some College: Mathematics 48, Science 37
- High School Graduate or Less: Mathematics 36, Science 29

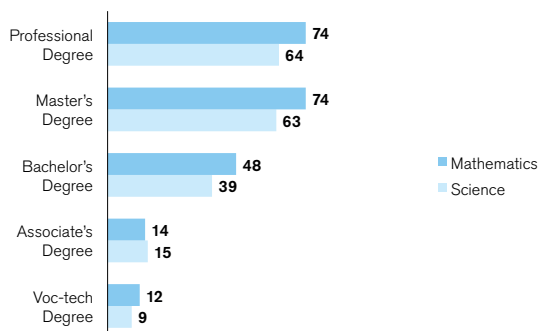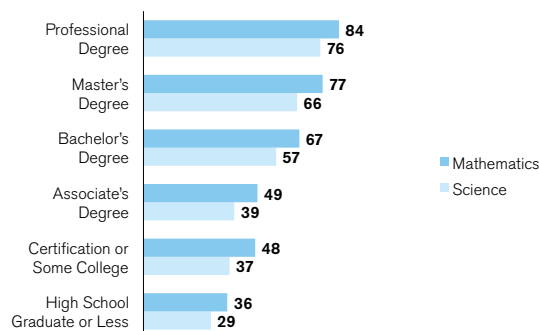| Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Certification or Some College	High School Grad or Less
N = 1,075	N = 2,046	N = 3,777	N = 1,415	N = 2,032	N = 1,936

Expressed and Measured Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Educational Aspirations and Subject

Legend: ■ Mathematics ■ Science

- Professional Degree: Mathematics 77, Science 69
- Master's Degree: Mathematics 77, Science 67
- Bachelor's Degree: Mathematics 53, Science 45
- Associate's Degree: Mathematics 21, Science 21
- Voc-tech Degree: Mathematics 15, Science 8

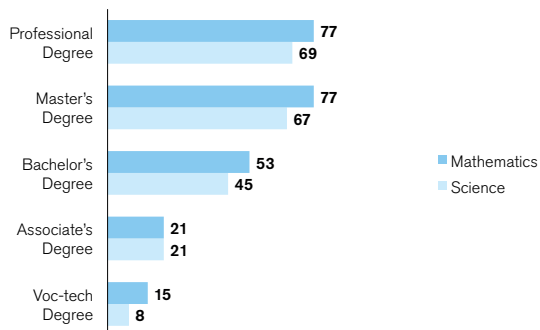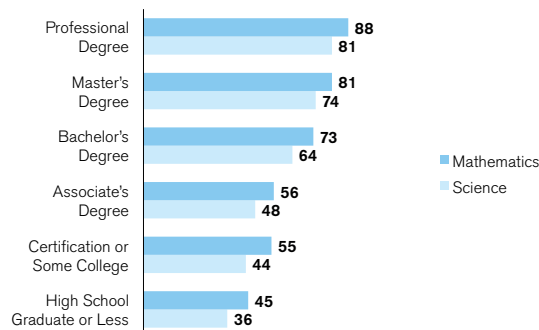| Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Voc-tech Degree
N = 2,289	N = 855	N = 1,766	N = 57	N = 13

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Highest Parental Education Level and Subject

Legend: ■ Mathematics ■ Science

- Professional Degree: Mathematics 88, Science 81
- Master's Degree: Mathematics 81, Science 74
- Bachelor's Degree: Mathematics 73, Science 64
- Associate's Degree: Mathematics 56, Science 48
- Certification or Some College: Mathematics 55, Science 44
- High School Graduate or Less: Mathematics 45, Science 36

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Certification or Some College	High School Grad or Less
N = 501	N = 849	N = 1,557	N = 537	N = 752	N = 655

ACT

Science
Majors/Occupations

Overall STEM Interest

- Between 2010 and 2014, the percent of students interested in STEM increased by 1%.

**Student STEM Interest Trends: 2010–2014, State vs. Nation**

		2010	2011	2012	2013	2014
Percent	Indiana	22%	23%	22%	22%	23%
	Nation	22%	23%	23%	22%	22%
N Count	Indiana	2,155	2,397	2,548	2,896	3,174
	Nation	166,284	176,490	183,857	195,098	200,461

Overall STEM Interest (*N* = 3,174)

Percent of 2014 ACT-Tested High School Graduates by ACT College Readiness Benchmark Attainment and Subject
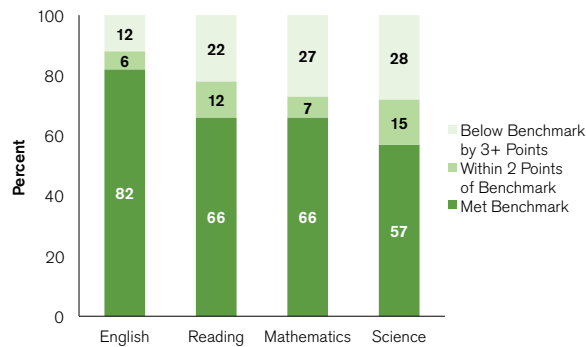
Percent of 2014 ACT-Tested High School Graduates by Number of ACT College Readiness Benchmarks Attained
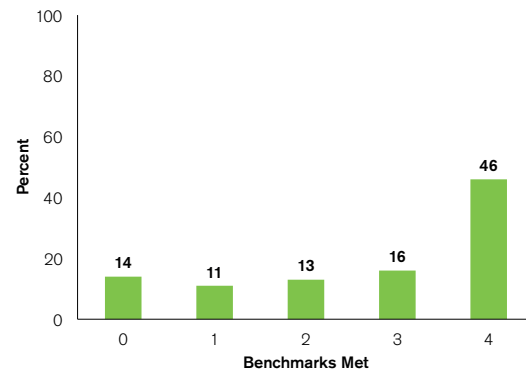
Expressed and Measured Interest (*N* = 1,546)

Percent of 2014 ACT-Tested High School Graduates by ACT College Readiness Benchmark Attainment and Subject

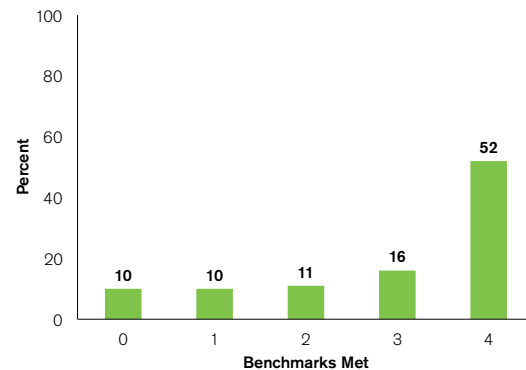**Percent of 2014 ACT-Tested High School Graduates by Number of ACT College Readiness Benchmarks Attained**

Note: Reporting achievement by combinations of student characteristics may give rise to small *N* counts. As a result, outcomes reported in this section should be interpreted with caution.

Science
Majors/Occupations

Overall STEM Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Race/Ethnicity and Subject*

African American — Mathematics 24, Science 19
American Indian — Mathematics 38, Science 25
Asian — Mathematics 85, Science 67
Hispanic — Mathematics 49, Science 38
Pacific Islander — Mathematics 80, Science 60
White — Mathematics 71, Science 62
Two or More Races — Mathematics 58, Science 51

■ Mathematics
■ Science

African American	American Indian	Asian	Hispanic	Pacific Islander	White	Two or More Races
N = 232	N = 8	N = 132	N = 203	N = 5	N = 2,376	N = 96

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Gender and Subject

Male — Mathematics 72, Science 64
Female — Mathematics 62, Science 53

■ Mathematics
■ Science

Male	Female
N = 1,249	N = 1,909

Expressed and Measured Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Race/Ethnicity and Subject*

African American — Mathematics 28, Science 24
American Indian — Mathematics 50, Science 50
Asian — Mathematics 88, Science 69
Hispanic — Mathematics 54, Science 40
Pacific Islander — Mathematics 75, Science 50
White — Mathematics 77, Science 69
Two or More Races — Mathematics 69, Science 60

■ Mathematics
■ Science

African American	American Indian	Asian	Hispanic	Pacific Islander	White	Two or More Races
N = 99	N = 2	N = 68	N = 94	N = 4	N = 1,182	N = 48

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Gender and Subject

Male — Mathematics 78, Science 70
Female — Mathematics 69, Science 60

■ Mathematics
■ Science

Male	Female
N = 620	N = 924

* Race/ethnicity categories changed for the 2010–2011 academic year to reflect updated US Department of Education reporting requirements.
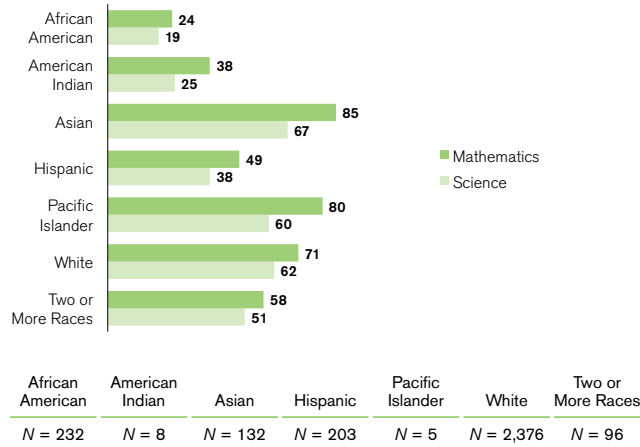Note: Reporting achievement by combinations of student characteristics may give rise to small *N* counts. As a result, outcomes reported in this section should be interpreted with caution.
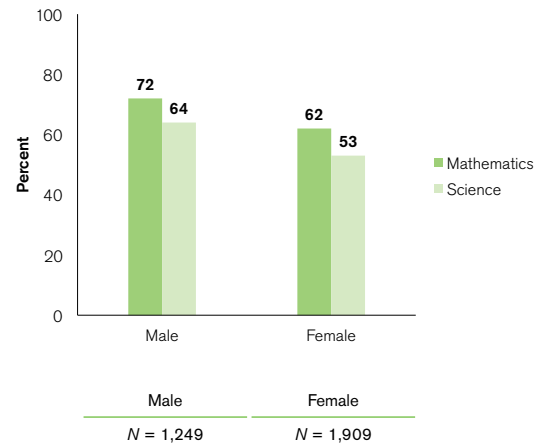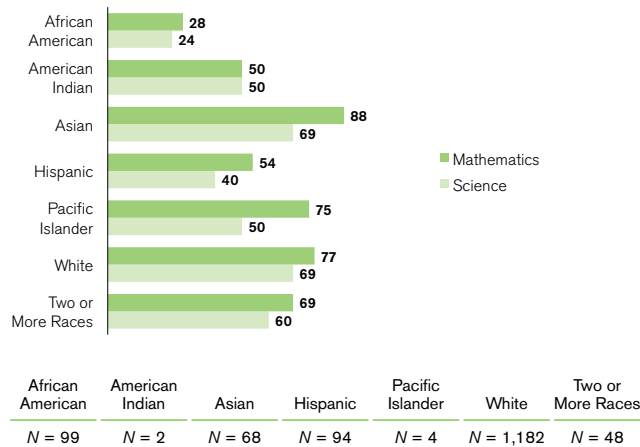
Science
Majors/Occupations

Overall STEM Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Educational Aspirations and Subject

	Mathematics	Science
Professional Degree	79	69
Master's Degree	75	64
Bachelor's Degree	49	42
Associate's Degree	14	20
Voc-tech Degree	33	0

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Voc-tech Degree
N = 1,381	N = 473	N = 1,104	N = 44	N = 3

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Highest Parental Education Level and Subject

	Mathematics	Science
Professional Degree	88	76
Master's Degree	78	69
Bachelor's Degree	71	62
Associate's Degree	52	44
Certification or Some College	53	45
High School Graduate or Less	39	36

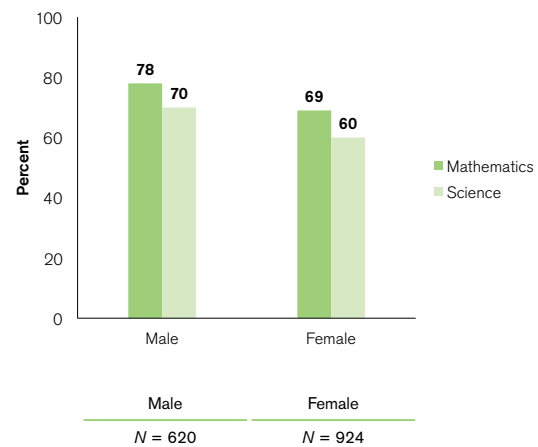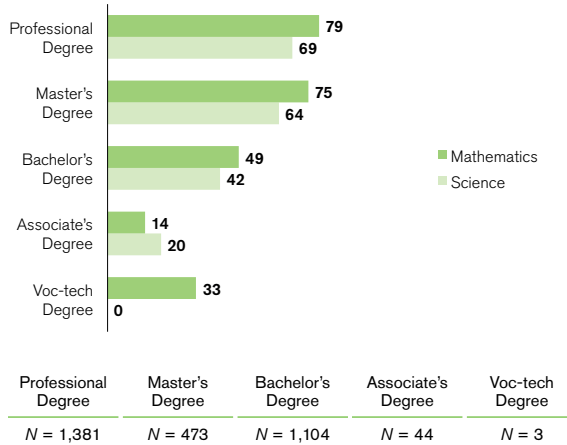| Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Certification or Some College	High School Grad or Less
N = 326	N = 536	N = 862	N = 304	N = 422	N = 366

Expressed and Measured Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Educational Aspirations and Subject

	Mathematics	Science
Professional Degree	81	73
Master's Degree	79	69
Bachelor's Degree	52	44
Associate's Degree	22	22
Voc-tech Degree		

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Voc-tech Degree
N = 836	N = 238	N = 433	N = 9	N = 0

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Highest Parental Education Level and Subject

	Mathematics	Science
Professional Degree	90	81
Master's Degree	82	75
Bachelor's Degree	78	66
Associate's Degree	61	52
Certification or Some College	60	52
High School Graduate or Less	48	44

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Certification or Some College	High School Grad or Less
N = 173	N = 288	N = 480	N = 155	N = 210	N = 165

Note: Reporting achievement by combinations of student characteristics may give rise to small *N* counts. As a result, outcomes reported in this section should be interpreted with caution.
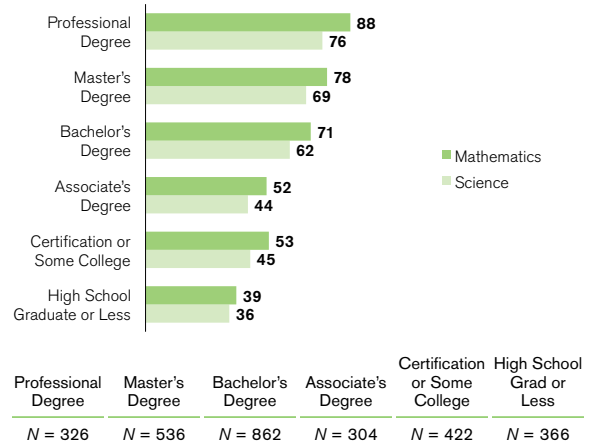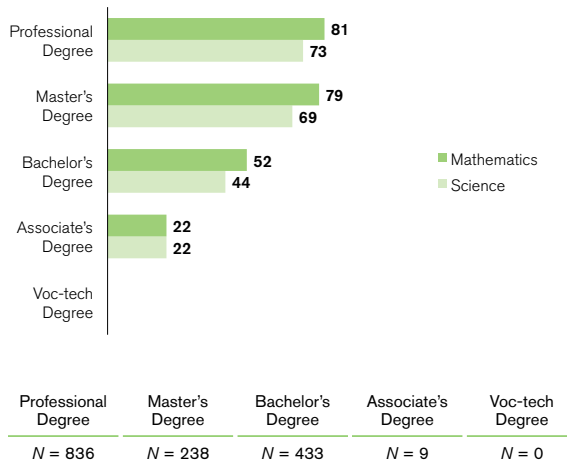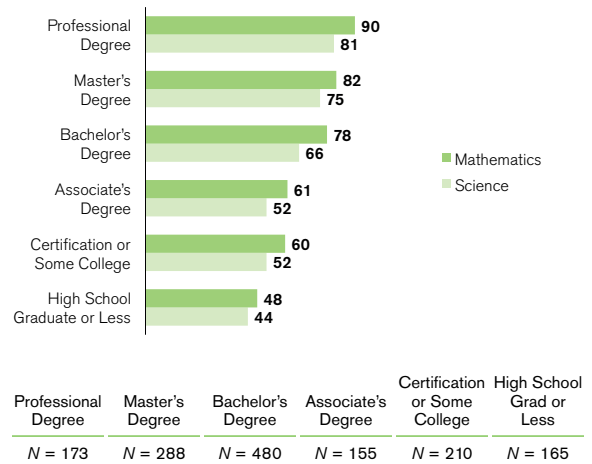
Science
Majors/Occupations

Science Majors/Occupations	Indiana N Counts and Percents			
	Overall STEM Interest*		Expressed and Measured Only	
	N Count	Percent	N Count	Percent
Agronomy and Crop Science	22	1	11	1
Animal Sciences	133	5	59	4
Astronomy	28	1	20	1
Atmospheric Sciences and Meteorology	54	2	33	2
Biochemistry and Biophysics	366	14	241	16
Biology, General	531	21	338	22
Cell/Cellular Biology	142	6	91	6
Chemistry	265	10	161	10
Ecology	39	2	29	2
Environmental Science	30	1	15	1
Food Sciences and Technology	20	1	7	0
Forestry	8	0	2	0
Genetics	122	5	79	5
Geological and Earth Sciences	40	2	28	2
Horticulture Science	8	0	3	0
Marine/Aquatic Biology	160	6	99	6
Microbiology and Immunology	80	3	54	3
Natural Resources Conservation, General	16	1	9	1
Natural Resources Management	8	0	3	0
Physical Sciences, General	79	3	34	2
Physics	105	4	74	5
Science Education	24	1	14	1
Wildlife and Wildlands Management	38	1	13	1
Zoology	225	9	129	8
Totals	2,543		1,546	

* The "overall STEM interest" counts and percents do not include the "measured only interest" students, as they did not choose a STEM major or occupation.

Computer Science and Mathematics
## Majors/Occupations

Overall STEM Interest

- Between 2010 and 2014, the percent of students interested in STEM increased by 1%.

**Student STEM Interest Trends: 2010–2014, State vs. Nation**

		2010	2011	2012	2013	2014
Percent	Indiana	9%	9%	8%	9%	10%
	Nation	10%	9%	9%	9%	10%
N Count	Indiana	853	919	977	1,239	1,366
	Nation	73,458	73,298	74,959	82,197	89,755

Overall STEM Interest (N = 1,366)

Percent of 2014 ACT-Tested High School Graduates by ACT College Readiness Benchmark Attainment and Subject
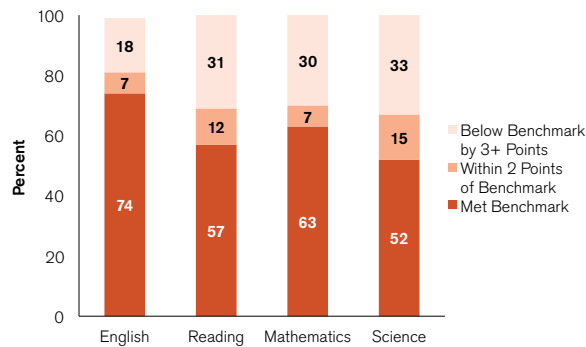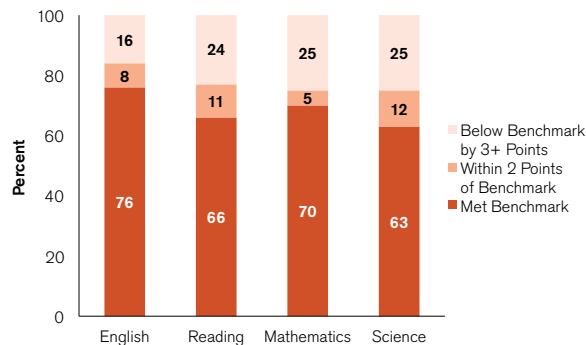

Percent of 2014 ACT-Tested High School Graduates by Number of ACT College Readiness Benchmarks Attained
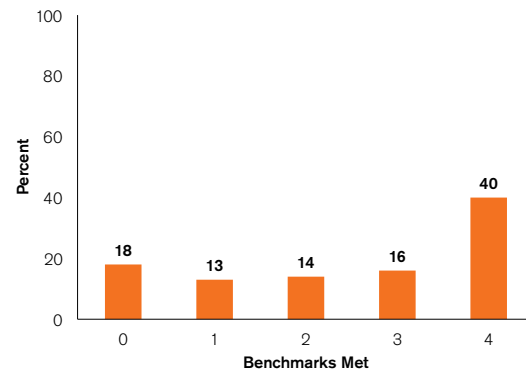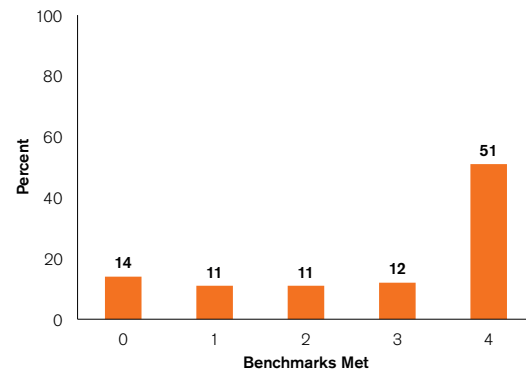

Expressed and Measured Interest (N = 251)

Percent of 2014 ACT-Tested High School Graduates by ACT College Readiness Benchmark Attainment and Subject

Percent of 2014 ACT-Tested High School Graduates by Number of ACT College Readiness Benchmarks Attained
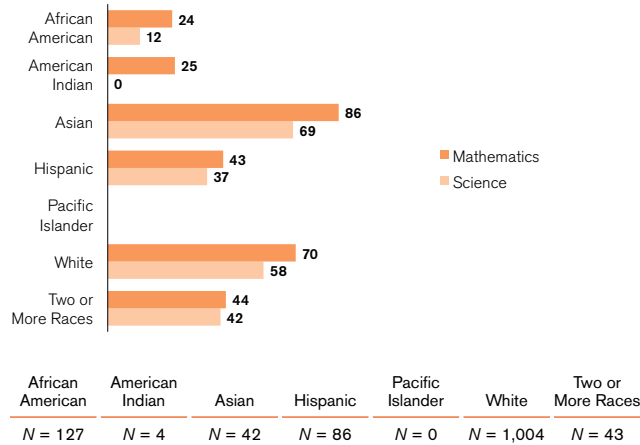

Note: Reporting achievement by combinations of student characteristics may give rise to small N counts. As a result, outcomes reported in this section should be interpreted with caution.

Computer Science and Mathematics
Majors/Occupations

Overall STEM Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Race/Ethnicity and Subject*

African American	American Indian	Asian	Hispanic	Pacific Islander	White	Two or More Races
N = 127	*N* = 4	*N* = 42	*N* = 86	*N* = 0	*N* = 1,004	*N* = 43

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Gender and Subject

Male	Female
N = 987	*N* = 372

Expressed and Measured Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Race/Ethnicity and Subject*

African American	American Indian	Asian	Hispanic	Pacific Islander	White	Two or More Races
N = 16	*N* = 2	*N* = 12	*N* = 16	*N* = 0	*N* = 186	*N* = 6

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Gender and Subject

Male	Female
N = 230	*N* = 19

* Race/ethnicity categories changed for the 2010–2011 academic year to reflect updated US Department of Education reporting requirements.
Note: Reporting achievement by combinations of student characteristics may give rise to small *N* counts. As a result, outcomes reported in this section should be interpreted with caution.
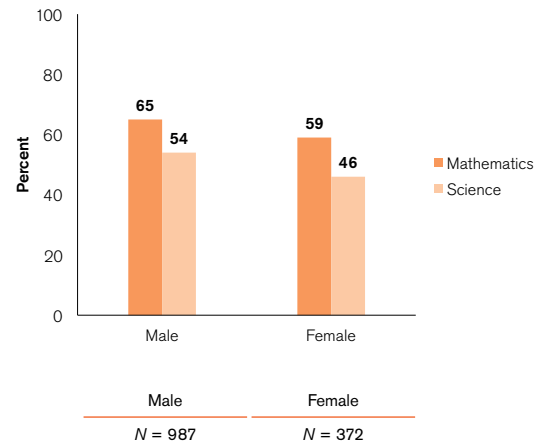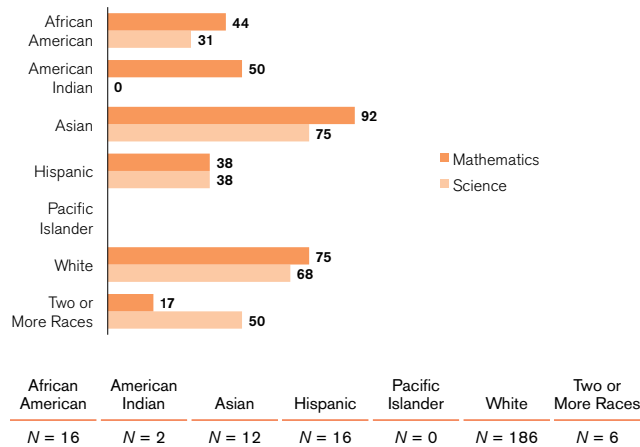
ACT®

Computer Science and Mathematics
Majors/Occupations

Overall STEM Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Educational Aspirations and Subject

	Mathematics	Science
Professional Degree	84	66
Master's Degree	79	65
Bachelor's Degree	58	48
Associate's Degree	24	19
Voc-tech Degree	6	6

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Voc-tech Degree
N = 137	N = 234	N = 861	N = 37	N = 16

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Highest Parental Education Level and Subject

	Mathematics	Science
Professional Degree	84	77
Master's Degree	79	67
Bachelor's Degree	68	54
Associate's Degree	50	42
Certification or Some College	57	42
High School Graduate or Less	40	32

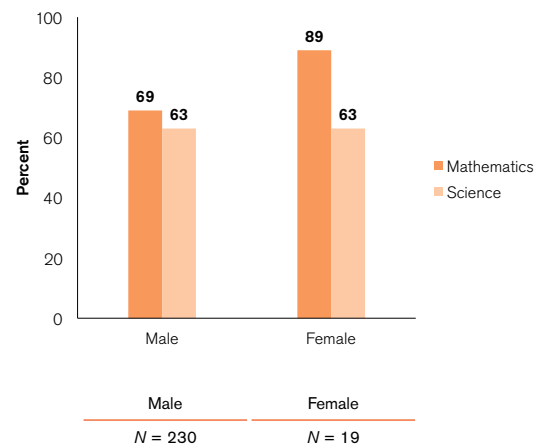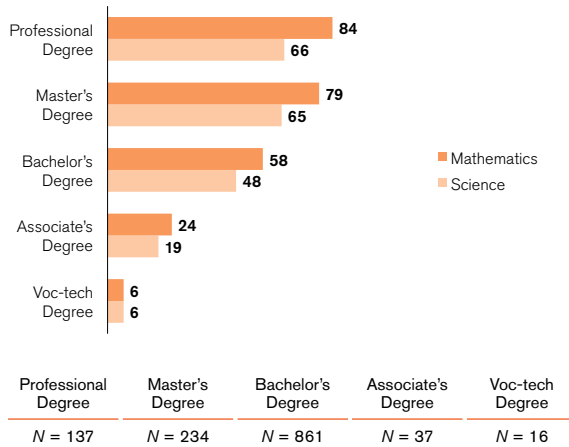| Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Certification or Some College	High School Grad or Less
N = 107	N = 214	N = 348	N = 147	N = 171	N = 215

Expressed and Measured Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Educational Aspirations and Subject

	Mathematics	Science
Professional Degree	83	69
Master's Degree	82	67
Bachelor's Degree	67	64
Associate's Degree	63	50
Voc-tech Degree	0	0

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Voc-tech Degree
N = 29	N = 45	N = 159	N = 8	N = 5

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Highest Parental Education Level and Subject

	Mathematics	Science
Professional Degree	82	76
Master's Degree	91	81
Bachelor's Degree	79	73
Associate's Degree	60	54
Certification or Some College	61	43
High School Graduate or Less	35	38

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Certification or Some College	High School Grad or Less
N = 33	N = 43	N = 63	N = 35	N = 23	N = 40

Note: Reporting achievement by combinations of student characteristics may give rise to small *N* counts. As a result, outcomes reported in this section should be interpreted with caution.
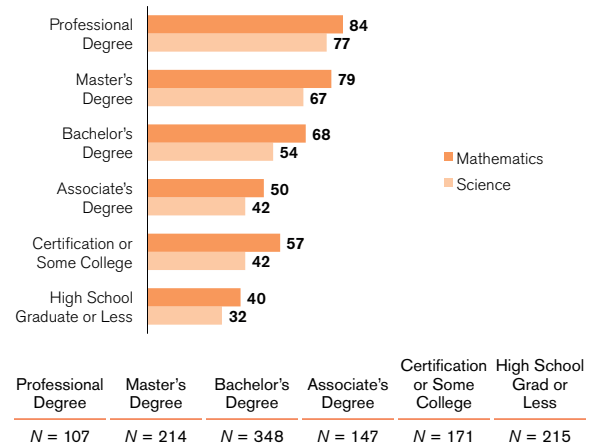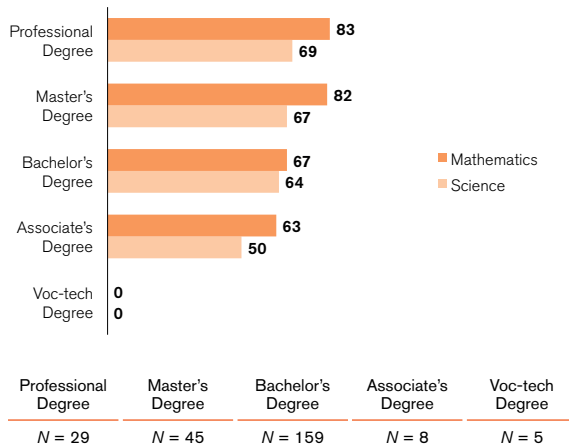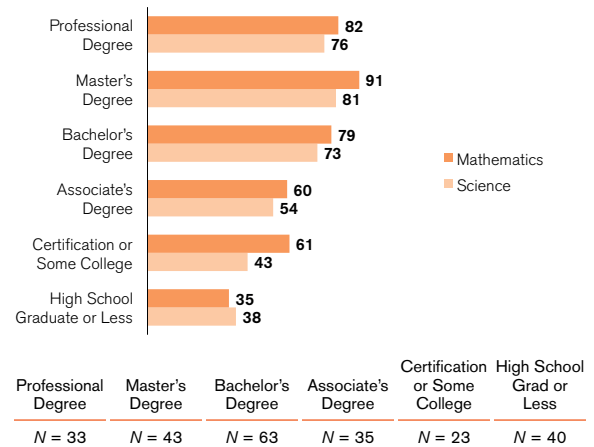
Computer Science and Mathematics
Majors/Occupations

Computer Science and Mathematics Majors/Occupations	Indiana *N* Counts and Percents			
	Overall STEM Interest*		Expressed and Measured Only	
	N Count	Percent	*N* Count	Percent
Actuarial Science	38	4	3	1
Applied Mathematics	28	3	6	2
Business/Management Quantitative Methods, General	97	9	11	4
Computer and Information Sciences, General	87	8	22	9
Computer Network/Telecommunications	70	6	17	7
Computer Science and Programming	371	34	140	56
Computer Software and Media Application	108	10	21	8
Computer System Administration	22	2	4	2
Data Management Technology	9	1	2	1
Information Science	22	2	1	0
Management Information Systems	31	3	1	0
Mathematics Education	78	7	8	3
Mathematics, General	55	5	6	2
Statistics	34	3	6	2
Webpage Design	33	3	3	1
Totals	1,083		251	

* The "overall STEM interest" counts and percents do not include the "measured only interest" students, as they did not choose a STEM major or occupation.

# Medical and Health
Majors/Occupations

Overall STEM Interest

- Between 2010 and 2014, the percent of students interested in STEM decreased by 3%.

**Student STEM Interest Trends: 2010–2014, State vs. Nation**

		2010	2011	2012	2013	2014
Percent	Indiana	47%	48%	49%	46%	44%
	Nation	45%	45%	45%	44%	43%
N Count	Indiana	4,587	5,069	5,675	6,148	6,117
	Nation	334,959	350,458	361,047	383,555	388,653

Overall STEM Interest (*N* = 6,117)

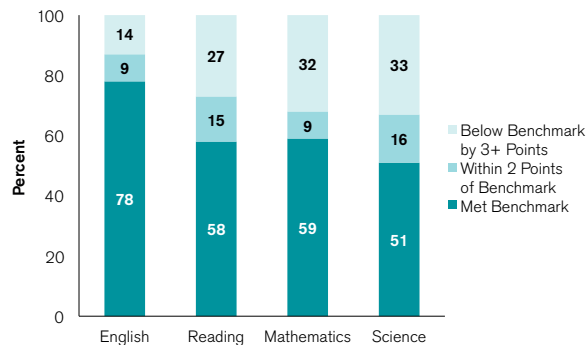**Percent of 2014 ACT-Tested High School Graduates by ACT College Readiness Benchmark Attainment and Subject**
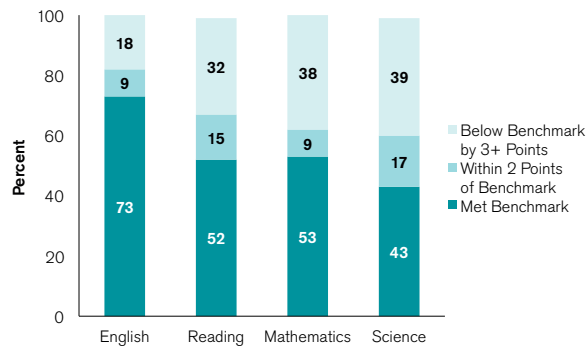
Percent of 2014 ACT-Tested High School Graduates by Number of ACT College Readiness Benchmarks Attained
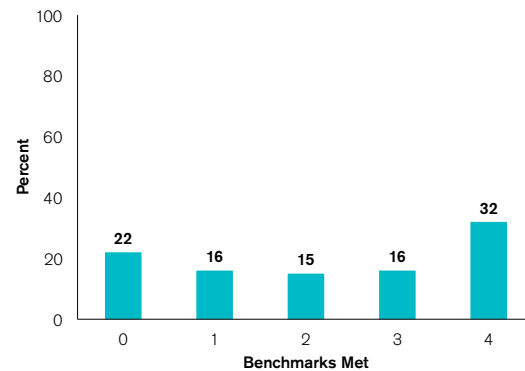
Expressed and Measured Interest (*N* = 2,318)

Percent of 2014 ACT-Tested High School Graduates by ACT College Readiness Benchmark Attainment and Subject

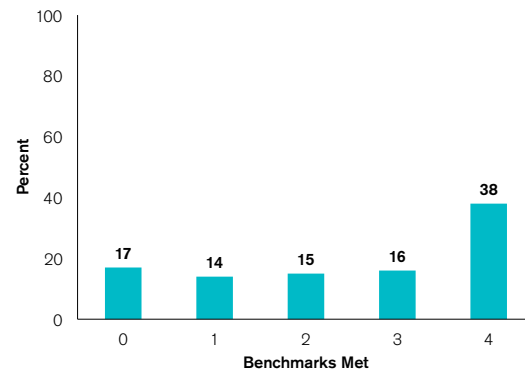**Percent of 2014 ACT-Tested High School Graduates by Number of ACT College Readiness Benchmarks Attained**

Note: Reporting achievement by combinations of student characteristics may give rise to small *N* counts. As a result, outcomes reported in this section should be interpreted with caution.

Medical and Health
Majors/Occupations

Overall STEM Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Race/Ethnicity and Subject*

	African American	American Indian	Asian	Hispanic	Pacific Islander	White	Two or More Races
	N = 641	N = 6	N = 173	N = 470	N = 6	N = 4,424	N = 196

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Gender and Subject

Male	Female
N = 1,707	N = 4,373

Expressed and Measured Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Race/Ethnicity and Subject*

	African American	American Indian	Asian	Hispanic	Pacific Islander	White	Two or More Races
	N = 163	N = 0	N = 91	N = 179	N = 2	N = 1,741	N = 80

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Gender and Subject

Male	Female
N = 687	N = 1,625

* Race/ethnicity categories changed for the 2010–2011 academic year to reflect updated US Department of Education reporting requirements.
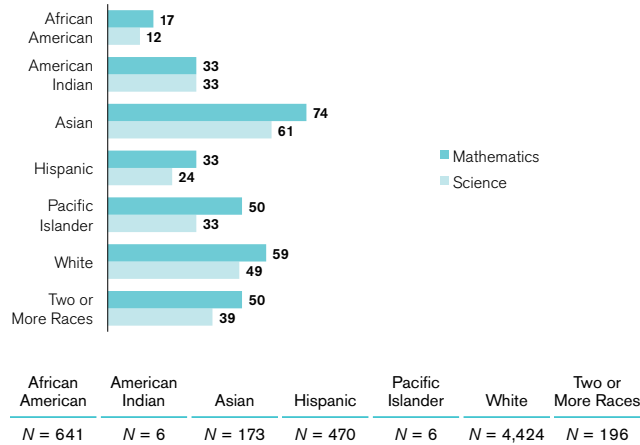Note: Reporting achievement by combinations of student characteristics may give rise to small *N* counts. As a result, outcomes reported in this section should be interpreted with caution.
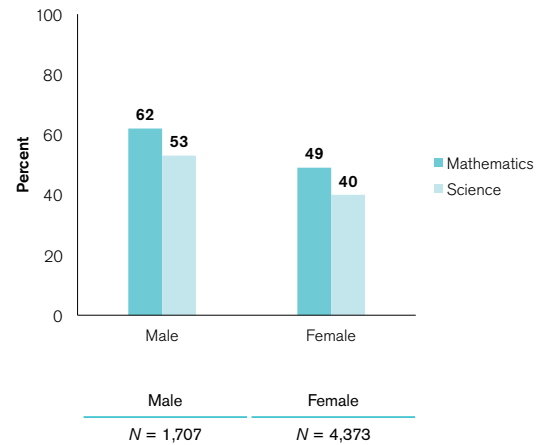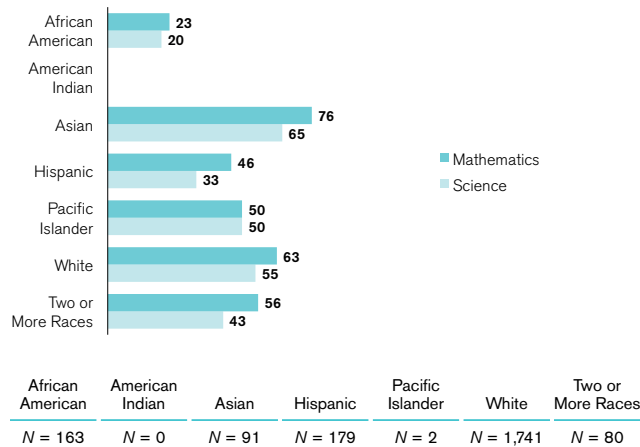
Medical and Health
Majors/Occupations

Overall STEM Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Educational Aspirations and Subject

- Professional Degree: Mathematics **70**, Science **59**
- Master's Degree: Mathematics **63**, Science **50**
- Bachelor's Degree: Mathematics **34**, Science **27**
- Associate's Degree: Mathematics **11**, Science **11**
- Voc-tech Degree: Mathematics **17**, Science **25**

■ Mathematics
■ Science

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Voc-tech Degree
N = 2,470	N = 869	N = 2,408	N = 99	N = 12

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Highest Parental Education Level and Subject

- Professional Degree: Mathematics **79**, Science **73**
- Master's Degree: Mathematics **72**, Science **60**
- Bachelor's Degree: Mathematics **60**, Science **51**
- Associate's Degree: Mathematics **45**, Science **35**
- Certification or Some College: Mathematics **39**, Science **29**
- High School Graduate or Less: Mathematics **33**, Science **25**

■ Mathematics
■ Science

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Certification or Some College	High School Grad or Less
N = 424	N = 780	N = 1,665	N = 691	N = 1,016	N = 949

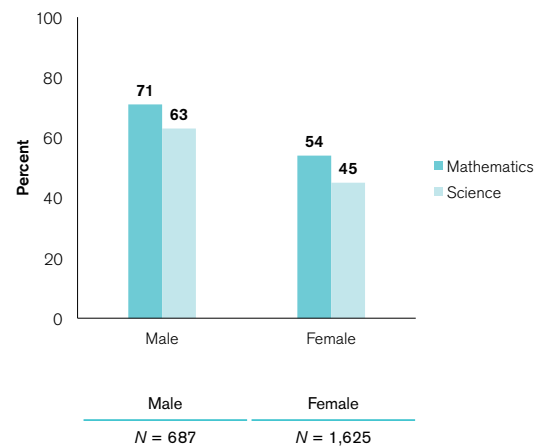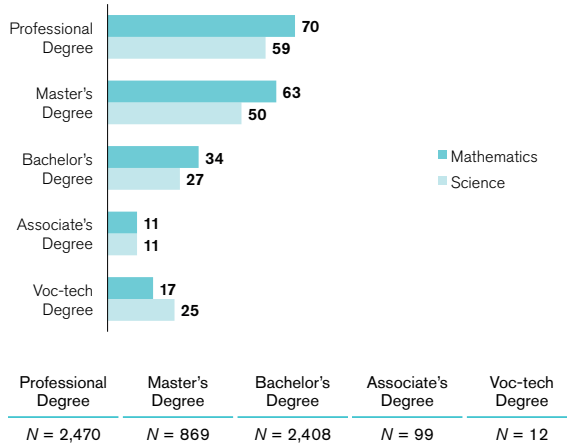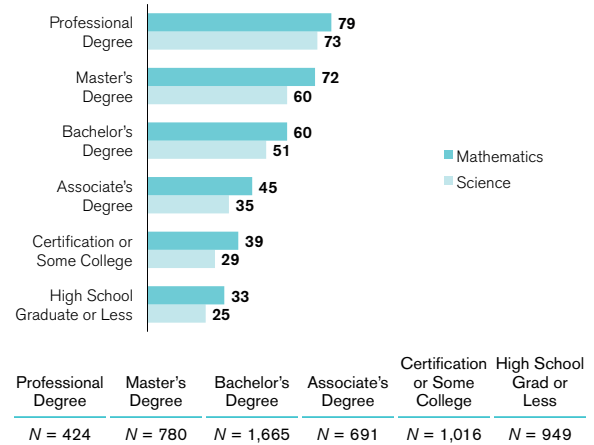### *Expressed and Measured Interest*

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Educational Aspirations and Subject

- Professional Degree: Mathematics **72**, Science **63**
- Master's Degree: Mathematics **62**, Science **50**
- Bachelor's Degree: Mathematics **38**, Science **31**
- Associate's Degree: Mathematics **10**, Science **17**
- Voc-tech Degree: Mathematics **100**, Science **100**

■ Mathematics
■ Science

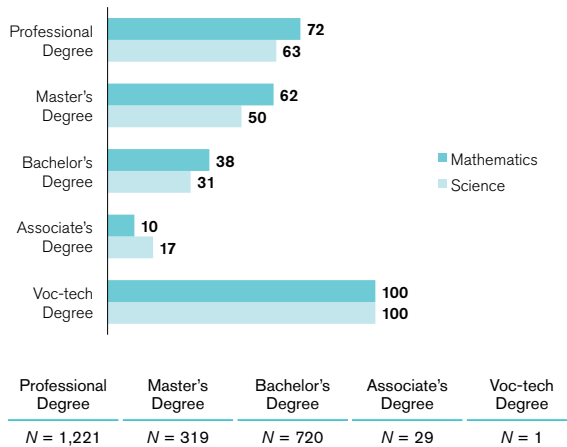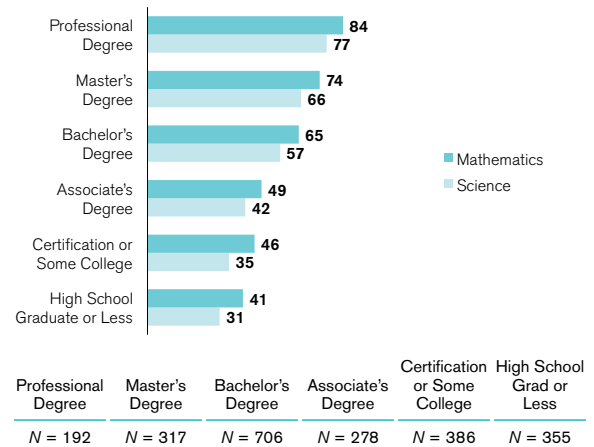| Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Voc-tech Degree
N = 1,221	N = 319	N = 720	N = 29	N = 1

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Highest Parental Education Level and Subject

- Professional Degree: Mathematics **84**, Science **77**
- Master's Degree: Mathematics **74**, Science **66**
- Bachelor's Degree: Mathematics **65**, Science **57**
- Associate's Degree: Mathematics **49**, Science **42**
- Certification or Some College: Mathematics **46**, Science **35**
- High School Graduate or Less: Mathematics **41**, Science **31**

■ Mathematics
■ Science

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Certification or Some College	High School Grad or Less
N = 192	N = 317	N = 706	N = 278	N = 386	N = 355

Note: Reporting achievement by combinations of student characteristics may give rise to small N counts. As a result, outcomes reported in this section should be interpreted with caution.

Medical and Health
Majors/Occupations

Medical and Health Majors/Occupations	Indiana N Counts and Percents			
	Overall STEM Interest*		Expressed and Measured Only	
	N Count	Percent	N Count	Percent
Athletic Training	444	8	113	5
Chiropractic (Pre-Chiropractic)	24	0	10	0
Dentistry (Pre-Dentistry)	217	4	99	4
Emergency Medical Technology	40	1	20	1
Food and Nutrition	47	1	7	0
Health/Medical Technology, General	129	2	62	3
Medical Laboratory Technology	33	1	22	1
Medical Radiologic Technology	178	3	67	3
Medicine (Pre-Medicine)	1,103	21	619	27
Nuclear Medicine Technology	5	0	1	0
Nursing, Practical/Vocational (LPN)	127	2	54	2
Nursing, Registered (BS/RN)	1,488	28	581	25
Optometry (Pre-Optometry)	45	1	24	1
Osteopathic Medicine	5	0	2	0
Pharmacy (Pre-Pharmacy)	418	8	221	10
Physical Therapy (Pre-Physical Therapy)	595	11	205	9
Physician Assisting	109	2	58	3
Respiratory Therapy Technology	11	0	2	0
Surgical Technology	55	1	25	1
Veterinarian Assisting/Technology	52	1	17	1
Veterinary Medicine (Pre-Vet)	220	4	109	5
Totals	5,345		2,318	

* The "overall STEM interest" counts and percents do not include the "measured only interest" students, as they did not choose a STEM major or occupation.

Engineering and Technology
## Majors/Occupations

Overall STEM Interest

- Between 2010 and 2014, the percent of students interested in STEM increased by 1%.

**Student STEM Interest Trends: 2010–2014, State vs. Nation**

		2010	2011	2012	2013	2014
Percent	Indiana	22%	21%	21%	22%	23%
	Nation	23%	23%	23%	24%	25%
N Count	Indiana	2,087	2,180	2,468	2,968	3,095
	Nation	174,591	180,295	184,644	207,344	220,815

Overall STEM Interest (N = 3,095)

Percent of 2014 ACT-Tested High School Graduates by ACT College Readiness Benchmark Attainment and Subject

Legend:
- Below Benchmark by 3+ Points
- Within 2 Points of Benchmark
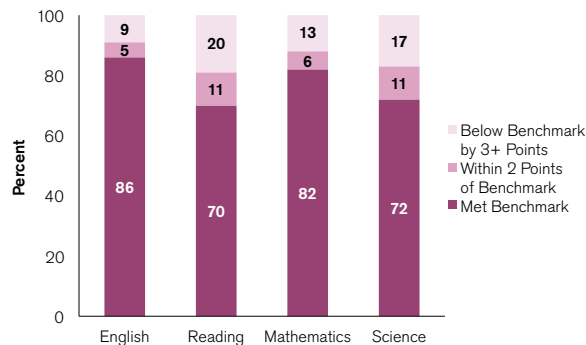- Met Benchmark
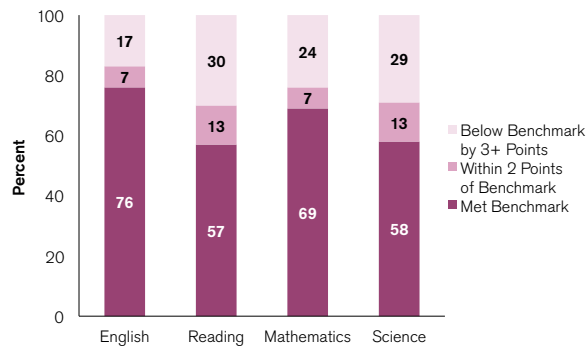
Percent of 2014 ACT-Tested High School Graduates by Number of ACT College Readiness Benchmarks Attained
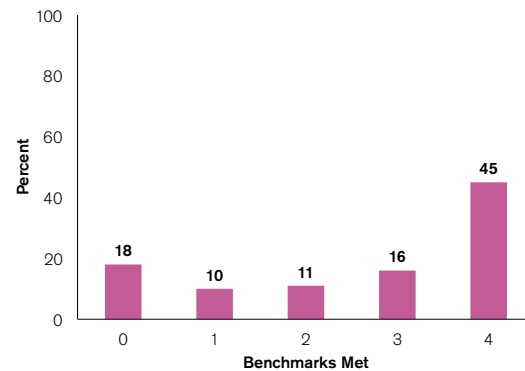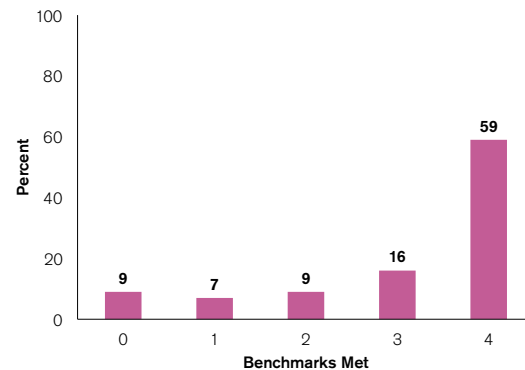

Expressed and Measured Interest (N = 944)

Percent of 2014 ACT-Tested High School Graduates by ACT College Readiness Benchmark Attainment and Subject

Legend:
- Below Benchmark by 3+ Points
- Within 2 Points of Benchmark
- Met Benchmark

Percent of 2014 ACT-Tested High School Graduates by Number of ACT College Readiness Benchmarks Attained
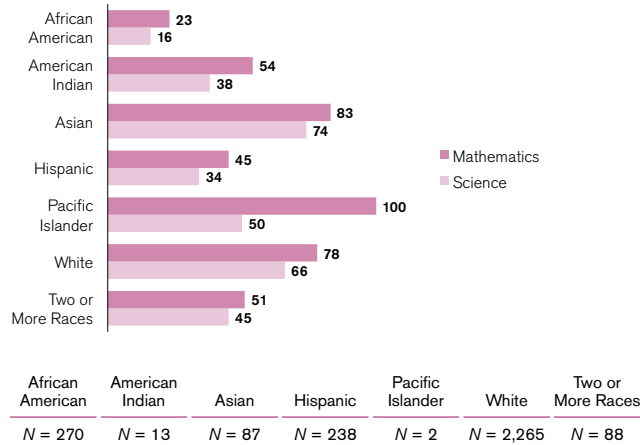

Note: Reporting achievement by combinations of student characteristics may give rise to small N counts. As a result, outcomes reported in this section should be interpreted with caution.
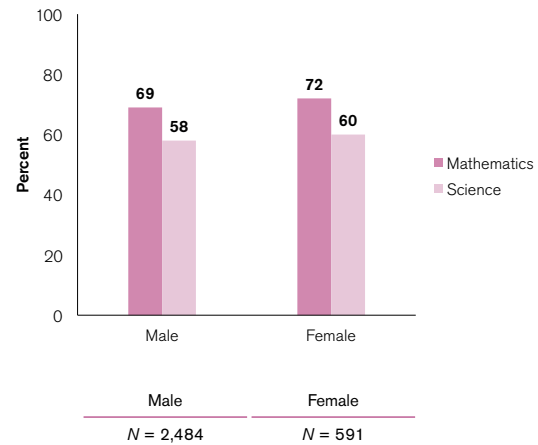
Engineering and Technology
Majors/Occupations

Overall STEM Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Race/Ethnicity and Subject*
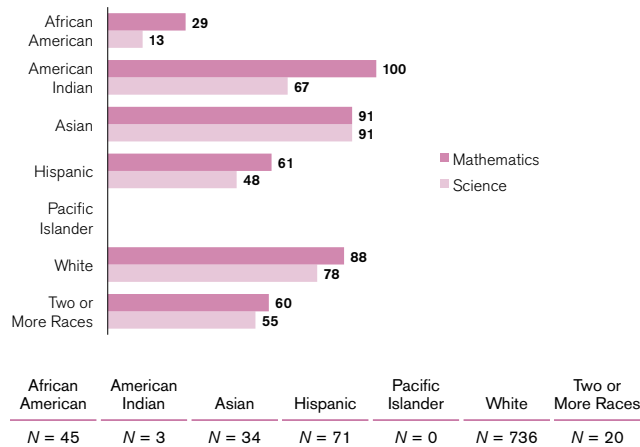
	Mathematics	Science
African American	23	16
American Indian	54	38
Asian	83	74
Hispanic	45	34
Pacific Islander	100	50
White	78	66
Two or More Races	51	45

African American	American Indian	Asian	Hispanic	Pacific Islander	White	Two or More Races
N = 270	N = 13	N = 87	N = 238	N = 2	N = 2,265	N = 88

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Gender and Subject

	Mathematics	Science
Male	69	58
Female	72	60

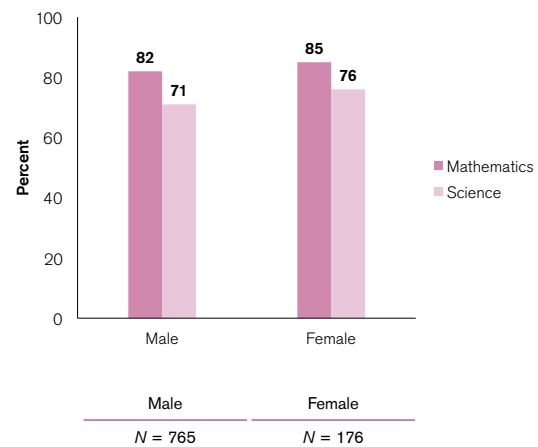| Male	Female
N = 2,484	N = 591

Expressed and Measured Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Race/Ethnicity and Subject*

	Mathematics	Science
African American	29	13
American Indian	100	67
Asian	91	91
Hispanic	61	48
Pacific Islander		
White	88	78
Two or More Races	60	55

African American	American Indian	Asian	Hispanic	Pacific Islander	White	Two or More Races
N = 45	N = 3	N = 34	N = 71	N = 0	N = 736	N = 20

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Gender and Subject

	Mathematics	Science
Male	82	71
Female	85	76

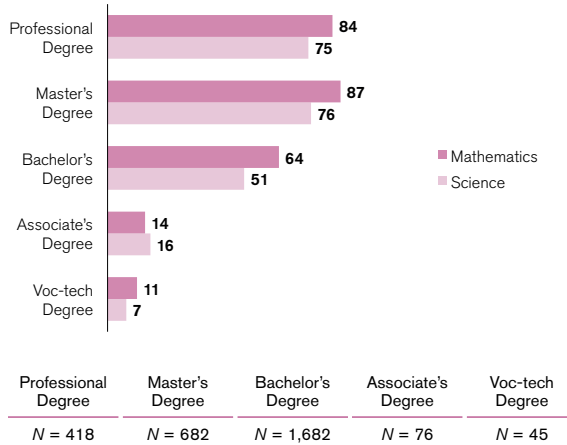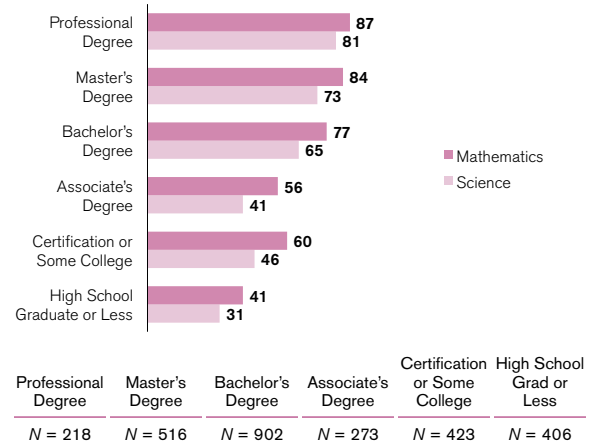| Male	Female
N = 765	N = 176

* Race/ethnicity categories changed for the 2010–2011 academic year to reflect updated US Department of Education reporting requirements.
Note: Reporting achievement by combinations of student characteristics may give rise to small N counts. As a result, outcomes reported in this section should be interpreted with caution.

ACT

Engineering and Technology
Majors/Occupations

Overall STEM Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Educational Aspirations and Subject
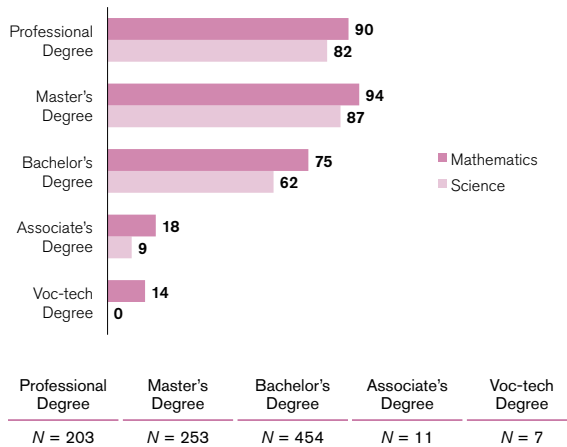
	Mathematics	Science
Professional Degree	84	75
Master's Degree	87	76
Bachelor's Degree	64	51
Associate's Degree	14	16
Voc-tech Degree	11	7

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Voc-tech Degree
N = 418	N = 682	N = 1,682	N = 76	N = 45

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Highest Parental Education Level and Subject

	Mathematics	Science
Professional Degree	87	81
Master's Degree	84	73
Bachelor's Degree	77	65
Associate's Degree	56	41
Certification or Some College	60	46
High School Graduate or Less	41	31

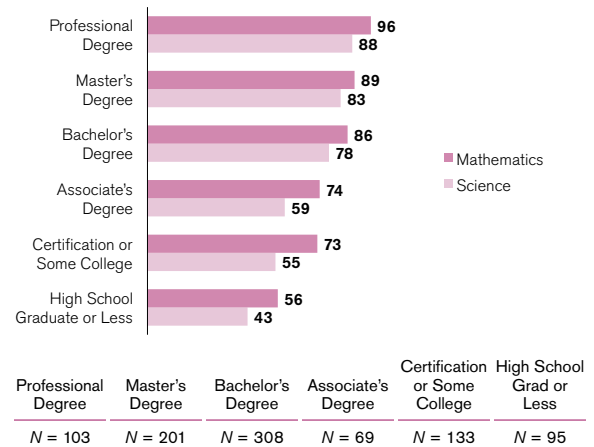| Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Certification or Some College	High School Grad or Less
N = 218	N = 516	N = 902	N = 273	N = 423	N = 406

Expressed and Measured Interest

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Educational Aspirations and Subject

	Mathematics	Science
Professional Degree	90	82
Master's Degree	94	87
Bachelor's Degree	75	62
Associate's Degree	18	9
Voc-tech Degree	14	0

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Voc-tech Degree
N = 203	N = 253	N = 454	N = 11	N = 7

Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Highest Parental Education Level and Subject

	Mathematics	Science
Professional Degree	96	88
Master's Degree	89	83
Bachelor's Degree	86	78
Associate's Degree	74	59
Certification or Some College	73	55
High School Graduate or Less	56	43

Professional Degree	Master's Degree	Bachelor's Degree	Associate's Degree	Certification or Some College	High School Grad or Less
N = 103	N = 201	N = 308	N = 69	N = 133	N = 95

Note: Reporting achievement by combinations of student characteristics may give rise to small *N* counts. As a result, outcomes reported in this section should be interpreted with caution.

Engineering and Technology
Majors/Occupations

Engineering and Technology Majors/Occupations	Indiana *N* Counts and Percents			
	Overall STEM Interest*		Expressed and Measured Only	
	N Count	Percent	*N* Count	Percent
Aeronautical/Aerospace Engineering Technology	30	1	12	1
Aerospace/Aeronautical Engineering	263	9	118	13
Agricultural/Bioengineering	37	1	13	1
Architectural Drafting/CAD Technology	22	1	2	0
Architectural Engineering	63	2	17	2
Architectural Engineering Technology	14	1	2	0
Architecture, General	139	5	27	3
Automotive Engineering Technology	30	1	4	0
Biomedical Engineering	180	6	106	11
Chemical Engineering	224	8	124	13
Civil Engineering	187	7	44	5
Civil Engineering Technology	7	0	0	0
Computer Engineering	198	7	64	7
Computer Engineering Technology	62	2	11	1
Construction Engineering/Management	46	2	7	1
Construction/Building Technology	17	1	1	0
Drafting/CAD Technology, General	13	0	3	0
Electrical, Electronic, and Communication Engineering	170	6	60	6
Electrical/Electronics Engineering Technology	37	1	6	1
Electromechanical/Biomedical Engineering Technology	10	0	4	0
Engineering (Pre-Engineering), General	225	8	67	7
Engineering Technology, General	40	1	10	1
Environmental Control Technologies	3	0	2	0
Environmental Health Engineering	22	1	12	1
Industrial Engineering	40	1	10	1
Industrial Production Technologies	9	0	2	0
Mechanical Drafting/CAD Technology	24	1	5	1
Mechanical Engineering	575	21	177	19
Mechanical Engineering Technology	55	2	15	2
Military Technologies	11	0	1	0
Nuclear Engineering	42	2	18	2
Quality Control and Safety Technologies	1	0	0	0
Surveying Technology	0	0	0	0
Totals	2,796		944	

* The "overall STEM interest" counts and percents do not include the "measured only interest" students, as they did not choose a STEM major or occupation.

STEM
Interest and Achievement by State

State	Percent of All Graduates Tested*	Percent of All ACT-Tested Graduates Interested in STEM	Percent of STEM Students Meeting Benchmarks			
			English	Reading	Math	Science
Alabama	80	53	68	45	36	36
Alaska	37	54	71	55	55	44
Arizona	55	48	60	42	45	36
Arkansas	93	49	67	45	40	37
California	29	52	74	53	63	48
Colorado	100	45	69	49	48	45
Connecticut	29	46	87	67	74	65
Delaware	18	55	79	65	66	57
District of Columbia	37	40	64	49	54	45
Florida	81	46	60	43	40	33
Georgia	53	50	66	46	43	38
Hawaii	90	46	48	30	34	25
Idaho	45	53	77	58	59	50
Illinois	100	42	69	47	49	43
Indiana	40	51	76	57	60	51
Iowa	68	49	79	58	56	55
Kansas	75	49	75	55	57	50
Kentucky	100	50	64	42	36	35
Louisiana	100	51	63	37	32	29
Maine	9	51	86	62	70	57
Maryland	22	50	76	57	62	54
Massachusetts	23	46	86	67	77	63
Michigan	100	47	64	42	43	40
Minnesota	76	50	80	59	68	59
Mississippi	100	53	58	34	25	24
Missouri	76	48	75	54	51	49
Montana	100	49	65	49	48	41
Nebraska	86	48	75	53	52	49
Nevada	36	53	68	50	53	43
New Hampshire	20	50	89	69	76	66
New Jersey	25	45	81	61	72	57
New Mexico	69	56	57	39	37	32

STEM
Interest and Achievement by State

State	Percent of All Graduates Tested*	Percent of All ACT-Tested Graduates Interested in STEM	Percent of STEM Students Meeting Benchmarks			
			English	Reading	Math	Science
New York	27	49	82	63	74	62
North Carolina	100	50	51	34	39	28
North Dakota	100	46	68	48	49	41
Ohio	72	49	75	56	57	52
Oklahoma	75	52	69	48	40	40
Oregon	36	46	72	55	57	49
Pennsylvania	19	52	79	60	67	56
Rhode Island	16	49	77	62	64	53
South Carolina	58	52	64	44	45	38
South Dakota	78	54	76	55	59	52
Tennessee	100	48	65	41	35	33
Texas	40	53	63	44	52	41
Utah	100	46	68	48	47	44
Vermont	29	48	81	62	67	59
Virginia	28	51	79	61	64	55
Washington	22	53	79	62	70	59
West Virginia	65	55	70	48	37	38
Wisconsin	73	50	78	56	62	56
Wyoming	100	47	63	44	41	37
National	57	49	68	48	50	43

* Totals for graduating seniors were obtained from *Knocking at the College Door: Projections of High School Graduates*, 8th edition. © December 2012 by the Western Interstate Commission for Higher Education.

ACT Research

As a nonprofit educational research organization, ACT is committed to producing research that focuses on key issues in education and workforce development. Our goal is to serve as a data resource. We strive to provide policymakers with the information they need to inform education and workforce development policy and to give educators the tools they need to lead more students toward college and career success. What follows are some of ACT's recent and most groundbreaking research studies related to STEM. To review these studies, go to **www.act.org/research/summary**.

ACT National Curriculum Survey®

The ACT National Curriculum Survey is a nationwide survey of educational practices and expectations. Conducted every three to five years by ACT, the survey collects data about what entering college students should know and be able to do to be ready for college-level coursework in English, math, reading, and science. The survey can be found at **www.act.org/research-policy/national-curriculum-survey**.

STEM Educator Pipeline: Doing the Math on Recruiting Math and Science Teachers

This report uses data from the ACT college readiness assessment to examine the feasibility of producing 100,000 high-quality math and science teachers in the next decade and finds that there is an insufficient number of graduates interested in and capable of math and science teaching to meet the 100,000 high-quality teacher goal. The report can be found at **www.act.org/research/policymakers/reports/stempipeline.html**.
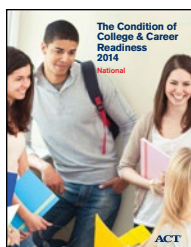
The Condition of College & Career Readiness

Using ACT scores and the ACT College Readiness Benchmarks, *The Condition of College & Career Readiness 2014* provides data highlighting the college and career readiness of the ACT-tested high school class of 2014. This report is updated annually, and the 2014 report can be found at **www.act.org/newsroom/data/2014**.

Broadening the Definition of College and Career Readiness

The Condition of College and Career Readiness 2014 report revealed that only 26% of 2014 ACT-tested high school graduates met all four ACT College Readiness Benchmarks. A more holistic approach to college and career readiness is in order. ACT will outline this new approach in a series of reports beginning in October 2014. Key components include:

- A broader range of skills: While current approaches to measuring college and career readiness focus on measures of core academic skills, research shows that other noncognitive skills, including behavioral and career navigation skills, are also reliable predictors.

- Earlier measurement: Traditional academic assessments tend to measure students' college and career readiness in the 11th grade. Research confirms that outcomes can actually be predicted much earlier, allowing more time for intervention.

The ultimate goal in developing a more holistic view of college and career readiness is to empower counselors, educators, parents, and students by providing them with personalized and timely information to help individuals realize their potential.

The upcoming papers provide evidence that educators, policymakers, and employers embrace a wide variety of skills critical for success. The research also shows that the prediction of college and career readiness can be improved by measuring a broader range of skills.

Watch for the first report in October: *Broadening the Definition of College and Career Readiness: A Holistic Approach*. Sign up at **www.act.org/newsroom/alerts.php** to receive an email alert when the reports are published.

STEM Resources

ACT has connected with state STEM councils across the country to identify valuable STEM-related resources. These are the top resources suggested by STEM experts.

STEM Premier®

STEM Premier is a virtual platform that connects STEM students with higher education and the workforce. Students can showcase their skills, get ranked and rated, receive guidance, and find STEM scholarships while colleges, technical schools, and corporations can identify, track, and recruit STEM Premier talent.
www.stempremier.com

STEMconnector®

STEMconnector is the "one-stop shop" for STEM information. With several products and services, STEMconnector supports its members in the design, implementation, and measurement of their STEM strategies. Since its launch in 2011, STEMconnector has been the leader in leveraging a network of STEM stakeholders to "make things happen." STEMconnector's charge is to identify, inform, and connect entities working in STEM education/careers to assess smart STEM investments and results.
www.stemconnector.org

USA Science and Engineering Festival

The USA Science and Engineering Festival attracts thousands of K–12 students, parents, teachers, and STEM professionals in the largest national celebration of STEM. The fourth annual conference will be held April 15–17, 2016, in Washington, DC.
www.usasciencefestival.org

National Science Teachers Association

The National Science Teachers Association, founded in 1944 and headquartered in Arlington, Va., is the largest organization in the world committed to promoting excellence and innovation in science teaching and learning for all. NSTA's current membership of 55,000 includes science teachers, science supervisors, administrators, scientists, business and industry representatives, and others involved in and committed to science education.
www.nsta.org

Learning Blade®

From the creators of ACT KeyTrain®, Learning Blade is an interactive, online system designed to foster interest in high-demand STEM careers among middle and early high school students. Its unique methodology includes game-based "missions," using Common Core–indexed math and English problems that educate students on STEM careers and technologies in a system validated by BattelleEd.
www.learningblade.com

USNews.com

USNews.com has comprehensive coverage on STEM trends in education and careers. Its national leadership conference, *US News* STEM Solutions, is where employers and educators meet to effect change, take action, and make an impact. The 2015 *US News* STEM Solutions National Leadership Conference is set for June 29–July 1, 2015, in San Diego, California.
www.usnews.com/news/stem-solutions

ACT-Defined STEM Majors and Occupations by Area

Science Majors/Occupations

Agronomy and Crop Science
Animal Sciences
Astronomy
Atmospheric Sciences and Meteorology
Biochemistry and Biophysics
Biology, General
Cell/Cellular Biology
Chemistry
Ecology
Environmental Science
Food Sciences and Technology
Forestry
Genetics
Geological and Earth Sciences
Horticulture Science
Marine/Aquatic Biology
Microbiology and Immunology
Natural Resources Conservation, General
Natural Resources Management
Physical Sciences, General
Physics
Science Education
Wildlife and Wildlands Management
Zoology

Computer Science and Mathematics Majors/Occupations

Actuarial Science
Applied Mathematics
Business/Management Quantitative Methods, General
Computer and Information Sciences, General
Computer Network/Telecommunications
Computer Science and Programming
Computer Software and Media Application
Computer System Administration
Data Management Technology
Information Science
Management Information Systems
Mathematics Education
Mathematics, General
Statistics
Webpage Design

Medical and Health Majors/Occupations

Athletic Training
Chiropractic (Pre-Chiropractic)
Dentistry (Pre-Dentistry)
Emergency Medical Technology
Food and Nutrition
Health/Medical Technology, General

Medical Laboratory Technology
Medical Radiologic Technology
Medicine (Pre-Medicine)
Nuclear Medicine Technology
Nursing, Practical/Vocational (LPN)
Nursing, Registered (BS/RN)
Optometry (Pre-Optometry)
Osteopathic Medicine
Pharmacy (Pre-Pharmacy)
Physical Therapy (Pre-Physical Therapy)
Physician Assisting
Respiratory Therapy Technology
Surgical Technology
Veterinarian Assisting/Technology
Veterinary Medicine (Pre-Vet)

Engineering and Technology Majors/Occupations

Aeronautical/Aerospace Engineering Technology
Aerospace/Aeronautical Engineering
Agricultural/Bioengineering
Architectural Drafting/CAD Technology
Architectural Engineering
Architectural Engineering Technology
Architecture, General
Automotive Engineering Technology
Biomedical Engineering
Chemical Engineering
Civil Engineering
Civil Engineering Technology
Computer Engineering
Computer Engineering Technology
Construction Engineering/Management
Construction/Building Technology
Drafting/CAD Technology, General
Electrical, Electronic, and Communication Engineering
Electrical/Electronics Engineering Technology
Electromechanical/Biomedical Engineering Technology
Engineering (Pre-Engineering), General
Engineering Technology, General
Environmental Control Technologies
Environmental Health Engineering
Industrial Engineering
Industrial Production Technologies
Mechanical Drafting/CAD Technology
Mechanical Engineering
Mechanical Engineering Technology
Military Technologies
Nuclear Engineering
Quality Control and Safety Technologies
Surveying Technology

Indiana STEM Report

Notes

1. Students were assigned to one of three STEM cohorts: Expressed and Measured, Expressed Only, or Measured Only. These cohorts were based on the pairing of Expressed and Measured STEM interest types, where:

   - Students with expressed STEM interest planned on a STEM major or occupation following high school.
   - Students with measured STEM interest had a highest ACT Interest Inventory score in Science or had a highest ACT Interest Inventory score in Technology and a second-highest score in Science.

   Within each STEM cohort, students were also assigned to one of four STEM areas: Science, Computer Science and Mathematics, Medical and Health, or Engineering and Technology. STEM areas for students in the Expressed and Measured Interest cohort and the Expressed Interest Only cohort were based on the STEM area of students' planned major. If planned major was not STEM, then the STEM area of their planned occupation was used. For students in the Measured Interest Only cohort, STEM area was based on a crosswalk between ACT Interest Inventory score profile and planned major. The crosswalk was created from a national sample of undergraduate students with a declared major and a grade point average of at least 2.0. (For more information about the crosswalk, go to **www.act.org/emtrends/12/interestmajor.html**.)

2. When individuals register for the ACT, they are asked to choose a college major they plan to enter as well as an occupational choice from a list of 294 major and occupational titles. Of these 294 titles, 93 have been identified as STEM related. Assignment of ACT titles to STEM titles was conducted by an expert panel of ACT staff members with knowledge of labor market trends and postsecondary academic programs. Panel decisions were informed by three sources of information: (1) STEM-designated occupations from the US Bureau of Labor Statistics (BLS), (2) STEM-designated degree programs from US Immigration and Customs Enforcement (ICE), and (3) ACT Interest Inventory score profiles for students planning to enter the major/occupation. ACT titles were assigned to STEM when both the corresponding BLS and ICE titles were included in STEM or when the corresponding BLS title was included in STEM and the profile of measured interests of students planning to enter this occupation peaked on the Science and Technology scale. These two guidelines accounted for 89 of the 93 ACT titles assigned to STEM. The remaining four titles were assigned to STEM based on the judged intensiveness of their math and science coursework (major) or work tasks (occupation). ACT titles in the Social Sciences were excluded from this STEM list because many STEM taxonomies do not include majors and occupations in this field.

ACT® Aspire™

ACT Aspire, launched in 2014, incorporates a STEM score into its Summative Report. For students who take the ACT Aspire Science and Math assessments, a STEM score is calculated by taking the average of the two scale scores achieved in those subjects. This STEM score represents the overall performance in these subjects relative to the ACT Readiness Range. ACT Aspire further challenges 9th- and 10th-grade students to take advanced coursework in science and math to prepare them for STEM career opportunities.

In 2015, ACT will incorporate this STEM score into its cornerstone assessment, the ACT. In addition, the ACT College and Career Readiness Standards (see next page) focus on the knowledge and abilities of students who score in specific ranges on the Mathematics and Science Tests of the ACT. These steps are further evidence of the commitment ACT has made to enhance opportunities and better inform students seeking STEM occupations and majors.

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ACT College and Career Readiness Standards

Science

Note:

- Standards are provided for each Science Test score range except the 1–12 range. Students who score in the 1–12 range are most likely beginning to develop the knowledge and skills assessed in the other ranges.
- Updates to the Standards in 2014 include:
  - edits for specificity, concision, and clarity
  - additions to include specific skills in multiple score ranges and to emphasize specific skills

- Side-by-side comparisons of the 2014 ACT College and Career Readiness Standards and the 2005 ACT College Readiness Standards can be seen by selecting "View changes." In the popup windows, each standard is identified by a strand abbreviation and number. For example, the first standard in Interpretation of Data (IOD) is IOD 201.

View or print the set of Science Standards *(PDF, 7 pages)*

	Score Range 13–15	Score Range 16–19	Score Range 20–23	Score Range 24–27	Score Range 28–32	Score Range 33–36
Interpretation of Data (IOD)	**IOD 201.** Select one piece of data from a simple data presentation (e.g., a simple food web diagram) **IOD 202.** Identify basic features of a table, graph, or diagram (e.g., units of measurement) **IOD 203.** Find basic information in text that describes a	**IOD 301.** Select two or more pieces of data from a simple data presentation **IOD 302.** Understand basic scientific terminology **IOD 303.** Find basic information in text that describes a complex data presentation	**IOD 401.** Select data from a complex data presentation (e.g., a phase diagram) **IOD 402.** Compare or combine data from a simple data presentation (e.g., order or sum data from a table) **IOD 403.** Translate information into a table, graph, or	**IOD 501.** Compare or combine data from two or more simple data presentations (e.g., categorize data from a table using a scale from another table) **IOD 502.** Compare or combine data from a complex data presentation **IOD 503.** Determine	**IOD 601.** Compare or combine data from a simple data presentation with data from a complex data presentation **IOD 602.** Determine and/or use a complex (e.g., nonlinear) mathematical relationship that exists between data	**IOD 701.** Compare or combine data from two or more complex data presentations **IOD 702.** Analyze presented information when given new, complex information « View changes »

ACT is an independent, nonprofit organization that provides assessment, research, information, and program management services in the broad areas of education and workforce development. Each year, we serve millions of people in high schools, colleges, professional associations, businesses, and government agencies, nationally and internationally. Though designed to meet a wide array of needs, all ACT programs and services have one guiding purpose—helping people achieve education and workplace success.

This report can be found at
www.act.org/stemcondition

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