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# Freshman Class Profile

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Findings from the ACT Assessment of  
MCC's Fall 2005 Freshmen

McHenry County College  
Office of Institutional Research and Planning  
April 10, 2006

# Freshman Class Profile

## Findings from the ACT Assessment of MCC's Fall 2005 Freshmen

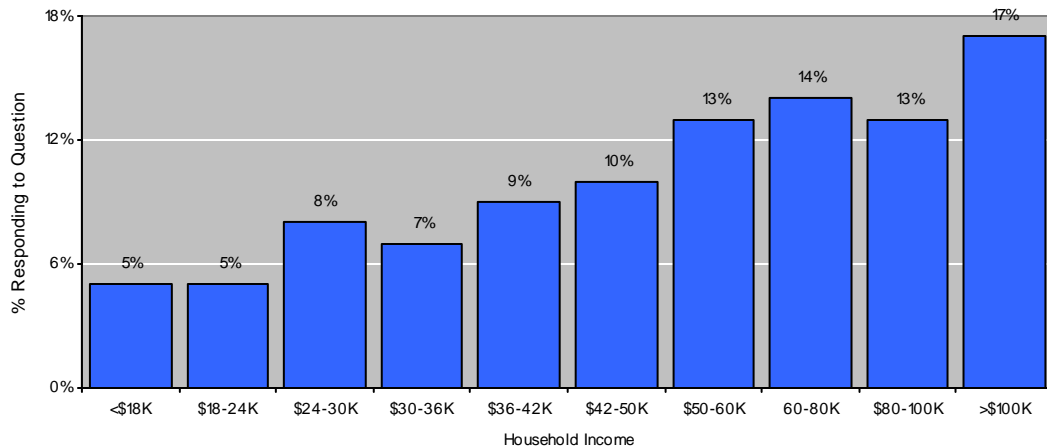
Most of the data for this research summary comes from tests and surveys administered to the 555 McHenry County College (MCC) fall 2005 fulltime freshmen who took the ACT assessment prior to high school graduation (hereafter referred to as freshmen). About one-third (180) of the freshmen asked ACT to send their scores directly to MCC, with the remaining two-thirds (375) having their scores sent by their high schools as part of their transcripts. College enrollment and ACT information were combined by matching National Student Clearinghouse fall enrollment data with the ACT Assessment database.<sup>1</sup> The research summary also includes normative data from students who attended other colleges and universities, and one section discusses the 693 students who included MCC on their ACT questionnaire as one of the colleges to which they wished their scores to be sent.

### What Do We Know about the Composition of MCC's Freshman Class?

**FEEDER SCHOOLS:** Ninety-two percent of the MCC's freshmen indicated that they came from public high schools, most from within MCC's district. The number of students coming from each in-district high school corresponded closely to the size of the school. The largest feeder schools include Crystal Lake South (12%), Woodstock (11%), Crystal Lake Central (10%), Cary-Grove (8%), and Prairie Ridge (8%).

**ECONOMIC RESOURCES:** Figure 1 shows that freshman come from families with diverse economic resources. Approximately, 18 percent estimated their annual family income at under \$30 thousand. Another 17 percent estimated theirs at over \$100 thousand. The pov-

■ Figure 1: Estimated Annual Household income Reported by Freshmen



erty level for a family of four for 2006 is approximately \$20,000 and \$26,800 for a family of six, suggesting that as many as 10 percent of MCC's freshmen may come from families with income near the poverty level. For many other freshmen, college financing also appears to be an important issue. Fifty-five percent expected to apply for financial aid at some point, and 54 percent indicated that they expected to would and would like help finding employment, and 27 percent of them expected to work more than 20 hours per week.

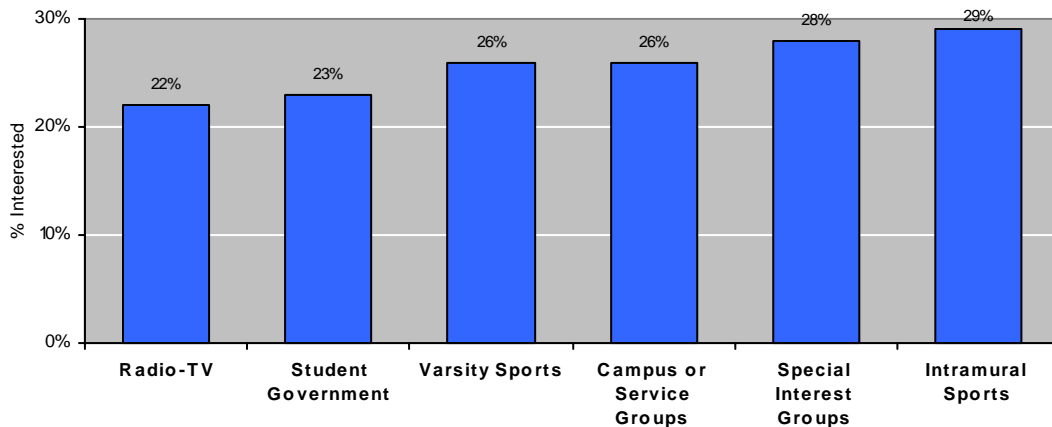
<sup>1</sup> Further information is available from the Office of Institutional Research staff.

That last group of freshmen must be prepared to spend 15 hours per week in class, 30 hours per week doing homework, and—perhaps—25 hours per week working for pay, for a total “work” week of 70 hours, or the equivalent of a ten-hour day every day of the week. Even with a more conservative estimate of homework at one hour of homework for each class hour, those students could be looking forward to a 55 hour work week. Add sleep, personal needs, family obligations, and even a modest social life, and the challenges are apparent

**EDUCATIONAL INTERESTS:** Of those who responded to the ACT survey question about the type of college they preferred, only 16 percent indicated that they would prefer to attend a public community college. This group also had the lowest ACT average scores. Seventy-one percent indicated that they preferred to attend a public college or university, indicating that MCC was not their first choice of institutions. The most frequently chosen educational majors were health sciences and allied health (10%), education or teacher education (10%), business (8%), and visual and performing arts (6%). Approximately 6 percent described themselves as undecided. Most (85%) students aspired to attain at least a bachelor’s degree, and 37 percent intended to pursue graduate study.

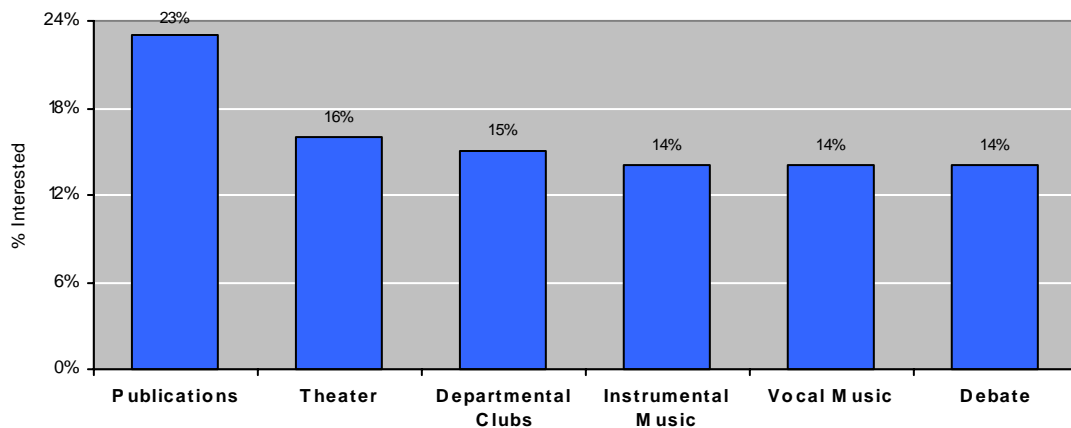
**EXTRACURRICULAR INTERESTS:** Figure 2 shows that students have a number of potential interests; conspicuous among these is athletics, either through intramural or varsity sports.

■ Figure 2: Extracurricular Interests of Freshmen



In addition, many students identified an interest in special interest groups, campus or service groups, student government, and radio and TV. Extracurricular academic pursuits also drew the interests of a number of the students. Figure 3 shows interests in playing a

■ Figure 3: Curriculum-Related Extracurricular Interests of Freshmen



role in campus publications, theater, departmental clubs, instrumental and vocal music, and debate. The challenge for the College, of course, is to tap into these nascent interests, match students to programming opportunities, and to increase student engagement with the college experience.

### How Prepared Were They for College Study?

**HIGH SCHOOL PERFORMANCE:** Most of the freshmen performed fairly well in high school. The average grade earned about a “B” (2.98) similar to the norms for other community colleges but much lower than average grades for students attending four-year institutions (3.31). Generally speaking, females performed better than males, and their ACT composite average was slightly higher (0.2 points) than males’. As a group, these full-time students tested better than their part-time counterparts, whose average ACT composite of 18.8 was about 1.5 points lower. Their average ACT composite was also substantially higher (1.9 points) than the average for those who sent scores to MCC but who did not enroll.<sup>2</sup> This last finding suggests many, possibly half or more, of the 458 students who had scores sent to MCC but who did not enroll may not have attended college in the fall.<sup>3</sup>

**CORE CURRICULUM:** The number of recommended high school courses taken by college-bound students is a strong indicator of college success. ACT’s recommended “core curriculum” includes 4 years of English and at least 3 years of mathematics, social science and natural science, but only 37 percent of MCC freshmen completed that core curriculum at their high schools. The deficit faced by the other 63 percent of MCC’s fall class does account for a difference in their test performance. For example, the average ACT scores on every ACT subtest as well as on the ACT composite for those who completed the core were at least two points higher than the scores for those who did not complete it. Sadly, about 10 percent completed less than 4 years of English, 15 percent completed less than 3 years of math, 31 percent completed less than 3 years of social science, and 17 percent completed less than three years of natural science.

**TRACK:** High school curriculum or “track” also seems to make a difference. Although these students ranked fairly high in their graduating class, with 22 percent in the top quarter and 68 percent in the top half. They were not all on the same track. Students who indicated that they completed a college-prep program in high school (about 42 percent of the students) performed much better on the ACT than did those who completed other programs. The college-prep group had an ACT Composite average of 21.6, which compares favorably with averages of 19.9 for students completing a general program, of 19.4 for those completing a vocational program, or of 17.9 for those completing a business or commercial program. In short, MCC freshmen who pursued a program that prepared them for college and who persisted in the sequence of courses recommended for college study performed better on other predictors of college success than those who did not. Enrollment in honors, accelerated, or AP classes in high school is yet another high school experience contributing to student success. Between 12 and 17 percent of these students enrolled in one or more of these classes, and their ACT Composite scores were 2.3 to 3.4 points higher than the MCC fall class average (see Table 1).

Table 1: Average ACT Composite Scores for Freshmen with Honors, AP, or Accelerated Courses in High School

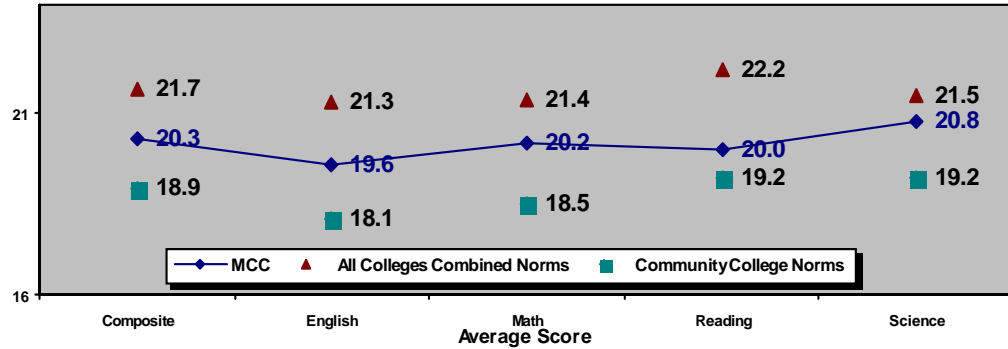
	MCC Freshmen	Ave. ACT
English	83 (15%)	22.7
Math	93 (17%)	23.3
Social Studies	65 (12%)	23.4
Natural Science	86 (15%)	23.7
Foreign Languages	83 (15%)	22.6

<sup>2</sup> The average ACT scores reported for students who did not enroll were lower than for those who did enroll in every feeder institution but one, Johnsburg High.

<sup>3</sup> The median ACT score for this group was 18.0, meaning half of these students had ACT Composite scores of 18 or less, making them, in effect, ineligible for Illinois public universities and most schools other than those, like MCC, that are “open-admission.”

**ACT TEST SCORES:** One indicator of their preparation is the ACT assessment itself (see Figure 1). The average ACT composite for the students studied was 20.3, a score that is 1.4 points higher than the National community college average and 1.4 points below that for two and four-year institutions combined. Averages on every ACT subtests consistently fall between these two comparison groups.

■ Figure 4: Average ACT Scores for MCC, Community and 4-Year Colleges Combined, and Community College Only Freshmen

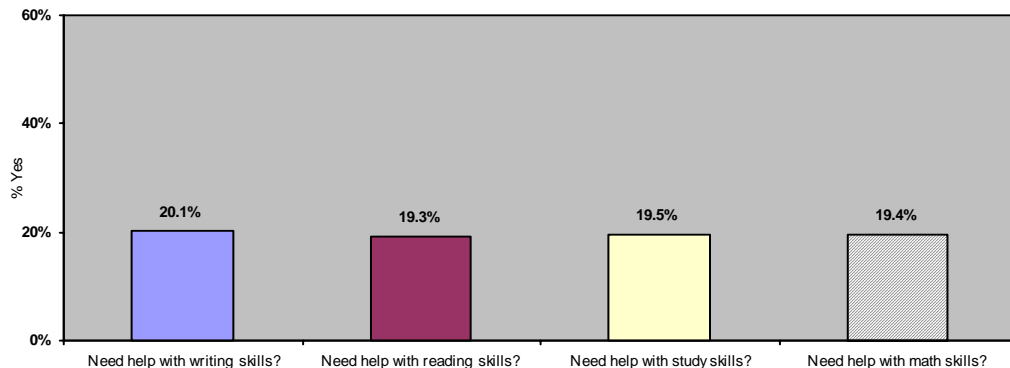


**COMMUNITY COLLEGE NORMS:** It is an overgeneralization to say that MCC freshmen are better prepared than their counterparts at other community colleges. Averages can hide quite a bit; so to get a sense of the preparation of student subgroups, it helps to look at the dispersion or spread of scores represented by the average. Based on the standard deviation, a general measure of dispersion, the majority of community college students have scores that are greater than 15 and less than 23. Applying those standards to MCC students approximately 11 percent of students are substantially below the community college average and 28 percent are substantially above it. So, in a class of 25 MCC freshmen, there may be as many as 7 students who understand the material more quickly than the rest, but there will also be about 3 who may need extra help to keep pace with the others.

**UNIVERSITY NORMS:** On average, MCC freshmen did not appear to have similar skills compared with freshmen who entered four-year schools directly. Since the “all colleges combined” norms in Figure 4 include a sizeable population of community college freshmen (a group with lower norms than four-year institutions), the average scores of MCC’s student population appear to be below the norms for four-year institutions. On average, then, MCC’s freshmen were better prepared than those from other community colleges, but the average freshman clearly needs further preparation in each of the ACT subject areas to compete successfully with those who moved directly from high school to four-year institutions.

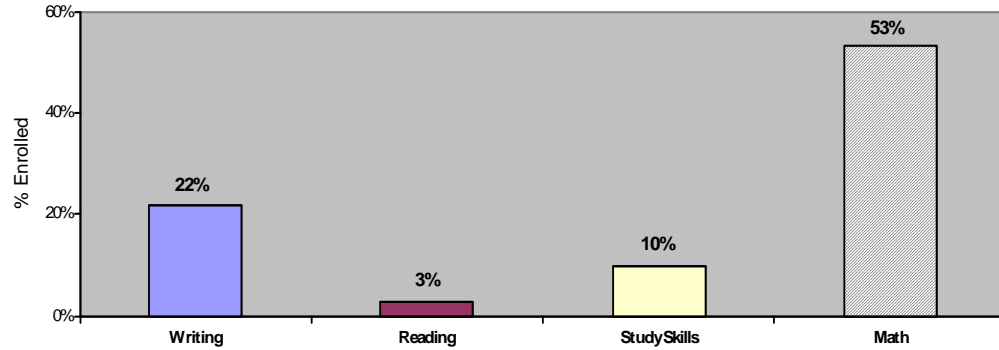
**DEVELOPMENTAL NEEDS:** Several items on the ACT questionnaire ask students about any special learning needs that they think they have. Figure 5 shows that about 20 percent of MCC fall freshmen acknowledged that they would need special assistance in writing, read-

■ Figure 5: Percent of MCC Fall 2005 Freshmen Indicating a Need for Help by Subject Area



ing, math and study skills to succeed as students, and their ACT scores clearly support that expressed need. Approximately 20.1 percent indicated that they would need additional help with writing. This percentage corresponds closely to the number of freshmen who enrolled in a developmental writing class in fall 2005 (see Figure 6). 19.3 percent indicated that they would need help with reading speed and comprehension, a figure that differs dramatically from the small percentage (3%) who actually enrolled in a developmental

■ Figure 6: Percent of Freshmen Enrolled in Language and Math Skills Courses in Fall 2005



reading class in the fall. Similarly, the 19.5 percent thought they needed help to improve their study skills more than doubles the 10 percent who actually enrolled in Reading 150, a course that focuses upon effective study skills and strategies. Lastly, 19.4 percent felt the need for additional help in math; this statistic appears to be very conservative given the large percentage of freshmen (about 53%) who actually took one or more developmental math courses in the fall.<sup>4</sup>

### With Whom Does MCC Compete?

**MAJOR COMPETITORS:** Table 2 shows the institutions to which the 693 students who had ACT send their scores to MCC also had scores sent.<sup>5</sup> The College’s pool of competitors is dominated by Illinois public universities. Heading the list is Northern Illinois University (NIU), which nearly half (47%) of the students identified as an institution of interest to them. NIU was the first choice for approximately 16 percent of the students who also listed MCC. Illinois State University (ISU), was next in the percent of these students, followed by the University of Illinois—Urbana-Champaign (UIUC). Interestingly, more stu-

Table 2: Major Institutional Competitors for MCC Fall Freshmen

College/University	Number (%) of Students:	
	Cross-Listing Institution	Listing Institution as 1 <sup>st</sup> Choice
<b>McHenry County College</b>	<b>693 (100%)</b>	<b>328 (47%)</b>
Northern Illinois University	327 (47%)	109 (16%)
Illinois State University	114 ( 16%)	31 ( 4%)
University of Illinois--Urbana	103 ( 15%)	41 ( 6%)
Southern Illinois U--Carbondale	88 (13%)	21 ( 3%)
University of Illinois--Chicago	82 (12%)	19 ( 3%)
Western Illinois University	73 (11%)	13 ( 2%)
Elgin Community College	70 (10%)	24 ( 3%)
Eastern Illinois University	58 ( 8%)	11 ( 2%)
College of Lake County	50 ( 7%)	22 ( 3%)

<sup>4</sup> A table of MCC freshman scores on each ACT test broken into ACT’s “readiness score ranges” and descriptions of the skill sets required for each score range are provided in Appendix A for those who wish to reflect further on student skill levels, developmental needs, and placement standards.

<sup>5</sup> The table should be viewed with some caution; only about one in three new full-time freshmen had scores sent directly to MCC. It is based on all students who requested to have scores sent, not just those who enrolled at MCC.

dents (6%) listed the highly selective UIUC as their first choice than those who ranked ISU (4%) as first. The only two cross-listed institutions in Table 2 that are not Illinois universities are Elgin Community College (10%) and the College of Lake County (7%). In both cases, comparable price, proximity and—possibly—special program offerings (e.g., nursing) may account for the large percentage of students who chose them as possibilities to have ranked them as first choices.

**MCC AND PREFERENCE:** Table 2 also identifies the number of students who listed each institution as its 1<sup>st</sup> choice. (It does NOT indicate which school, if any, students actually attended.) It is interesting to see that nearly half of the students who identified MCC as a school of interest listed the College as their first choice. Approximately 26 percent (86) of the 328 students who listed MCC as a first choice actually enrolled here full-time in the fall. Of the remaining 365 students listing MCC as choice #2 through choice #6, approximately 24 percent (88) enrolled full-time in the fall. Two conclusions follow from those figures. First, it does not appear to have mattered much whether students preferred MCC over the other institutions that they considered; once they chose the College from among their list of schools, chances are about one in four that they would enroll full-time. Second, assuming that the 375 students who did not have ACT send their scores directly to MCC did not consider MCC their 1<sup>st</sup> choice, as many as 83 percent of the 555 freshmen enrolling at MCC full-time in the fall may have selected the College as “plan B” in their college choice process.

## Appendix A

- **Percent of MCC's ACT-Tested Freshmen by Readiness Score Range In Each Subject Area**
- **Descriptions of the Competencies Associated with Each Subject Area Readiness Score Range**

## Percent of Students by Readiness Score Range In Each Test Area

ACT English Readiness Score Range	% MCC Freshmen	% Community College + 4-Year Freshmen	% Community College Freshmen
33-36	1	3	0
28-32	4	12	3
24-27	15	19	10
20-23	29	27	24
16-19	29	23	30
13-15	14	11	20
0-12	7	5	12

ACT Math Readiness Score Range	% MCC Freshmen	% Community College + 4-Year Freshmen	% Community College Freshmen
33-36	1	2	0
28-32	5	10	2
24-27	18	23	11
20-23	26	21	19
16-19	39	33	46
13-15	12	10	21
0-12	1	1	1

ACT Reading Readiness Score Range	% MCC Freshmen	% Community College + 4-Year Freshmen	% Community College Freshmen
33-36	2	6	1
28-32	6	15	6
24-27	17	21	13
20-23	23	24	23
16-19	29	20	27
13-15	14	12	21
0-12	8	3	7

ACT Science Readiness Score Range	% MCC Freshmen	% Community College + 4-Year Freshmen	% Community College Freshmen
33-36	1	2	0
28-32	5	7	2
24-27	19	22	11
20-23	38	37	34
16-19	29	24	37
13-15	6	6	12
0-12	2	2	4

**College Readiness Standards — English**

	<b>Topic Development in Terms of Purpose and Focus</b>	<b>Organization, Unity, and Coherence</b>	<b>Word Choice in Terms of Style, Tone, Clarity, and Economy</b>
<b>13–15</b>		Use conjunctive adverbs or phrases to show time relationships in simple narrative essays (e.g., <i>then, this time</i> )	Revise sentences to correct awkward and confusing arrangements of sentence elements  Revise vague nouns and pronouns that create obvious logic problems
<b>16–19</b>	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	Select the most logical place to add a sentence in a paragraph	Delete obviously synonymous and wordy material in a sentence  Revise expressions that deviate from the style of an essay
<b>20–23</b>	Identify the central idea or main topic of a straightforward piece of writing  Determine relevancy when presented with a variety of sentence-level details	Use conjunctive adverbs or phrases to express straightforward logical relationships (e.g., <i>first, afterward, in response</i> )  Decide the most logical place to add a sentence in an essay  Add a sentence that introduces a simple paragraph	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
<b>24–27</b>	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	Determine the need for conjunctive adverbs or phrases to create subtle logical connections between sentences (e.g., <i>therefore, however, in addition</i> )  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	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
<b>28–32*</b>	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	Make sophisticated distinctions concerning the logical use of conjunctive adverbs or phrases, particularly when signaling a shift between paragraphs  Rearrange sentences to improve the logic and coherence of a complex paragraph  Add a sentence to introduce or conclude a fairly complex paragraph	Correct redundant material that involves sophisticated vocabulary and sounds acceptable as conversational English (e.g., “an aesthetic viewpoint” versus “the outlook of an aesthetic viewpoint”)  Correct vague and wordy or clumsy and confusing writing containing sophisticated language
<b>33–36†</b>	Determine whether a complex essay has accomplished a specific purpose  Add a phrase or sentence to accomplish a complex purpose, often expressed in terms of the main focus of the essay	Consider the need for introductory sentences or transitions, basing decisions on a thorough understanding of both the logic and rhetorical effect of the paragraph and essay	Delete redundant material that involves subtle concepts or that is redundant in terms of the paragraph as a whole

## College Readiness Standards — English (continued)

	Sentence Structure and Formation	Conventions of Usage	Conventions of Punctuation
13–15	Use conjunctions or punctuation to join simple clauses  Revise shifts in verb tense between simple clauses in a sentence or between simple adjoining sentences	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	Delete commas that create basic sense problems (e.g., between verb and direct object)
16–19	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	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 <i>there</i> and <i>their</i> , <i>past</i> and <i>passed</i> , and <i>led</i> and <i>lead</i>	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)
20–23	Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, dangling or misplaced modifiers)	Use idiomatically appropriate prepositions, especially in combination with verbs (e.g., <i>long for</i> , <i>appeal to</i> )  Ensure that a verb agrees with its subject when there is some text between the two	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)
24–27	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	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 <i>have</i> rather than <i>of</i>	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 <i>and</i> )  Use apostrophes to indicate simple possessive nouns  Recognize inappropriate uses of colons and semicolons
28–32*	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	Correctly use reflexive pronouns, the possessive pronouns <i>its</i> and <i>your</i> , and the relative pronouns <i>who</i> and <i>whom</i>  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)	Use commas to set off a nonessential/nonrestrictive appositive or clause  Deal with multiple punctuation problems (e.g., compound sentences containing unnecessary commas and phrases that may or may not be parenthetical)  Use an apostrophe to show possession, especially with irregular plural nouns  Use a semicolon to indicate a relationship between closely related independent clauses
33–36†	Work comfortably with long sentences and complex clausal relationships within sentences, avoiding weak conjunctions between independent clauses and maintaining parallel structure between clauses	Provide idiomatically and contextually appropriate prepositions following verbs in situations involving sophisticated language or ideas  Ensure that a verb agrees with its subject when a phrase or clause between the two suggests a different number for the verb	Use a colon to introduce an example or an elaboration

## College Readiness Standards — Mathematics

College Readiness Standards — Mathematics				
Freshman Class Profile		<b>Probability, Statistics, &amp; Data Analysis</b>	<b>Numbers: Concepts &amp; Properties</b>	<b>Expressions, Equations, &amp; Inequalities</b>
<b>Basic Operations &amp; Applications</b>				
<b>13–15</b>	<p>Perform one-operation computation with whole numbers and decimals</p> <p>Solve problems in one or two steps using whole numbers</p> <p>Perform common conversions (e.g., inches to feet or hours to minutes)</p>	<p>Calculate the average of a list of positive whole numbers</p> <p>Perform a single computation using information from a table or chart</p>	<p>Recognize equivalent fractions and fractions in lowest terms</p>	<p>Exhibit knowledge of basic expressions (e.g., identify an expression for a total as <math>b + g</math>)</p> <p>Solve equations in the form <math>x + a = b</math>, where <math>a</math> and <math>b</math> are whole numbers or decimals</p>
<b>16–19</b>	<p>Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent</p> <p>Solve some routine two-step arithmetic problems</p>	<p>Calculate the average of a list of numbers</p> <p>Calculate the average, given the number of data values and the sum of the data values</p> <p>Read tables and graphs</p> <p>Perform computations on data from tables and graphs</p> <p>Use the relationship between the probability of an event and the probability of its complement</p>	<p>Recognize one-digit factors of a number</p> <p>Identify a digit's place value</p>	<p>Substitute whole numbers for unknown quantities to evaluate expressions</p> <p>Solve one-step equations having integer or decimal answers</p> <p>Combine like terms (e.g., <math>2x + 5x</math>)</p>
<b>20–23</b>	<p>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</p>	<p>Calculate the missing data value, given the average and all data values but one</p> <p>Translate from one representation of data to another (e.g., a bar graph to a circle graph)</p> <p>Determine the probability of a simple event</p> <p>Exhibit knowledge of simple counting techniques*</p>	<p>Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor</p>	<p>Evaluate algebraic expressions by substituting integers for unknown quantities</p> <p>Add and subtract simple algebraic expressions</p> <p>Solve routine first-degree equations</p> <p>Perform straightforward word-to-symbol translations</p> <p>Multiply two binomials*</p>
<b>24–27</b>	<p>Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)</p>	<p>Calculate the average, given the frequency counts of all the data values</p> <p>Manipulate data from tables and graphs</p> <p>Compute straightforward probabilities for common situations</p> <p>Use Venn diagrams in counting*</p>	<p>Find and use the least common multiple</p> <p>Order fractions</p> <p>Work with numerical factors</p> <p>Work with scientific notation</p> <p>Work with squares and square roots of numbers</p> <p>Work problems involving positive integer exponents*</p> <p>Work with cubes and cube roots of numbers*</p> <p>Determine when an expression is undefined*</p> <p>Exhibit some knowledge of the complex numbers †</p>	<p>Solve real-world problems using first-degree equations</p> <p>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)</p> <p>Identify solutions to simple quadratic equations</p> <p>Add, subtract, and multiply polynomials*</p> <p>Factor simple quadratics (e.g., the difference of squares and perfect square trinomials)*</p> <p>Solve first-degree inequalities that do not require reversing the inequality sign*</p>
<b>28–32</b> *	<p>Solve word problems containing several rates, proportions, or percentages</p>	<p>Calculate or use a weighted average</p> <p>Interpret and use information from figures, tables, and graphs</p> <p>Apply counting techniques</p> <p>Compute a probability when the event and/or sample space are not given or obvious</p>	<p>Apply number properties involving prime factorization</p> <p>Apply number properties involving even/odd numbers and factors/multiples</p> <p>Apply number properties involving positive/negative numbers</p> <p>Apply rules of exponents</p> <p>Multiply two complex numbers †</p>	<p>Manipulate expressions and equations</p> <p>Write expressions, equations, and inequalities for common algebra settings</p> <p>Solve linear inequalities that require reversing the inequality sign</p> <p>Solve absolute value equations</p> <p>Solve quadratic equations</p> <p>Find solutions to systems of linear equations</p>
<b>33–36</b> †	<p>Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings)</p>	<p>Distinguish between mean, median, and mode for a list of numbers</p> <p>Analyze and draw conclusions based on information from figures, tables, and graphs</p> <p>Exhibit knowledge of conditional and joint probability</p>	<p>Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers</p> <p>Exhibit knowledge of logarithms and geometric sequences</p> <p>Apply properties of complex numbers</p>	<p>Write expressions that require planning and/or manipulating to accurately model a situation</p> <p>Write equations and inequalities that require planning, manipulating, and/or solving</p> <p>Solve simple absolute value inequalities</p>

## College Readiness Standards — Mathematics (continued)

Freshman Class Profile				
	Graphical Representations	Properties of Plane Figures	Measurement	Functions†
13–15	Identify the location of a point with a positive coordinate on the number line		Estimate or calculate the length of a line segment based on other lengths given on a geometric figure	
16–19	Locate points on the number line and in the first quadrant	Exhibit some knowledge of the angles associated with parallel lines	Compute the perimeter of polygons when all side lengths are given Compute the area of rectangles when whole number dimensions are given	
20–23	Locate points in the coordinate plane Comprehend the concept of length on the number line* Exhibit knowledge of slope*	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°)	Compute the area and perimeter of triangles and rectangles in simple problems Use geometric formulas when all necessary information is given	Evaluate quadratic functions, expressed in function notation, at integer values
24–27	Identify the graph of a linear inequality on the number line* Determine the slope of a line from points or equations* Match linear graphs with their equations* Find the midpoint of a line segment*	Use several angle properties to find an unknown angle measure Recognize Pythagorean triples* Use properties of isosceles triangles*	Compute the area of triangles and rectangles when one or more additional simple steps are required Compute the area and circumference of circles after identifying necessary information Compute the perimeter of simple composite geometric figures with unknown side lengths*	Evaluate polynomial functions, expressed in function notation, at integer values Express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given side lengths
28–32 *	Interpret and use information from graphs in the coordinate plane Match number line graphs with solution sets of linear inequalities Use the distance formula Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)†	Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles Use the Pythagorean theorem	Use relationships involving area, perimeter, and volume of geometric figures to compute another measure	Evaluate composite functions at integer values Apply basic trigonometric ratios to solve right-triangle problems
33–36 †	Match number line graphs with solution sets of simple quadratic inequalities Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts Analyze and draw conclusions based on information from graphs in the coordinate plane	Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas Use relationships among angles, arcs, and distances in a circle	Use scale factors to determine the magnitude of a size change Compute the area of composite geometric figures when planning or visualization is required	Write an expression for the composite of two simple functions Use trigonometric concepts and basic identities to solve problems Exhibit knowledge of unit circle trigonometry Match graphs of basic trigonometric functions with their equations

<b>College Readiness Standards — Reading</b>		
	<b>Main Ideas and Author's Approach</b>	<b>Supporting Details</b>
<b>13–15</b>	Recognize a clear intent of an author or narrator in uncomplicated literary narratives	Locate basic facts (e.g., names, dates, events) clearly stated in a passage
<b>16–19</b>	Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives	Locate simple details at the sentence and paragraph level in uncomplicated passages Recognize a clear function of a part of an uncomplicated passage
<b>20–23</b>	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	Locate important details in uncomplicated passages Make simple inferences about how details are used in passages
<b>24–27</b>	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	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
<b>28–32*</b>	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	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
<b>33–36†</b>	Identify clear main ideas or purposes of complex passages or their paragraphs	Locate and interpret details in complex passages  Understand the function of a part of a passage when the function is subtle or complex

**Descriptions of the EPAS (EXPLORE, PLAN, and ACT) Reading Passages**

**Uncomplicated Literary Narratives** refers to excerpts from essays, short stories, and novels that tend to use simple language and structure, have a clear purpose and a familiar style, present straightforward interactions between characters, and employ only a limited number of literary devices such as metaphor, simile, or hyperbole.

**More Challenging Literary Narratives** refers to excerpts from essays, short stories, and novels that tend to make moderate use of figurative language, have a more intricate structure and messages conveyed with some subtlety, and may feature somewhat complex interactions between characters.

**Complex Literary Narratives** refers to excerpts from essays, short stories, and novels that tend to make generous use of ambiguous language and literary devices, feature complex and subtle interactions between characters, often contain challenging context-dependent vocabulary, and typically contain messages and/or meanings that are not explicit but are embedded in the passage.

<b>College Readiness Standards — Reading (continued)</b>			
	<b>Sequential, Comparative, and Cause-Effect Relationships</b>	<b>Meanings of Words</b>	<b>Generalizations and Conclusions</b>
<b>13–15</b>	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	Understand the implication of a familiar word or phrase and of simple descriptive language	Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives
<b>16–19</b>	Identify relationships between main characters in uncomplicated literary narratives Recognize clear cause-effect relationships within a single paragraph in uncomplicated literary narratives	Use context to understand basic figurative language	Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages
<b>20–23</b>	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	Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements 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
<b>24–27</b>	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	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	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
<b>28–32*</b>	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	Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts	Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on
<b>33–36†</b>	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	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	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

**Uncomplicated Informational Passages** refers to materials that tend to contain a limited amount of data, address basic concepts using familiar language and conventional organizational patterns, have a clear purpose, and are written to be accessible.

**More Challenging Informational Passages** refers to materials that tend to present concepts that are not always stated explicitly and that are accompanied or illustrated by more—and more detailed—supporting data, include some difficult context-dependent words, and are written in a somewhat more demanding and less accessible style.

**Complex Informational Passages** refers to materials that tend to include a sizable amount of data, present difficult concepts that are embedded (not explicit) in the text, use demanding words and phrases whose meaning must be determined from context, and are likely to include intricate explanations of processes or events.

## College Readiness Standards — Science

Freshman Class Profile		
Interpretation of Data	Scientific Investigation	Evaluation of Models, Inferences, and Experimental Results
<b>13–15</b> 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)		
<b>16–19</b> 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	Understand the methods and tools used in a simple experiment	
<b>20–23</b> Select data from a complex data presentation (e.g., a table or graph with more than three variables; a phase diagram) 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	Understand the methods and tools used in a moderately complex experiment Understand a simple experimental design Identify a control in an experiment Identify similarities and differences between experiments	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
<b>24–27</b> Compare or combine data from two or more simple data presentations (e.g., categorize data from a table using a scale from another table) Compare or combine data from a complex data presentation Interpolate between data points in a table or graph Determine how the value of one variable changes as the value of another variable changes in a complex data presentation Identify and/or use a simple (e.g., linear) mathematical relationship between data Analyze given information when presented with new, simple information	Understand the methods and tools used in a complex experiment Understand a complex experimental design Predict the results of an additional trial or measurement in an experiment Determine the experimental conditions that would produce specified results	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 Determine which model(s) is(are) supported or weakened by new information Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion
<b>28–32*</b> Compare or combine data from a simple data presentation with data from a complex data presentation Identify and/or use a complex (e.g., nonlinear) mathematical relationship between data Extrapolate from data points in a table or graph	Determine the hypothesis for an experiment Identify an alternate method for testing a hypothesis	Select a complex hypothesis, prediction, or conclusion that is supported by a data presentation or model Determine whether new information supports or weakens a model, and why Use new information to make a prediction based on a model
<b>33–36†</b> Compare or combine data from two or more complex data presentations Analyze given information when presented with new, complex information	Understand precision and accuracy issues Predict how modifying the design or methods of an experiment will affect results Identify an additional trial or experiment that could be performed to enhance or evaluate experimental results	Select a complex hypothesis, prediction, or conclusion that is supported by two or more data presentations or models Determine whether given information supports or contradicts a complex hypothesis or conclusion, and why

Science College Readiness Standards are measured in the context of science topics students encounter in science courses. These topics may include:

Life Science/Biology	Physical Science/Chemistry, Physics	Earth & Space Science
<ul style="list-style-type: none"> <li>• Animal behavior</li> <li>• Animal development and growth</li> <li>• Body systems</li> <li>• Cell structure and processes</li> <li>• Ecology</li> <li>• Evolution</li> <li>• Genetics</li> <li>• Homeostasis</li> <li>• Life cycles</li> <li>• Molecular basis of heredity</li> <li>• Origin of life</li> <li>• Photosynthesis</li> <li>• Plant development, growth, structure</li> <li>• Populations</li> <li>• Taxonomy</li> </ul>	<ul style="list-style-type: none"> <li>• Atomic structure</li> <li>• Chemical bonding, equations, nomenclature, reactions</li> <li>• Electrical circuits</li> <li>• Elements, compounds, mixtures</li> <li>• Force and motions</li> <li>• Gravitation</li> <li>• Heat and work</li> <li>• Kinetic and potential energy</li> <li>• Magnetism</li> <li>• Momentum</li> <li>• The Periodic Table</li> <li>• Properties of solutions</li> <li>• Sound and light</li> <li>• States, classes, and properties of matter</li> <li>• Waves</li> </ul>	<ul style="list-style-type: none"> <li>• Earthquakes and volcanoes</li> <li>• Earth's atmosphere</li> <li>• Earth's resources</li> <li>• Fossils and geological time</li> <li>• Geochemical cycles</li> <li>• Groundwater</li> <li>• Lakes, rivers, oceans</li> <li>• Mass movements</li> <li>• Plate tectonics</li> <li>• Rocks, minerals</li> <li>• Solar system</li> <li>• Stars, galaxies, and the universe</li> <li>• Water cycle</li> <li>• Weather and climate</li> <li>• Weathering and erosion</li> </ul>