



# Missouri

## End-of-Course Assessments

Missouri Department of Elementary and Secondary Education

### Guide to Interpreting Results – EOC

Algebra I  
Biology  
English II



# RIVERSIDE PUBLISHING

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# Guide for Interpreting Results – EOC

## Educational Assessment: A Primary Tool

Assessment, or testing, fulfills a vital role in today's educational environment. Assessment results often are a major force in shaping public perceptions about the capabilities of our students and the quality of our schools. As a primary tool for educators and policymakers, assessment is used for many important purposes. Educators use assessment results to help improve teaching and learning and to evaluate programs and schools. Assessment is also used to generate the data upon which policy decisions are made. Because of the important role it performs, educational assessment is a foundation activity in every school, district, and state. It is vital to innovation, higher standards, and educational excellence.

The **Missouri Assessment Program (MAP)** is one of several educational reforms mandated by the Outstanding Schools Act of 1993. As a result of this act, the State Board of Education directed the Missouri Department of Elementary and Secondary Education (DESE) to identify the knowledge, skills, and competencies that Missouri students should acquire by the time they complete high school and to evaluate student progress toward those academic standards. DESE engaged teachers, school administrators, parents, and business professionals from throughout the state to develop the Show-Me Content Standards/Grade Level Expectation (GLE) Strands and the assessment system that evaluates students' proficiencies as represented by the Show-Me Content Standards/GLE Strands.

In response to feedback from Missouri districts regarding large-scale assessments for secondary school, **End-of-Course (EOC) Assessments** were made available for three subjects: Algebra I, English II, and Biology. The EOC Assessments were created to adapt testing to the needs of Missouri districts, schools, teachers, and students, while meeting state and federal requirements. The Missouri State Board of Education identified the following purposes for the Missouri End-of-Course (EOC) Assessments:

- Measuring and reflecting students' mastery toward post-secondary readiness
- Identifying students' strengths and weaknesses
- Communicating expectations for all students
- Serving as the basis for state and national accountability plans
- Evaluating programs

Course Level Expectations (CLEs) outline the ideas, concepts, and skills that form the foundation for an assessed EOC subject area, regardless of student grade level. Because a course such as Algebra I could be delivered in middle school or any grade level in secondary school, CLEs replace the GLEs. Districts can offer courses with different titles that cover the same CLEs.

Each assessment requires flexible scheduling possibly up to 180 minutes and may include two types of test items: **selected-response items** and **performance events** (including writing prompts). The **selected-response (also known as multiple-choice) items** present students with a question followed by four response options. The **performance events** used in Missouri's statewide assessment require students to work through more complicated items. Performance events often allow for more than one approach to get a correct answer. The advantage of this type of assessment item is that it provides insight into a student's ability to apply knowledge and understanding in real-life situations.

The writing prompt, a special type of performance event that appears in the English II assessment, is an open-ended item that requires students to demonstrate their writing proficiency. Writing is scored holistically using a four-point scoring guide.

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Progress in meeting the Show-Me Content Standards/CLE Strands is obtained from the EOC assessments. These assessments provide the data that DESE uses to inform parents, the public, and the state legislature about students' performance; to help make informed decisions about educational issues; and to drive student services throughout the state.

The Missouri Assessment Program (MAP) End-of-Course reports provide useful information for determining the performance of students in a particular school and classroom. These reports help identify students who are below proficiency in a particular test area so that a course of action may be determined that will meet the students' specific needs. Additionally, districts may use locally designed assessments aligned to the Show-Me Content Standards/CLE Strands to provide more detailed information for each student in specific test areas.

### **Scale Scores**

Riverside Publishing uses the students' correct responses and points earned to derive the EOC scale score. A student receives an EOC scale score when he or she has a valid attempt in any session. EOC scale scores range in value from 100 to 250. The EOC scale score determines the student's achievement level. For all content areas, a scale score of 200 to 224 is considered Proficient and a scale score of 225 and above is considered Advanced. Scale scores can be added, subtracted, and averaged.

### **Achievement Levels**

Student performance can be reported in terms of four performance, (or achievement,) levels that describe a pathway to proficiency. Each achievement level represents standards of performance for each assessed content area (Algebra I, English II, and Biology). Panels drawn from educational, business, and professional communities determined the standards. Achievement-level scores describe what students can do in terms of the content and skills assessed. These scores are a means of comparing test results with standards of academic performance. As noted above, for all content areas, a scale score of 200 to 224 is considered Proficient and a scale score of 225 and above is considered Advanced.

### **Standard Error of Measurement**

No test provides a perfect measure of a student's ability. This situation is expected since all tests have a known standard error of measurement (*SEM*). The *SEM* reports the amount of variability that can be expected in a student's test score due to the inherent imprecision of the test. For example, if the student were tested again, he or she would likely obtain a different score. The range for this new score is provided and gives an indication of the margin of error for the reported scale score.

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## Show-Me Content Standards/CLE Strands

MO EOC items are aligned with the Show-Me Content Standards/CLE Strands. The Show-Me Content Standards/CLE Strands are grouped by course.

### English II Strands

*In English II, students in Missouri public schools will acquire a solid foundation which includes knowledge of and proficiency in*

1. speaking and writing standard English (including grammar, usage, punctuation, spelling, capitalization)
2. reading and evaluating fiction, poetry, and drama
3. reading and evaluating nonfiction works and material (such as biographies, newspapers, technical manuals)
4. writing formally (such as reports, narratives, essays) and informally (such as outlines, notes)
5. comprehending and evaluating the content and artistic aspects of oral and visual presentations (such as story-telling, debates, lectures, multi-media productions)
6. participating in formal and informal presentations and discussions of issues and ideas
7. identifying and evaluating relationships between language and culture

### Algebra I CLE Strands

*In Algebra I, students in Missouri public schools will acquire a solid foundation which includes knowledge of*

1. addition, subtraction, multiplication, and division; other number sense, including numeration and estimation; and the application of these operations and concepts in the workplace and other situations
2. geometric and spatial sense involving measurement (including length, area, volume), trigonometry, and similarity and transformations of shapes
3. data analysis, probability, and statistics
4. patterns and relationships within and among functions and algebraic, geometric, and trigonometric concepts
5. mathematical systems (including real numbers, whole numbers, integers, fractions), geometry, and number theory (including primes, factors, multiples)
6. discrete mathematics (such as graph theory, counting techniques, matrices)

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## Biology CLE Strands

*In Biology, students in Missouri public schools will acquire a solid foundation which includes knowledge of*

1. properties and principles of matter and energy
2. properties and principles of force and motion
3. characteristics and interactions of living organisms
4. changes in ecosystems and interactions of organisms with their environments
5. processes (such as plate movement, water cycle, air flow) and interactions of earth's biosphere, atmosphere, lithosphere, and hydrosphere
6. composition and structure of the universe and the motions of the objects within it
7. processes of scientific inquiry (such as formulating and testing hypotheses)
8. impact of science, technology and human activity on resources and the environment

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## Show-Me Performance Standards

The Show-Me Performance Standards are grouped by goals. For a more detailed explanation of the performance standards, refer to the Show-Me Performance Standards/CLE Strands document or the DESE website (<http://dese.mo.gov/standards>).

### GOAL 1

Students in Missouri public schools will acquire the knowledge and skills to gather, analyze, and apply information and ideas.

*Students will demonstrate within and integrate across all content areas the ability to*

1. develop questions and ideas to initiate and refine research
2. conduct research to answer questions and evaluate information and ideas
3. design and conduct field and laboratory investigations to study nature and society
4. use technological tools and other resources to locate, select, and organize information
5. comprehend and evaluate written, visual and oral presentations, and works
6. discover and evaluate patterns and relationships in information, ideas, and structures
7. evaluate the accuracy of information and the reliability of its sources
8. organize data, information, and ideas into useful forms (including charts, graphs, outlines) for analysis or presentation
9. identify, analyze, and compare the institutions, traditions and art forms of past, and present societies
10. apply acquired information, ideas, and skills to different contexts as students, workers, citizens, and consumers

### GOAL 2

Students in Missouri public schools will acquire the knowledge and skills to communicate effectively within and beyond the classroom.

*Students will demonstrate within and integrate across all content areas the ability to*

1. plan and make written, oral, and visual presentations for a variety of purposes and audiences
2. review and revise communications to improve accuracy and clarity

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3. exchange information, questions, and ideas while recognizing the perspectives of others
4. present perceptions and ideas regarding works of the arts, humanities, and sciences
5. perform or produce works in the fine and practical arts
6. apply communication techniques to the job search and to the workplace
7. use technological tools to exchange information and ideas

### GOAL 3

Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.

*Students will demonstrate within and integrate across all content areas the ability to*

1. identify problems and define their scope and elements
2. develop and apply strategies based on ways others have prevented or solved problems
3. develop and apply strategies based on one's own experience in preventing or solving problems
4. evaluate the processes used in recognizing and solving problems
5. reason inductively from a set of specific facts and deductively from general premises
6. examine problems and proposed solutions from multiple perspectives
7. evaluate the extent to which a strategy addresses the problem
8. assess costs, benefits, and other consequences of proposed solutions

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## GOAL 4

Students in Missouri public schools will acquire the knowledge and skills to make decisions and act as responsible members of society.

*Students will demonstrate within and integrate across all content areas the ability to*

1. explain reasoning and identify information used to support decisions
2. understand and apply the rights and responsibilities of citizenship in Missouri and the United States
3. analyze the duties and responsibilities of individuals in societies
4. recognize and practice honesty and integrity in academic work and in the workplace
5. develop, monitor, and revise plans of action to meet deadlines and accomplish goals
6. identify tasks that require a coordinated effort and work with others to complete those tasks
7. identify and apply practices that preserve and enhance the safety and health of self and others
8. explore, prepare for, and seek educational and job opportunities

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## Achievement-Level Descriptors

### English II Abbreviated Achievement-Level Descriptors

**Advanced:** Students performing at the Advanced level on the Missouri English II End-of-Course Assessment consistently demonstrate a thorough understanding of the skills and processes identified in the Course Level Expectations for English II. They demonstrate higher-level skills in reading processes, in responding to both fiction and nonfiction texts, and in writing effectively. In addition to understanding and applying the skills at the Proficient level, students scoring at the Advanced level use a wide range of strategies to comprehend and interpret a variety of texts, demonstrate a thorough understanding of literary forms, and consistently apply different strategies for accessing and summarizing information. They follow a writing process to compose well-developed and organized papers for a variety of audiences and purposes, while consistently and correctly applying the rules and conventions of Standard English.

**Proficient:** Students performing at the Proficient level on the Missouri English II End-of-Course Assessment demonstrate an understanding of the skills and processes identified in the Course Level Expectations for English II. They demonstrate these skills in reading processes, in responding to both fiction and nonfiction texts, and in writing effectively. In addition to understanding and applying the skills at the Basic level, students scoring at the Proficient level use a range of strategies to comprehend and interpret a variety of texts, demonstrate an understanding of literary forms, and apply strategies for accessing and summarizing information. They follow a writing process to compose well-developed and organized papers for a variety of audiences and purposes, while correctly applying the rules and conventions of Standard English.

**Basic:** Students performing at the Basic level on the Missouri English II End-of-Course Assessment demonstrate an incomplete understanding of the skills and processes identified in the Course Level Expectations for English II. They demonstrate these skills inconsistently in reading processes, in responding to both fiction and nonfiction texts, and in writing. In addition to understanding and applying the skills at the Below Basic level, students scoring at the Basic level use some strategies to comprehend and interpret a variety of texts, demonstrate a partial understanding of literary forms, and inconsistently apply few strategies for accessing and summarizing information. They may follow a writing process to compose papers while inconsistently applying the rules and conventions of Standard English.

**Below Basic:** Students performing at the Below Basic level on the Missouri English II End-of-Course Assessment demonstrate little understanding of the skills and processes identified in the Course Level Expectations for English II. They demonstrate these skills inconsistently and/or incorrectly in reading processes, in responding to both fiction and nonfiction texts, and in writing. Students scoring at the Below Basic level use few strategies to comprehend and interpret texts, demonstrate little understanding of literary forms, and apply few strategies for accessing information. They may not follow a writing process to compose papers and/or incorrectly apply the rules and conventions of Standard English.

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## Algebra I Abbreviated Achievement-Level Descriptors

**Advanced:** Students performing at the Advanced level on the Missouri Algebra I End-of-Course Assessment demonstrate a thorough understanding of the course-level expectations for Algebra I. They demonstrate these skills in number and operations, algebraic relationships, and data and probability. In addition to understanding and applying the skills at the Proficient level, students scoring at the Advanced level use a wide range of strategies to solve problems and demonstrate a thorough understanding of important mathematical content and concepts.

**Proficient:** Students performing at the Proficient level on the Missouri Algebra I End-of-Course Assessment demonstrate an understanding of most course-level expectations for Algebra I. They demonstrate these skills in number and operations, algebraic relationships, and data and probability. In addition to understanding and applying the skills at the Basic level, students scoring at the Proficient level use a range of strategies to solve problems and demonstrate an understanding of important mathematical content and concepts.

**Basic:** Students performing at the Basic level on the Missouri Algebra I End-of-Course Assessment demonstrate some understanding of the course-level expectations for Algebra I. They demonstrate these skills in number and operations, algebraic relationships, and data and probability. In addition to understanding and applying the skills at the Below Basic level, students scoring at the Basic level use some strategies to solve problems and demonstrate some understanding of important mathematical content and concepts.

**Below Basic:** Students performing at the Below Basic level on the Missouri Algebra I End-of-Course Assessment demonstrate a limited understanding of the course-level expectations for Algebra I. They demonstrate these skills in number and operations, algebraic relationships, and data and probability. In addition, students scoring at the Below Basic level use very few strategies to solve problems and demonstrate a limited understanding of important mathematical content and concepts.

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## Biology Abbreviated Achievement-Level Descriptors

**Advanced:** Students performing at the Advanced level on the Missouri End-of-Course Assessment demonstrate a thorough understanding of the course-level expectations for Biology. They demonstrate these skills in addition to understanding and applying the skills at the Proficient level; students scoring at the Advanced level use a range of strategies.

**Proficient:** Students performing at the Proficient level on the Missouri End-of-Course Assessment demonstrate an understanding of the course-level expectations for Biology. They demonstrate these skills in addition to understanding and applying the skills at the Basic level; students scoring at the Proficient level use a range of strategies.

**Basic:** Students performing at the Basic level on the Missouri End-of-Course Assessment demonstrate a partial understanding of the course-level expectations for Biology. They demonstrate these skills in addition to understanding and applying the skills at the Below Basic level; students scoring at the Basic level use some strategies.

**Below Basic:** Students performing at the Below Basic level on the Missouri End-of-Course Assessment demonstrate a limited understanding of the course-level expectations for Biology. In addition to demonstrating these skills, students scoring at the Below Basic level use very few strategies and demonstrate a limited understanding of important Biological content and concepts.

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## Sample Reports

### Individual Student Report

The Individual Student Report provides information about performance on the End-of-Course Assessment, describing the results in terms of four levels of achievement in a content area. It is used for measuring and reflecting an individual's student mastery toward post-secondary readiness for a content area. It is used in instructional planning as a point of reference during a parent/teacher conference and for permanent record keeping. Other sources of information should be used along with this report when determining the student's areas of strength or need.

Achievement-level scores describe what students can do in terms of the Course Level Expectations for the content and skills assessed by the End-of-Course Assessment. A student in the Proficient or Advanced level has met the standard. Students in the Below Basic or Basic levels need to work on the skills described for their level on pages 8-10, as well as on skills in the next higher level.

The next page includes a sample of the Individual Student Report. The following areas on the sample have been identified to better understand the results that are being reported:

[A] The heading of the Individual Student Report includes the content area for the results being presented. A separate report is produced for each content area tested.

[B] The Student Information section contains the biographic data for the individual student taking the assessment. Identifying information for the MOSIS ID, gender, building, and district are listed, followed by the test period.

[C] The individual student's results are presented numerically as a three-digit scale score with the standard error (SE). An accompanying bar graph to the right of the scale score illustrates the achievement level obtained by the student. Achievement levels (whether Advanced, Proficient, Basic, or Below Basic) are based on the scale score ranges listed beneath the Achievement Level heading in the table.

[D] The mean scale scores for the student's building and district are displayed in the two rows below the student's individual results. The mean scale score, with an associated SE, and the bar graph provide a way to view the individual's results in contrast to the group's results for the content area during the same test period.

[E] The narrative describes the student performance characteristics corresponding to the level of achievement obtained. The text is specific to the content area tested. At the bottom of the narrative is the URL, which provides additional information for all of the achievement levels for the content area.

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## Individual Student Report



### Missouri End-of-Course Assessment

#### Individual Student Report

#### English II

**Student:** Jeannette Aanstevenson  
**MOSIS ID:** 5700000156  
**Gender:** F  
**Group:** Class Eng101  
**Building:** Poplar Bluff High  
**Building Code:** 1050  
**District:** Poplar Bluff R I  
**District Code:** 012109  
**Test Period:** Fall 08-09

**A**

**B**

Student/ Building/ District	Mean Scale Score (SE ±)	Achievement Level			
		Below Basic	Basic	Proficient	Advanced
Jeannette Aanstevenson	218 (SE ± 2)				
Poplar Bluff High	208 (SE ± 2)				
Poplar Bluff R I	202 (SE ± 2)				

**C**

The average scale score is represented by a bar graph. The standard errors (SE) represented on this report should be taken into account when interpreting test scores.  
 \* TBD late June. Please consult the DESE website for more information.

**E**

#### Jeannette's achievement level on the English II End-of-Course Assessment: Proficient

Students performing at the Proficient level on the Missouri English II End-of-Course Assessment demonstrate an understanding of the skills and processes identified in the Course Level Expectations for English II. They demonstrate these skills in reading processes, in responding to both fiction and nonfiction texts, and in writing effectively. In addition to understanding and applying the skills at the Basic level, students scoring at the Proficient level use a range of strategies to comprehend and interpret a variety of texts, demonstrate an understanding of literary forms, and apply strategies for accessing and summarizing information. They follow a writing process to compose well-developed and organized papers for a variety of audiences and purposes, while correctly applying the rules and conventions of Standard English.

For more information about achievement levels, please visit the following Web site:  
<http://www.dese.mo.gov/div/improve/assess/eoc/documents/EOCEnglishIIALD.pdf>

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## Sample Reports

### Student Score Label

The Student Score Label provides a summary of a student's results on the End-of-Course Assessment. A separate label is produced for each content area tested. The individual label provides the student's biographic data, the raw score, percent correct, scale score, and achievement level. The labels have adhesive backing so that they can be easily transferred onto the student record folders.

A sample label is shown below.

[A] The student's name and identifying information are provided on the left side of the label.

[B] The upper right side of the label shows the content area tested. If a student has results for more than one content area, the next label is printed below the first one.

[C] The right side of the label has the Number Possible and the student's raw score (Number Correct). A corresponding column to the right of this data contains the scores in the form of Percent Correct and the raw score's associated Scale Score.

[D] The student's achievement level is displayed in the lower right corner below the scores.

### Student Score Label

<b>A</b>	<b>CHEN, TIMOTHY</b>	<b>Missouri End-of-Course Assessment</b>		<b>B</b>
	MOSIS ID: 999999999	<b>Algebra I</b>		
	Building: Washington HS	<b>C</b>	No. Possible: 39	Scale Score: 220
	District: Jefferson		No. Correct: 28	
Test Period: Spring 2009	Achievement Level: Proficient			<b>D</b>

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