

AS OF JUNE 20, 2010,  
THIS STATE HAD ADOPTED  
THE COMMON CORE  
STATE STANDARDS.

## Missouri • English Language Arts

### DOCUMENTS REVIEWED

*Communication Arts Grade-Level Expectations for K-8*. October 2008.

Accessed from: [http://dese.mo.gov/divimprove/curriculum/GLE/documents/ca\\_gle\\_2.o\\_k8\\_1008.pdf](http://dese.mo.gov/divimprove/curriculum/GLE/documents/ca_gle_2.o_k8_1008.pdf)

*Communication Arts Course-Level Expectations for High School*. Updated October 2008.

Accessed from: <http://dese.mo.gov/divimprove/curriculum/GLE/CAcle.html>

*Information and Communications Technology Literacy Grade-Level Expectations 2.0*. 2009-2010.

Accessed from: <http://dese.mo.gov/divimprove/curriculum/GLE/>

*Information and Communications Technology Literacy Course-Level Expectations*. 2009-2010.

Accessed from: <http://dese.mo.gov/divimprove/curriculum/GLE/>

### Overview

The Missouri ELA standards include some important K-12 content. Unfortunately, this content is buried among vaguely worded and repetitive standards that fail to provide the kinds of content-rich expectations that teachers need to plan robust, college-prep curricula, instruction, and assessment.



Clarity and Specificity: 1/3

Content and Rigor: 3/7

**Total State Score: 4/10**

(Common Core Grade: B+)

### General Organization

Missouri's K-8 ELA standards—dubbed *Communication Arts Grade-Level Expectations* by the state—are divided into three strands: Reading; Writing; and Listening and Speaking. Each strand is further divided into sub-strands, which are common across several grades, and finally into grade-level expectations (GLEs).

The high school standards follow the same organizational structure but are grouped by course—English I-IV—rather than by grade level, though one assumes that English I corresponds with ninth grade, English II with tenth, and so on.

Finally, the state provides an additional set of standards called *Information and Communications Technology Literacy Grade-Level Expectations*. These follow the same organizational structure as the K-12 ELA standards, with two exceptions. First, “information and communications technology literacy” is treated as one strand, which is then divided into sub-strands and grade-level expectations. Second, the expectations therein are designed to be shared by teachers across content areas (ELA, science, history, etc.) and include standards for research, media, and technology.

### Clarity and Specificity

The organization of the Missouri ELA standards is reasonably clear, though two major flaws diminish the utility of the document.

First, separating the communication technology literacy standards from the ELA standards makes it much less likely that they will be well integrated into instruction, particularly since the state gives very little guidance as to which teachers are ultimately responsible for ensuring student mastery of those expectations. Instead, the state explains that these standards exist separately because “the knowledge and skills required for proficiency in this area are not limited to one content area.” Unfortunately, by neither integrating any of the strands—notably the research-writing strand—more deliberately into the ELA standards, nor assessing the expectations laid out in the document, Missouri runs the serious risk that these standards will not be used to guide instruction in its classrooms.

Second, while the standards themselves are generally written in plain, jargon-free language, many of them lack the specificity needed to guide planning, instruction, and assessment. Take, for example, the following phonics standard:

Develop and apply decoding strategies to “problem-solve” unknown words when reading grade-level instructional text (grade 1)

This standard lacks the specificity needed to guide early reading instruction. What’s more, the standard is repeated—without the word “develop”—verbatim for grades 2-9.

The repetition of equally vaguely worded standards across several grades is a pervasive problem, across all strands and grade levels, making it very difficult to discern the progression of skills across grades. This is particularly true of the high school Reading standards, as demonstrated by the following, repeated verbatim for English I-IV:

Analyze and evaluate the text features in grade-level text (English I-IV)

The failure to provide any details on the text features that students should master renders this standard instructionally meaningless.

Taken together, these shortcomings fail to make clear precisely what students should know and be able to do at various grade levels. Therefore, Missouri can earn no higher than one point out of three for Clarity and Specificity. (See *Common Grading Metric*, Appendix A.)

## Content and Rigor

### *Content Strengths*

The Missouri grade- and course-level expectations include some expectations for much of the essential K-12 ELA content. For example, there is a focus on reading and writing across genres, research processes, early reading, and speaking and listening.

The K-4 standards also address systematic vocabulary development reasonably well, although they could be improved by expecting students to study basic prefixes and suffixes, and compound words.

Conventions are also addressed systematically in grades K-4, as demonstrated by the following:

In written text

- a. space correctly between words in a sentence and in margins
- b. capitalize months of year, titles of individuals, greeting and closing of letter
- c. use correct ending punctuation in imperative and exclamatory sentences
- d. correctly use verbs that agree with the subject, and comparative and superlative forms of adverbs and adjectives
- e. correctly spell simple compounds, homophones, contractions and words with affixes (grade 3)

The *Information and Communication Technology Literacy* GLEs include a robust research strand with clear and specific expectations about the research process, including these high school expectations:

- Locate multiple primary and secondary sources of various media using appropriate organizational tools
- Select material appropriate to student’s reading ability
- Analyze information to determine relevance in relationship to the topic
- Analyze impact of timeliness when selecting sources
- Analyze the source to determine its credibility
- Evaluate accuracy of information by determining whether it contradicts or verifies other sources
- Evaluate for bias by analyzing viewpoint(s) conveyed in source
- Evaluate the copyright date of information to best meet the information need [sic] (grades 9-12)

Finally, the standards outline specific expectations for reading and analyzing literary and non-literary texts, including a focus on the analysis of text features, such as graphics, tables of contents, indices, etc. For example:

Use details from text to

- identify and explain flashback, mood and theme
- analyze point of view
- analyze author’s viewpoint/ perspective
- determine how an incident foreshadows a future event (grade 8)

Unfortunately, the progression of essential content and skills across grade levels is often unclear, as explained below.

### *Content Weaknesses*

The biggest challenge with the Missouri standards is that they provide GLEs in name only. Most of these expectations repeat from grade to grade and address content only at a very general level, leaving significant gaps across all strands.

To begin, the early-reading standards fail to delineate an actionable set of expectations for early-reading development. While the statements touch on fluency, phonics, and phonemic awareness, they provide few details about what, exactly, students should know and be able to do at various grade levels, as shown by the grade 1 phonics standard reproduced above.

Many of the reading standards for middle and high school are similarly vague, and there is disproportionate focus on standards that specify comprehension strategies, such as self-monitoring and reflection, rather than on critical content. Take, for example, the following strategies-focused standard, which is repeated verbatim for English I-IV:

During reading, utilize strategies to

- a. determine meaning of unknown words
- b. self-monitor comprehension
- c. question the text
- d. infer
- e. visualize
- f. paraphrase
- g. summarize (English I-IV)

Worse, Missouri fails to include examples of texts, discussion of text difficulty, samples of texts or authors—including any mention of foundational works of American literature—or any other information that would help educators ensure that they are teaching progressively rigorous texts across grade levels.

While the K-4 grammar standards (mentioned above) are clear and include much important content, the middle and high school GLEs fail to build upon this strong base. Instead, they continue to focus on low-level capitalization, punctuation, and spelling skills rather than demanding mastery of more advanced content including analysis of sentence structure, fragments and run-ons, or types of phrases and clauses, and sentence structure.

Further, the state fails to provide adequate genre-specific expectations for writing. While some expectations focus on the characteristics and quality of writing expected from grade to grade, the standards at the middle and high school level do not show a sufficient progression of rigor. For instance, many of them remain focused on basic organization and structure rather than on demonstrating, for example, an increasingly sophisticated understanding of audience and purpose or the development of ideas through multi-paragraph essays. The inclusion of annotated samples of student work or genre-specific rubrics would better clarify expectations across grades.

The GLEs do not address specific skills for effective participation in groups, or specific media viewing and production skills and criteria.

The combination of vague and repetitive standards leads to serious content gaps. More than 50 percent of the critical K-12 ELA content is missing, earning Missouri three points out of seven for Content and Rigor. (See *Common Grading Metric*, Appendix A.)

### **The Bottom Line**

With their grade of D, Missouri's ELA standards are among the worst in the country, while those developed by the Common Core State Standards Initiative earn a solid B-plus. The CCSS ELA standards are significantly superior to what the Show Me State has in place today.

AS OF JUNE 20, 2010,  
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# Missouri • Mathematics

## DOCUMENTS REVIEWED

*Grade Level Expectations 2.0, Mathematics (K-8)*. April 2008.

Accessed from: [http://dese.mo.gov/divimprove/curriculum/GLE/documents/ma\\_gle\\_2.0\\_k8\\_0408.pdf](http://dese.mo.gov/divimprove/curriculum/GLE/documents/ma_gle_2.0_k8_0408.pdf)

*Course Expectations, Mathematics—2008-2009 (High School)*. April 2008.

Accessed from: [http://dese.mo.gov/divimprove/curriculum/GLE/documents/ma\\_cle\\_0408.pdf](http://dese.mo.gov/divimprove/curriculum/GLE/documents/ma_cle_0408.pdf)

## Overview

Missouri's standards are well presented and organized, but the statements are often very broad and difficult to interpret. In K-8, arithmetic is covered reasonably well, but not sufficiently prioritized. In high school, the standards are vague and do not cover some essential content.



Clarity and Specificity: 1/3

Content and Rigor: 2/7

**Total State Score: 3/10**

(Common Core Grade: A-)

## General Organization

The Missouri K-8 math standards are divided into five content strands that are common across all grades. Each strand is divided into topics and then sub-topics, and not all topics and sub-topics appear at every grade. Finally, grade-specific standards are provided for each sub-topic.

High school standards are organized similarly, except they are presented by course instead of grade level.

## Clarity and Specificity

The standards are well presented and easy to read. Some sequencing is nice, for example:

- Tell time to the nearest half hour (grade 1)
- Tell time to the nearest five minutes (grade 3)
- Solve problems involving elapsed time (hours and minutes) (grade 6)

Unfortunately, it is often difficult to interpret many standards because they are far too broadly stated. Examples are:

- Identify, model and describe situations with constant or varying rates of change (grade 5)
- Describe the effects of multiplication and division on fractions and decimals (grade 6)
- Compare and contrast various forms of representations of patterns (every high school course)

The word “describe” appears frequently, and there is no clarification about what type of mathematical problem this might apply to. In addition, many awkward phrases appear, such as “number relationships of addition” and “analyze patterns using words.” One might describe the results of a mathematical analysis of a pattern with words, but it is not a mathematical activity to analyze a pattern with words.

Though well organized and easy to read, Missouri's standards are generally neither clear nor specific. They offer “limited guidance to users” and therefore receive a Clarity and Specificity score of one point out of three. (See *Common Grading Metric*, Appendix A.)

## Content and Rigor

### *Content Priorities*

While Missouri doesn't explicitly prioritize content, it's possible to glean priorities by analyzing the number of standards devoted to various topics. Unfortunately, only about a third of the standards in the crucial elementary grades are devoted to the development of arithmetic, which does not sufficiently prioritize the development of this essential content.

### *Content Strengths*

The early development of whole-number arithmetic is reasonable. For example, quick recall of addition and subtraction facts is specified:

Demonstrate fluency including quick recall with basic number relationships of addition and subtraction for sums up to 20 (grade 2)

Multiplication and division facts are not stated quite so explicitly, but fluency is required:

Demonstrate fluency with basic number relationships (12 x 12) of multiplication and related division facts (grade 4)

The structure of arithmetic is also covered.

### *Content Weaknesses*

Some otherwise-desirable standards do not specify fluency with standard methods:

Apply and describe the strategy used to compute up to 3-digit addition or subtraction problems (grade 3)

Demonstrate fluency with efficient procedures for adding and subtracting decimals and fractions (with unlike denominators) and division of whole numbers (grade 5)

There is no mention of common denominators, and multiplication and division of decimals is not explicit.

Area is not developed for rectangles, parallelograms, or triangles. The only coverage for these is in the general standard:

Solve problems involving the area or perimeter of polygons (grade 6)

High school content is extremely weak. The standards are so broadly stated that it is unclear what students are expected to know or be able to do. Specific content is rarely mentioned, as demonstrated by the following standards:

Compare properties of linear, exponential, logarithmic and rational functions (Algebra II)

Describe and use algebraic manipulations, inverse or composition of functions (Algebra II)

Use and solve equivalent forms of equations and inequalities (Algebra II)

Linear equations are mentioned several times but most of the basic material is omitted. Slope is mentioned only once in eighth grade. Although standards include solving problems with graphs and recognizing linear functions from graphs, there is no explicit standard for graphing linear equations or any mention of finding a linear equation from two points, using the point-slope form, or the relationship between the slopes of parallel and perpendicular lines.

The geometry standards do not specifically include many of the standard results. There is vague mention of proof in the following standard, but axioms or postulates, or what students are expected to be able to prove, are not mentioned:

Use inductive and deductive reasoning to establish the validity of geometric conjectures, prove theorems and critique arguments made by others (Geometry)

Basic material on quadratic equations is missing. Although students are expected to solve them, and factoring is mentioned elsewhere in the standards, there is no mention of solving quadratics by factoring, completing the square, or the quadratic formula. Complex roots, vertex form, and max/min problems are also not covered.

Polynomials are not mentioned at all. They appear only indirectly in the following poorly stated standard:

Describe and use algebraic manipulations, including factoring and rules of integer exponents and apply properties of exponents (including order of operations) to simplify expressions (Algebra I)

STEM-ready standards are almost entirely missing. Although trigonometric functions are mentioned, there are no graphs, identities, inverse trigonometric functions, or polar coordinates.

Many of Missouri's standards are so broadly stated that it is difficult to interpret the intent. Arithmetic is not set as a priority, and, though the early development is reasonable, some important topics such as decimal multiplication are missing. High school is missing much of the essential content, and there is little guidance given to the development of the material that is included. These "serious problems" result in a Content and Rigor score of two points out of seven. (See *Common Grading Metric*, Appendix A.)

### **The Bottom Line**

With their grade of D, Missouri's mathematics standards are among the worst in the country, while those developed by the Common Core State Standards Initiative earn an impressive A-minus. The CCSS math standards are vastly superior to what the Show Me State has in place today.