

Massachusetts • English Language Arts

The 2001 Massachusetts ELA standards have been among the strongest in the nation since their adoption almost a decade ago. Yet, even as the National Governors Association and Council of Chief State Schools Officers were working on drafts of the Common Core standards, Massachusetts was working to update and improve its standards as well. This presents Bay State officials with a complex choice among the Common Core standards, their existing standards, or their newly revised draft.

In order to help inform that decision, we have included a complete review of the 2001 standards, as well as an analysis of the changes and improvements that can be found in the 2010 draft.

Current Massachusetts Standards

DOCUMENTS REVIEWED¹

Massachusetts English Language Arts Curriculum Framework. 2001. Accessed from: <http://www.doe.mass.edu/frameworks/current.html>

Supplement to Massachusetts English Language Arts Curriculum Framework. 2004. Accessed from: <http://www.doe.mass.edu/frameworks/current.html>

Overview

For almost a decade, the *Massachusetts English Language Arts Framework* has been one of the strongest sets of academic standards in use in U.S. public schools. Because its original framework was written for grade spans only, Massachusetts developed a supplement in 2004, which clarifies grade by grade standards for grades 3-8. The supplement rounds out a rigorous, specific, and clear set of expectations for teachers and students.



Clarity and Specificity: 2/3

Content and Rigor: 7/7

Total State Score: 9/10

(Common Core Grade: B+)

General Organization

Massachusetts organizes its ELA standards into four strands or content areas: Language, Reading and Literature, Composition, and Media.

There are two to twelve “general standards” within each strand, for a total of twenty-seven. These are “broad statements that outline what students should know and be able to do in English language arts.” For instance, under the Language strand is this general standard: “Students will use agreed-upon rules for informal and formal discussions in small and large groups.”

General standards are then broken into more detailed “learning standards” for Pre-K-2, individual grades, 3-8, and grade spans, 9-10 and 11-12. For example, one of the learning standards for grades 11-12 is:

Drawing on one of the widely used professional evaluation forms for group discussion, evaluate how well participants engage in discussions at a local meeting (grades 11-12)

In addition to the standards, the framework includes a number of “learning scenarios” that basically function as sample lesson plans. Each scenario includes an introduction, practice exercise, and formative assessment ideas to gauge student mastery. Scenarios often span one or more of the four strands. Several appendices describe the quality and complexity of reading materials that students are expected to encounter in various grade levels, offer sample reading passages, and

provide guidance on a number of other relevant issues such as best practices for teaching English language learners and a summary of the research on early reading acquisition.

Clarity and Specificity

Across nearly all grade levels and strands, Massachusetts’s standards are clear and specific, as in the following “genre” standard for grades 11-12:

Identify and analyze characteristics of genres (satire, parody, allegory, pastoral) that overlap or cut across the lines of genre classifications such as poetry, prose, drama, short story, essay, and editorial (grades 11-12)

On the rare occasions when vaguely worded standards are included, Massachusetts provides examples that clarify the expectations in useful ways, for example:

Make predictions using prior knowledge, pictures, and text

- For example, students and their teacher read together *Jump, Frog, Jump* by Robert Kalan. When each creature comes to the pond and hints at the next hazard for Frog, the teacher stops reading and asks students to use the pictures and their prior knowledge to make a prediction about what will happen next (Pre-K-K)

Such examples, coupled with the inclusion of sample lesson plans or “learning scenarios,” clarify what, precisely, students should know and be able to do.

Unfortunately, some of these excellent standards are difficult to track, due to a somewhat confusing organizational structure. As discussed above, the 2001 document provides standards by grade band only. The 2004 supplement provides additional standards, but only for grades 3, 5, and 7. While the intent of this supplement is to help teachers piece together grade-specific expectations for grades 3-8, the state doesn’t provide explicit guidance about how these standards fit together, leaving some room for interpretation.

Furthermore, no grade-specific guidance is provided for grades Pre-K-3 or 9-12.

While the standards are clear and specific, the failure to provide specific expectations for every grade, coupled with a complicated and difficult-to-navigate organizational structure, earn them two points out of three for Clarity and Specificity (see *Common Grading Metric*, Appendix A).

Content and Rigor

Content Strengths

Massachusetts’s early reading standards are strong. Careful attention has been paid to phonemic awareness, phonics, and fluency, as in the following “Beginning Reading” standards for grades Pre-K-K:

Use letter-sound knowledge to identify unfamiliar words in print and gain meaning:

- know that there is a link between letters and sounds;
- recognize letter-sound matches by naming and identifying each letter of the alphabet;
- understand that written words are composed of letters that represent sounds;
- use letter-sound matches to decode simple words (grades Pre-K-K)

In addition, the vocabulary strand is well-developed and emphasizes word analysis and etymology. Massachusetts includes a sub-strand for “Vocabulary and Concept Development,” as well as one entitled “Structure and Origins of Modern English” that highlights the development of the English language and focuses on grammar and usage.

Literary and information texts are handled separately, and each is treated thoroughly. The following standards, for example, illustrate the thorough treatment of theme in literary texts:

- Identify themes as lessons in stories, fables, and poems (grade 3)
- Identify themes as lessons in folktales, fables, and Greek myths for children (grades 3-4)
- Apply knowledge of the concept that theme refers to the main idea and meaning of a literary passage or selection when stated (grade 5)
- Apply knowledge of the concept that theme refers to the main idea and meaning of a selection, whether it is implied or stated (grades 5-6)
- Identify and supply evidence for theme in a selection (grade 7)
- Analyze and evaluate similar themes across a variety of selections, distinguishing theme from topic (grades 7-8)

The progressive rigor in the treatment of an important characteristic of literary text is evident. Many of these “theme” standards also include examples. All literary genres are covered, and nonfiction is addressed in similar detail in its own section.

Massachusetts defines the quality and complexity of texts to be read by including two exemplary reading lists, one titled “Authors, Illustrators, and Works Reflecting Our Common Literary and Cultural Heritage” and the other, “Suggested Authors and Illustrators of Contemporary American Literature and World Literature.” These lists can help ensure that students will be exposed both to quality American literature of historical significance and to significant contemporary authors from around the world.

Listening and speaking standards are rigorous, especially because of examples that consistently help clarify student expectations, as in the following “discussion” standard:

- Identify and practice techniques such as setting time limits for speakers and deadlines for decision-making to improve productivity of group discussions.
 - For example, in preparation for a student council meeting, students plan an agenda for discussion, including how long they will allow each speaker to present a case or argument. They build into their agenda time for making decisions and taking votes on key issues (grades 9-10)

Similarly, the standards for oral presentation are rigorous, addressing agreed-upon rules for formal and informal small- and large-group discussions, for “questioning, listening and contributing,” and a separate category for oral presentations where scoring rubrics for evaluation are required.

The standards for writing are comprehensive, and include formal research and the correct use of oral and written conventions. Again, examples help to indicate the level of rigor expected, as in this standard from grades 11-12:

- Write coherent compositions with a clear focus, objective presentation of alternate views, rich detail, well-developed paragraphs, and logical argumentation.
 - For example, students compose an essay for their English and American history classes on de Toqueville’s observations of American life in the 1830s, examining whether his characterization of American society is still applicable today (grades 11-12)

Research and media (both their analysis and production) are carefully addressed, and standards for media begin as early as Pre-K, as in the following:

- Identify techniques used in television (animation, close-ups, wide-angle shots, sound effects, music, graphics) and use knowledge of these techniques to distinguish between facts and misleading information (grades Pre-K-2)

Introducing this concept early is likely to help Massachusetts students’ careful discernment when viewing media as older students and adults.

In short, virtually all essential content is included and covered well.

Content Weaknesses

Considering the strengths of the composition standards, it is surprising that Massachusetts does not expect students to write a coherent paragraph until grade 5. Students are certainly capable of this important skill in fourth and even third

grade, and should be expected to exhibit it particularly since the standards ask students to write multi-paragraph reports in grade 5.

Where writing is concerned, the development and use of criteria for its evaluation is referenced several times, but no student writing samples are included to illustrate expected levels of rigor and proficiency.

These minor shortcomings are dwarfed by the inclusion of detailed, specific, and rigorous content throughout the grades. Consequently, Massachusetts easily earns seven points out of seven for Content and Rigor. (See *Common Grading Metric*, Appendix A.)

The Bottom Line

Massachusetts's existing standards are clearer, more thorough, and easier to read than the Common Core standards. Essential content is grouped more logically, so that standards addressing inextricably linked characteristics, such as themes in literary texts, can be found together rather than spread across strands. In addition, Massachusetts frequently uses standard-specific examples to clarify expectations. Unlike the Common Core, Massachusetts's standards treat both literary and non-literary texts in systematic detail throughout the document, addressing the specific genres, sub-genres, and characteristics of both text types. While both sets of standards address American literature and append lists of exemplar texts, Massachusetts's reading list is far more comprehensive. Standards addressing vocabulary development and grammar are also more detailed and rigorous in the Massachusetts document.

On the other hand, Common Core includes samples of student writing to clarify grade- and genre-specific writing expectations. In addition, the Common Core standards explicitly address foundational U.S. documents. Such enhancements would benefit Massachusetts's already-strong standards.

Massachusetts 2010 Draft Standards Comparison

DOCUMENTS COMPARED

WORKING DRAFT: Massachusetts English Language Arts Curriculum Framework. June 2010.
Accessed from: <http://www.doe.mass.edu/frameworks/ela/o610draft.pdf>

--COMPARED TO--

Massachusetts English Language Arts Curriculum Framework. 2001.
Accessed from: <http://www.doe.mass.edu/frameworks/current.html>

Supplement to Massachusetts English Language Arts Curriculum Framework. 2004.
Accessed from: <http://www.doe.mass.edu/frameworks/current.html>

Overview

The 2010 draft ELA standards have improved upon already clear and rigorous expectations without losing any of the essential content that was included in the original. The organization of the draft standards is clearer, and most of the few gaps that existed have been addressed.

Comparison

Improvements

The organization of the 2010 draft is dramatically improved. Grade-specific standards are now presented for all grades in a single, coherent document.

By more clearly delineating grade-specific standards, the 2010 draft has also more clearly defined the progression of content and rigor across all strands. While many states slip into repetition across grades, this draft makes meaningful distinctions in every strand from one grade to the next.

The 2010 draft also includes several small enhancements that further strengthen Massachusetts’s already-excellent expectations. For example, while the 2001 document included standards addressing “discussion and presentation” within the Language strand, the 2010 draft devotes a separate strand to “discussion and presentation.” Within this strand, the state has more clearly and rigorously defined standards for discussion, group work, and oral presentation.

Each genre of writing is also now addressed in its own sub-strand, making genre-specific expectations even clearer, more detailed, and rigorous.

Finally, the draft standards have addressed the two minor weaknesses that were noted (above) in the 2001 document. They now include expectations that specifically address foundational U.S. documents, and they require students to write a coherent paragraph in third grade.

No Change

All of the strengths that existed in the 2001 document remain, or have been improved and enhanced, in the 2010 update. For example, the standards continue to include helpful examples to clarify the intent and rigor of the standards, as in these from various strands:

- Identify the sense (touch, hearing, sight, taste, smell, and taste) implied in words appealing to the senses (fiction, grade 1)
- Analyze the function of character types (e.g., antagonist, protagonist, foil, tragic hero) (fiction, grade 9)
- Identify the type of evidence used to support a claim in a persuasive text (e.g., scientific research evidence, anecdotal evidence based on personal knowledge, or the discipline-based opinion of experts) (nonfiction, grade 5)

In addition, the reading, writing, grammar, and research standards remain clear, specific, and rigorous.

The one gap that remains in the 2010 draft is the continued absence of exemplar student writing samples that could further clarify writing expectations across grade levels.

The Bottom Line

The 2001 edition of the Massachusetts ELA standards were already among the best in the nation. The 2010 draft manages to further strengthen these standards without losing any of the essential content or clarity. These standards are a model of clear, rigorous K-12 ELA content and expectations.

¹ Massachusetts’s curriculum frameworks have not changed since Fordham’s last evaluation, the *State of State English Standards 2005*. However, the evaluation criteria that we used to judge the 2010 standards have been substantially revised and improved since 2005. (See Appendix C for a complete explanation of changes in criteria.) Through this new lens, Massachusetts’s ELA grade went from an A in 2005 to an A-minus in 2010. The complete 2005 review can be found here: http://www.edexcellence.net/detail/news.cfm?news_id=337&pubsubid=1048#1048.

Massachusetts • Mathematics

As the National Governors Association and Council of Chief State Schools Officers were working on drafts of the Common Core standards, Massachusetts was working to update and improve its existing mathematics standards as well. This presents Bay State officials with a complex choice among the Common Core standards, their existing standards, or their newly revised draft.

In order to help inform that decision, we have included a complete review of the current standards, as well as an analysis of the changes and improvements that can be found in the 2010 draft.

Current Massachusetts Standards

DOCUMENTS REVIEWED¹

Massachusetts Mathematics Curriculum Framework. November 2000.
Accessed from: <http://www.doe.mass.edu/omste/ca.html>

Supplement to Massachusetts Mathematics Curriculum Framework. 2004.
Accessed from: <http://www.doe.mass.edu/omste/ca.html>

Overview

Massachusetts's K-8 standards are well organized and easy to read. In the elementary grades, arithmetic is moderately prioritized and, while some of its development is excellent, there are also some issues. The high school material is often strong, but these standards are too broadly stated, and some essential content is not covered.



Clarity and Specificity: 2/3
Content and Rigor: 6/7
Total State Score: 8/10
(Common Core Grade: A-)

General Organization

Massachusetts's standards are presented in two documents: a standards document (written in 2000) and a supplement (added in 2004). In both documents, the K-12 standards are organized into five content strands such as Number Sense and Operations and Geometry.

The 2000 document divides these strands into standards for grade bands from Pre-K-K through 11-12. The 2004 supplement adds grade-specific standards for grades 3, 5, and 7.

In addition to the grades 9-10 and 11-12 standards referenced above, the high school material includes separate standards for Algebra I and II, Geometry, and Pre-Calculus.

Clarity and Specificity

The standards are generally well presented and easy to read. Many are clear and concise, such as:

- Identify angles as acute, right, or obtuse (grade 4)
- Find and position whole numbers, positive fractions, positive mixed numbers, and positive decimals on a number line (grade 5)

Clarifications and examples are provided for some standards, though their use is not consistent and sometimes the examples do not relate to the standard.

Some standards, particularly in high school, are so broadly stated that it is unclear what students are expected to know and what kinds of problems they should be able to solve, for example:

- Describe, complete, extend, analyze, generalize, and create a wide variety of patterns, including iterative and recursive patterns such as Pascal's Triangle (grades 11-12)
- Perform operations on functions, including composition. Find inverses of functions (grades 11-12)

In addition, the presentation of the standards is confusing, because standards are spread across two separate documents, making the progression of content difficult to track.

The shortcomings described above detract from the overall clarity of the standards, thus earning the standards two points out of three for Clarity and Specificity. (See *Common Grading Metric*, Appendix A.)

Content and Rigor

Content Priorities

While Massachusetts does not explicitly prioritize its standards, by counting the number of standards devoted to various topics, it is possible to determine which content is considered most important. By that gauge, arithmetic is moderately prioritized, comprising about 40 percent of the standards in the crucial elementary grades.

Content Strengths

The standard algorithms for addition, subtraction, and multiplication are made explicit:

- Demonstrate in the classroom an understanding of and the ability to use the conventional algorithms for addition (two 3-digit numbers and three 2-digit numbers) and subtraction (two 3-digit numbers) (grade 2)

The structure of arithmetic is well and thoughtfully covered. For example, the standards introduce the inverse nature of addition and subtraction in grade 2 and then revisit it in grades 5-8, as shown below:

- Understand and use the inverse relationship between addition and subtraction (e.g., $8 + 6 = 14$ is equivalent to $14 - 6 = 8$ and is also equivalent to $14 - 8 = 6$) to solve problems and check solutions (grade 2)
- Demonstrate an understanding of the inverse relationship of addition and subtraction, and use that understanding to simplify computation and solve problems (grade 5)

The number line is introduced early and emphasized throughout. Fractions are continually located on the number line in grades 2-6, starting with:

- Identify and represent common fractions ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$) as parts of wholes, parts of groups, and numbers on the number line (grade 2)

The geometry standards cover content reasonably well. Proofs are required and postulates are mentioned, although in a rather densely written standard:

- Write simple proofs of theorems in geometric situations, such as theorems about congruent and similar figures, parallel or perpendicular lines. Distinguish between postulates and theorems. Use inductive and deductive reasoning, as well as proof by contradiction. Given a conditional statement, write its inverse, converse, and contrapositive (Geometry)

There are some solid standards for quadratic equations:

- Find solutions to quadratic equations (with real roots) by factoring, completing the square, or using the quadratic formula.
- Demonstrate an understanding of the equivalence of the methods (grades 9-10)

In addition, most of the STEM-ready content is covered.

Content Weaknesses

Some of the development of whole-number arithmetic is not quite rigorous enough. In particular, automaticity with the basic number facts is not explicitly required.

The standard algorithm is barely applied to division, with only a single-digit divisor:

Demonstrate in the classroom an understanding of and the ability to use the conventional algorithm for division of up to a three-digit whole number with a single-digit divisor (with or without remainders) (grade 4)

By failing to require students to divide using numbers greater than single-digit divisors, this standard is woefully inadequate.

The standards do not mention common denominators.

In high school, there are some gaps in content. The coverage of linear equations is missing some content, including standard form, and finding the equation of a line between two points. For quadratics, the general theory is not well developed. The vertex form and symmetry are not developed and max/min problems are not specifically included.

While proofs are mentioned in geometry, it is not specified that the major theorems are to be proven; instead, they are only to be used or applied, for example:

Apply properties of angles, parallel lines, arcs, radii, chords, tangents, and secants to solve problems (Geometry)

The arithmetic of rational expressions is not covered and the STEM-ready content does not mention inverse trigonometric functions. The following standard may include them but is not specific enough to interpret:

Perform operations on functions, including composition. Find inverses of functions (grades 11-12)

Taken together, the omissions and shortcomings mentioned above leave Massachusetts with a Content and Rigor score of six points out of seven. (See *Common Grading Metric*, Appendix A.)

The Bottom Line

With minor differences, Common Core and Massachusetts both cover the essential content for a rigorous K-12 mathematics program. Massachusetts's standards are generally clear, briefly stated, and often further clarified with the use of examples and other explanatory material. These enhancements make Massachusetts's standards easier to read and follow than Common Core. What's more, in Massachusetts, the standards presented for high school courses tend to be better organized than the Common Core.

Massachusetts and Common Core have things to learn from each other in high school geometry. Common Core covers some high school algebra content that is missing from the Massachusetts standards, and it excels in the coverage of arithmetic. Finally, Massachusetts's standards lack the admirable focus of Common Core in the early grades, and would benefit from the careful guidance that Common Core gives on fractions.

Massachusetts 2010 Draft Standards Comparison

DOCUMENTS COMPARED

WORKING DRAFT: *Massachusetts Mathematics Curriculum Framework*. June 2010.
Accessed from: <http://www.doe.mass.edu/frameworks/math/o610draft.pdf>

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Massachusetts Mathematics Curriculum Framework. November 2000.
Accessed from: <http://www.doe.mass.edu/omste/ca.html>

Supplement to Massachusetts Mathematics Curriculum Framework. 2004.
Accessed from: <http://www.doe.mass.edu/omste/ca.html>

Overview

The draft 2010 mathematics standards address several of the content and clarity gaps in the existing standards. Unfortunately, some of those improvements have been offset by the deterioration in the coverage of important content.

Comparison

Improvements

The organization of the 2010 draft has improved dramatically. In the current document, grade-specific standards can be pieced together for grades 3-8, but those standards are presented in two different documents, making them difficult to read and the progression of content difficult to track. The 2010 draft is far more readable. Grade-specific standards are presented for all grades in a single, coherent document.

In addition, the number of standards has been reduced, and the share devoted to arithmetic in the crucial elementary grades has increased. This is an excellent improvement.

The 2010 draft also addresses some of the content gaps in the current standards, including: proof of the Pythagorean Theorem, the equation of a line going through two points, and max/min for quadratic functions.

The knowledge of number facts has improved significantly. Whereas the existing standards don't explicitly require students to have automaticity with the basic facts, the new standards include the following:

- Know addition facts (addends to ten) and related subtraction facts to automaticity (grade 1)
- Know multiplication facts and related division facts through 12 x 12 to automaticity (grade 4)

No Change

Some content gaps in the existing standards have not been addressed, including: common denominators, inverse trigonometric functions, vertex form for quadratic functions, division for polynomials, and the arithmetic of rational expressions. These remain serious oversights.

New Shortcomings

While the 2010 draft makes several admirable improvements as noted above, it also introduces some new problems. Specifically, while the expectations for the number facts have improved, the goals for subsequent whole-number arithmetic have been weakened. The addition and subtraction sequence of standards in the current version is:

Demonstrate in the classroom an understanding of and the ability to use the conventional algorithms for addition (two 3-digit numbers and three 2-digit numbers) and subtraction (two 3-digit numbers) (grade 2)

Add and subtract (up to four-digit numbers) and multiply (up to two-digit numbers by a one-digit number) accurately and efficiently (grade 3)

Observe above the requirement that conventional algorithms are to be learned. In the new draft, however, this sequence has changed to:

Add three-digit numbers accurately and efficiently in a variety of ways, including use of the conventional algorithm (grade 2)

Add and subtract up to five-digit numbers accurately and efficiently. Include the conventional algorithm with and without regrouping (grade 3)

Here, the conventional algorithm is included along with unspecified other methods. This undermines students' learning fluency with the standard algorithms.

Similar standards exist for multiplication. Fraction arithmetic in the current standards is done in a straightforward way without mentioning methods. The new draft again includes the unnecessary and undermining "variety of strategies":

Using a variety of strategies, multiply positive fractions with whole numbers (grade 5)

The Bottom Line

The improvements in the new draft are substantial but these are offset to some extent by weaker threads for whole-number arithmetic and the arithmetic of fractions, material that forms the foundation of K-12 mathematics. Both versions omit some important mathematics.

¹ Massachusetts's curriculum frameworks have not changed since Fordham's last evaluation, the *State of State Math Standards 2005*. However, the evaluation criteria that we used to judge the 2010 standards have been substantially revised and improved since 2005. (See Appendix C for a complete explanation of changes in criteria.) Through this new lens, Massachusetts's math grade went from an A in 2005 to a B-plus in 2010. The complete 2005 review can be found here: http://www.edexcellence.net/detail/news.cfm?news_id=338&pubsubid=1163#1163.