



**Final Report**

**Massachusetts  
English Language  
Arts/Literacy and  
Mathematics  
Curriculum  
Frameworks  
Review**

**Contract #21803**

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## Executive Summary

With a national reputation for high standards and a rigorous assessment system, Massachusetts now faces a critical transition. The Massachusetts Board of Elementary and Secondary Education's December 2015 decision to develop a new state assessment (Next-Generation MCAS) brought with it the opportunity to improve the 2011 state standards for ELA/Literacy and mathematics, five years after their adoption. Massachusetts has revised its standards several times since 1995, when the first curriculum frameworks were adopted. For revisions to the standards to inform the design of the state assessment, however, the timeline for the revision process had to be condensed to occur from January 2016-March/April 2017.

To ensure that both the revised standards and the new assessment system are high quality, the Department has continued its longstanding practice of soliciting and using stakeholders' content expertise and knowledge of standards implementation to inform the revision of the standards and assessment system. Balancing the various opportunities and constraints presented by this timeline, the Department initiated a three-phase process for standards revisions, as described below:

- **Phase 1 (January-July 2016):** The Department engaged stakeholders through various methods, gathered recommendations for revisions, began applying the suggestions to the standards document as proposed changes and continued an iterative process of receiving feedback from stakeholders;
- **Phase 2 (August-October 2016):** The Department refined revisions and engaged content advisors to inform proposed revisions for Board consideration and discussion in October; and
- **Phase 3 (November 2016-March/April 2017):** The Department will incorporate Board feedback on proposed revisions from BESE's October meeting and present drafts reflecting that feedback to the Board in November for its vote to release the drafts of the Frameworks documents for public comment. From December through March or April, the Department will conduct a public comment period, synthesize public comment, make final revisions and bring the final ELA/Literacy and Mathematics Frameworks documents before the Board for a vote of formal adoption.

Abt Associates has prepared this report to inform the Board about the standards review process conducted to date, and to assist the Board in its efforts to consider and incorporate feedback and guidance obtained from key stakeholders. In the following sections, we summarize the standards revision process, describe the stakeholder feedback and from whom it was collected, provide an analysis of the feedback and describe how the major themes for the revisions in ELA/literacy and mathematics emerged.

### Phase 1: Methods for Collecting Stakeholder Feedback

Phase 1 began with the Department conducting outreach to establish both a statewide English Language Arts (ELA) and Literacy and Mathematics Standards Review Panel (Review Panel) and an online survey. The English Language Arts/Literacy and Mathematics Standards Review Panel's members were charged with developing evidence-based recommendations to refine the 2011 ELA/Literacy and Mathematics standards based on lessons learned during Massachusetts' implementation over the previous five years. In early February 2016, ESE selected 43 Panelists from across the state; 20 Panelists brought expertise in ELA/Literacy and 23 in mathematics. In addition, the Department created and posted an online survey to solicit public input on the ELA/Literacy and Mathematics Curriculum Frameworks. Aligned with the purpose of the Review Panel, the survey was designed to provide educators across the Commonwealth an

opportunity to share lessons learned from implementing the 2011 ELA/literacy and mathematics standards.

The survey and Review Panel each yielded valuable feedback about potential revisions to the ELA/literacy and mathematics standards. Over the course of four different day-long meetings between February and July, members of the Review Panel met to review feedback from the online survey and discuss potential revisions to the standards. Department staff asked Panel members to provide feedback on several topics for potential revisions in ELA/literacy, including: the quantity and rigor of pre-kindergarten through grade 5 standards, the clarity and appropriateness of language standards, especially in the early and middle years, the level of attention paid to motor processes of writing, the modification of the Massachusetts-specific standards focused on identifying and analyzing literary works and on writing in different literary genres to make the genres less limited and/or the grade level expectations less specific, clarification of the coherent progression of middle school reading standards as well as clarity about the integration of various media, the modification of the “Text Types and Purposes” cluster of writing standards to prevent the standards from being too rigid in defining modes of writing, modification of the standards relating to narrative writing, and the standards for literacy in the content areas to make clear the role of ELA teachers working with informational text related to other disciplines, and consideration of removing or reducing the references to United States history in the ELA standards.

In mathematics, the Department asked Panel members to provide feedback on several topics for potential revision, including: 1) whether or not there were aspects of the PK-5 standards that could be reduced, 2) if K-3 standards were missing some critical components (such as time and money, patterns), 3) whether there were aspects of the 6-8 standards that could be reduced, 4) if adjustments should be made to critical content in the grades 6-8 standards, and 5) how the scope of high school standards might be reduced (e.g. the scope of Algebra I, concepts related to complex numbers and matrices, whether the scope of statistics be reduced and/or moved to different courses).

## **Phase 2: Refine Revisions and Engage Content Advisors**

In Phase 2 of the standards review process, the Department documented and summarized survey responses and Review Panel feedback from Phase 1, followed by the development of a systematic approach to vetting and refining the proposed revisions in preparation for Board consideration. To lead this phase of the process, in July 2016, the Department engaged two experienced and widely-respected former staff members, Barbara Libby and Susan Whelittle to lead the revision process in mathematics and ELA/literacy, respectively. Barbara Libby is the retired Director of the ESE Office of Science, Technology/Engineering and Mathematics and Susan Whelittle is the retired Director of the Office of Literacy and Humanities. Libby and Whelittle led ESE’s previous frameworks writing and review panels in 1995-97, 2000-2004, and 2007-2010.

Libby and Whelittle, together with current members of the ELA/literacy and mathematics staff from the Department, reviewed the Phase 1 revisions proposed for mathematics and ELA/literacy, respectively. The ESE ELA/literacy and mathematics teams then identified both major issues and detailed changes being considered for recommendation in each content area.

In ELA/literacy, the Department team identified the following major categories in the revisions:

- Integrated the content from two PK-12 Reading and Writing standards added by Massachusetts in 2010 into other standards, thereby reducing the overall number of standards

- Edited standards to create greater clarity and smoother progressions in complexity, PK-12
- Made explicit cross-references among standards to increase coherence
- Revised and expanded the glossary to provide a stronger resource for definitions of terms related to early literacy, writing, reading, language, and Standard English conventions

In math, Department staff identified the following major categories for possible revisions emerging from Phase 1 activities:

- Improvements in clarity and inclusion of definitions for key mathematical terms to ensure consistency in the language of the standards;
- The development of customized descriptions of the eight PK-12 Standards for Mathematical Practice by grade-spans, PK-5; 6-8; and high school level;
- Additional guidance that presents middle and high school options for course sequencing, including pathways to Algebra I in grade 8 and to calculus by grade 12.

As staff at the Department began to refine the revisions to standards that had been proposed by Panelists and survey respondents in Phase 1, they recognized the potential value of having this work reviewed by an additional set of advisors who possessed deep content area expertise as well as prior experience in reviewing and supporting implementation of state standards. In August 2016, the Department established two groups of content advisors, one for ELA/literacy and one for mathematics, whose members consisted of educators from Massachusetts public and private institutions of higher education, K-12 educators and individuals with experience supporting elementary and secondary educators' instruction.

The content advisors met for two separate day-long meetings (one for ELA/literacy and one for mathematics) on September 15 and 16, 2016. The content advisors were asked to review draft revisions and draw on their own content expertise and professional experience to provide guidance and suggestions. ELA/literacy advisors made the following recommendations: maintain the strength of the standards, improve the clarity of some standards, support implementation with links to guidance documents and resources, improve information about text complexity, preserve strong progressions in Reading Literature Standards, highlight integration in types of writing, make stronger connections among the Language, Writing and Reading standards, and encourage teaching of literacy in subjects other than English.

Similar to the ELA/literacy advisors, the mathematics advisors made the following recommendations: maintain the strength of the standards, improve the clarity of some standards, and support implementation by linking existing ESE resources and guidance documents to digital versions of the revised Frameworks. In addition, mathematics advisors, had content-specific suggestions, including: keep the Math Pathways guidance document in the revised Framework, keep the (+) standards in the Model High School courses, no need to develop a model statistics or calculus course now, add guidance and rationale for statistics, keep current language for “fluently” and “know by memory,” clarify the Ratio, Rate and Proportional Reasoning Progression in grade 6-7, redesign the grade-span descriptions of the 8 Standards for Mathematical Practice.

The Department's ELA/literacy and mathematics standards review teams have incorporated the content advisors' feedback into the summaries of revisions to be presented to the Board at its October 2016 meeting. The summaries will be presented in two documents: one that presents major issues and one that presents the details of revisions by grade level with the original and revised wording of the standards

followed by rationales for the changes. The summary documents, therefore, will reflect the work of ESE's ELA/literacy and mathematics standards review teams, led by Wheltle and Libby, to synthesize and incorporate the deliberations of the Review Panels and content advisors conducted during Phases 1 and 2 of the review process.

### **Phase 3: Soliciting Public Comment and Adopting Revisions**

The 2016 standards revision process, while not a wholesale revision of standards, has provided a strategic opportunity to make improvements to the standards based on five years' of experience of implementation. In Phase 3, The Department will incorporate Board feedback on proposed revisions from BESE's October 2016 meeting and will present full drafts to the Board in November for its vote to release the drafts of the Frameworks documents for public comment. From December 2016 through March or April 2017, the Department will conduct a public comment period, synthesize public comment, make final revisions and bring the completed ELA/Literacy and Mathematics Frameworks documents to the Board for adoption.

## **1. Introduction and Overview**

In December 2015, following a vote to develop a new state assessment system (Next-Generation MCAS), the Massachusetts Board of Elementary and Secondary Education (BESE) directed the Department of Elementary and Secondary Education (ESE) to consult with K-16 educators, curriculum specialists, and others to help identify recommendations for potential improvements to the Massachusetts English Language Arts (ELA) and Literacy and Mathematics Curriculum Frameworks based on lessons learned from implementation of the standards over the previous five years. As part of the development of the Next-Generation MCAS, the Board established the Assessment Oversight Committee for school year 2015-16, which was charged with providing direction for the project, monitoring its progress, receiving recommendations from the various workgroups, and making periodic reports to the full BESE. The oversight committee was chaired by Board member Roland Fryer, and included Penny Noyce (vice chair), Secretary of Education James Peysner, Board Chair Paul Sagan, and Donald Willyard; it provided coordination of both the standards review and assessment development efforts.

The development of the new assessment presented the Board with a logical opportunity to solicit input on potential improvements to the standards based on the first five years of implementation of the current standards. Since the Department wished to use revised and improved standards as the basis for development of Next-Generation MCAS items, the standards review process needed to be completed according to an expedited timeline.

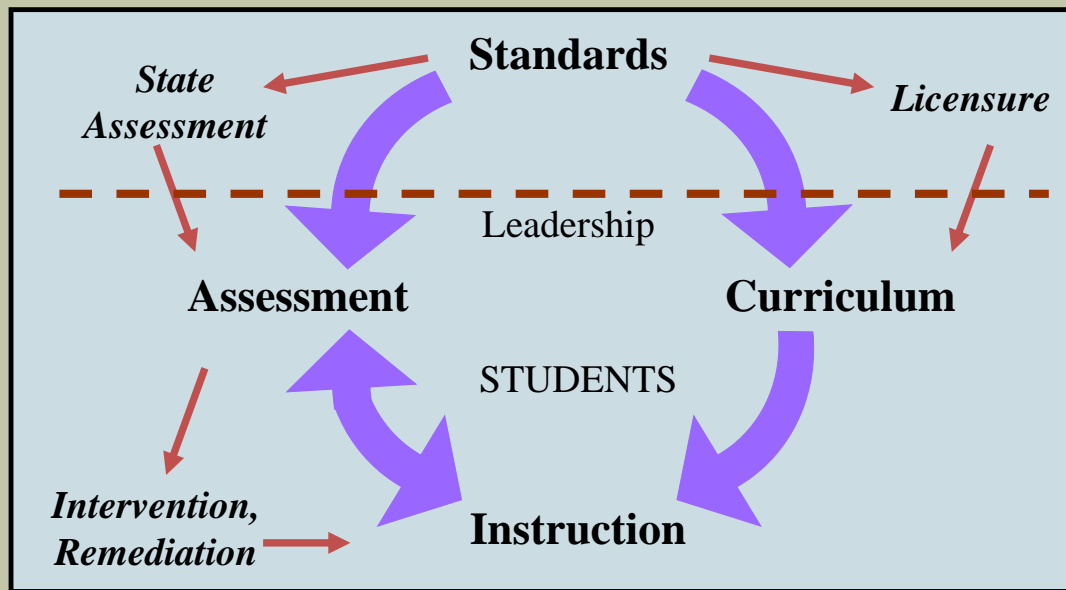
Balancing the various opportunities and constraints presented by this timeline, the Department initiated a process for standards revisions, as described below:

- **Phase 1 (January-July 2016):** The Department engaged stakeholders through various methods, gathered recommendations for revisions, began applying the suggestions to the standards document as proposed changes and continued an iterative process of receiving of feedback from stakeholders;
- **Phase 2 (August-October 2016):** The Department refined revisions and engaged content advisors to inform proposed revisions for Board consideration and discussion in October; and
- **Phase 3 (November 2016-March/April 2017):** The Department will incorporate Board feedback on proposed revisions from BESE's October 2016 meeting and will present drafts reflecting that feedback to the Board for its November 2016 vote to release the drafts of the Frameworks documents for public comment. From December 2016 through March or April 2017, the Department will conduct a public comment period, synthesize public comment, make final revisions and bring the final ELA/Literacy and Mathematics Frameworks documents before the Board for a vote of formal adoption.

**What are Standards and Curriculum Frameworks?**

The Massachusetts Education Reform Act of 1993 defined standards as a set of statewide educational goals for students in grades kindergarten through twelve that clearly set forth the skills, competencies and knowledge expected to be possessed by all students at the conclusion of individual grades or clusters of grades. The Department developed the Curriculum Frameworks documents to provide guidance for the implementation of standards. The Frameworks begin with a vision statement, provide Guiding Principles for effective programs, describe the structure, organization and key features of the standards and present the learning standards at each grade level or span. The Frameworks documents also include materials to help educators implement the standards. The Department created the diagram below to describe the role standards play in a standards based system.

**A Standards-Based System**



Massachusetts Department of Elementary and Secondary Education

The diagram indicates that standards establish learning goals, but do not dictate how educators may teach to achieve these goals with their students. The standards and state assessment, indicated above the dotted line in the diagram above, are determined at the state level. The topics that appear below the dotted line: how teachers teach a given topic (curriculum and instruction) and assess students' progress toward meeting the learning standards on an ongoing basis (assessment), are determined at the local level.



### Brief History of Massachusetts Curriculum Frameworks

*Massachusetts was one of the first states to implement standards-based reform with the enactment of the Massachusetts Education Reform Act (MERA) in 1993 and is widely considered a national leader in developing rigorous curriculum standards with a clear progression of knowledge and skills over time. In collaboration with educators across the state, the Department first developed curriculum standards and frameworks in mathematics and ELA that were adopted in 1995 and 1997 respectively. ESE subsequently engaged review panels in revising the Frameworks that were adopted in 2000 (mathematics) and 2001 (ELA). Supplements were adopted in 2004, and a new round of review and revision took place between 2007 and 2010.*

*In 2009, the National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO) started their effort to write a set of multi-state standards, which became known as the Common Core State Standards. The work of Massachusetts' review panels was deliberately coordinated with the NGA's and CCSSO's effort. Massachusetts then played a key role in the development of these standards. Six of ESE's staff members were invited by CCSSO and NGA to serve on the Common Core State Standards Development Teams; and 14 Massachusetts scholars and educators contributed their expertise to reviewing successive drafts in order to shape Massachusetts' written comments to CCSSO and NGA.*

*In June 2010, the Board voted to adopt the Common Core State Standards (CCSS) for English Language Arts and Literacy and Mathematics. As part of that adoption, Massachusetts was required to accept 100 percent of the CCSS verbatim, but was allowed to add 15 percent in additional standards. Massachusetts opted to add 22 of its own standards in mathematics and 24 Massachusetts-specific standards in ELA.*

In June 2016, in response to discussions in the Assessment Oversight Committee, the Executive Office of Education (EOE) retained Abt Associates to provide independent documentation of the standards review process and to provide limited research support to the Department in response to staffing changes.<sup>1</sup>

With a national reputation for high standards and a rigorous assessment system, Massachusetts now faces a critical transition. To ensure that both the updated standards and the new assessment system are high quality, the Department has continued its longstanding practice of soliciting and using stakeholders' content expertise and knowledge of standards implementation to inform the revision of the standards and assessment system. Abt Associates has prepared this report to inform the Board of the standards review process that has been conducted to date and to assist the Board in considering and incorporating this feedback and guidance from key stakeholders. In the following sections, we summarize the standards revision process, describe the stakeholder feedback and from whom it was collected, provide an analysis of the feedback and describe how the major themes for the revisions in ELA and mathematics emerged.

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<sup>1</sup> In the summer of 2016, the following staff left ESE: Senior Associate Commissioner for Curriculum and Instruction, Acting Director of Science, Technology/Engineering and Mathematics (STEM) and Math Content Lead for the Model Curriculum Project, all of whom had been leaders of the standards revision process.

Massachusetts Standards Review Process		Start and End Dates	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
<b>Phase 1</b>		<b>Winter-Spring 2016</b>															
Department solicits applications for Review Panel		Early Jan. 2016	█														
Review Panel responses due		Late Jan. 2016	█														
Review Panel member selected		Early Feb. 2016		█													
Online survey posted		Early Feb. 2016		█													
First Review Panel meeting		Feb. 26, 2016		█													
Second Review Panel meeting		Apr. 13, 2016				█											
Third Review Panel meeting		Jun. 3, 2016						█									
Fourth Review Panel meeting		Jul. 7, 2016							█								
<b>Phase 2</b>		<b>Summer-Fall 2016</b>															
Online survey closed		Sept. 2016									█						
ELA/Literacy and Math content advisors meetings		Sept. 15-16, 2016									█						
Presentation to BESE of standards revision process and major categories for revisions informed by Phases 1 and 2		Oct. 24, 2016										█					
<b>Phase 3</b>		<b>Fall-Winter 2017</b>															
Department presents drafts of proposed revisions to the Board for a vote to release revisions for public comment; conduct public comment period, synthesize public comment; make final revisions and bring before the Board to vote.		Nov.-Mar. 2017											█	█	█	█	█

## **2. The Standards Revision Process**

Phase 1 of the revision process began with the Department engaging in two main activities: establishing a Review Panel, consisting of K-12 practitioners and a small number of higher education faculty, and posting an online survey on the Department’s website. Phase 2, currently in progress, has involved Department staff refining revisions made in response to feedback gathered from stakeholders throughout Phase 1, creating first drafts of revisions, and consulting a group of content advisors in mathematics and ELA/literacy on those drafts.

This report, along with summaries of proposed revisions prepared by ESE staff, represents the culminating activity of Phase 2. Taken together, this report and the summaries provide for the Board’s consideration a description of the process by which revisions were made, an overview of the proposed changes to standards and samples of the content of the revisions themselves.

In Phase 3, to begin in November 2016, Department staff will present full drafts of the revised frameworks in ELA/literacy and mathematics and the Board will be asked to vote to release the revisions for a 60-day public comment period. At the end of the public comment period, the Department will incorporate public comments in its final revisions and present the final revised frameworks to the Board for a vote to adopt them. The graphic below summarizes the process and the following sections describe each component of these phases in more detail.

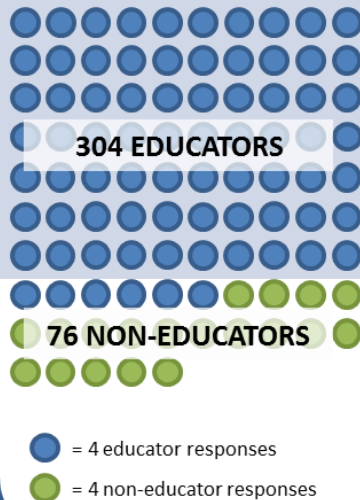
# MA ELA/Literacy and Mathematics Standards Review Process

**GOAL:** Articulate evidenced recommendations to refine the 2011 ELA and mathematics standards based on lessons learned during Massachusetts' implementation over the past 5 years

## Public Survey

Open from February to mid-September 2016, the online survey captured public opinion about and recommended revisions to the 2011 ELA and math standards. The responses helped to inform Standards Review Panel discussion.

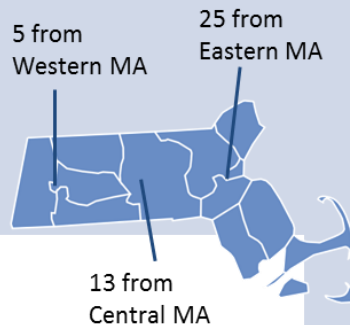
### 380 SURVEY RESPONSES



## Standards Review Panel

20 ELA and 23 math panelists were selected to make recommendations for revisions to the 2011 standards. The review panels convened four times from February to July to consider the public input and recommend and review the revisions to the standards.

### 43 REVIEW PANEL MEMBERS FROM ACROSS THE COMMONWEALTH



ELA	MATH
20 PANELISTS	23 PANELISTS

## Content Advisory Group

7 ELA and 6 Math content advisory groups each convened for one day to review and refine the proposed revisions to the 2011 standards recommended by the review panel. The content advisors also discussed the implications of the revisions for educators and students across the state.

### 13 CONTENT AREA ADVISORS

ELA	
4	Professors from MA Colleges & Universities
2	Expert Consultants
1	District/School Leadership
MATH	
3	Professors from MA Colleges & Universities
2	Expert Consultants
1	District/School Leadership



## 2.1 Phase 1: Methods for Collecting Stakeholder Feedback

Phase 1 began with the Department conducting outreach to establish both a statewide English Language Arts (ELA) and Literacy and Mathematics Standards Review Panel (Review Panel) and an online survey.

### 2.1.1 English Language Arts (ELA)/Literacy and Mathematics Standards Review Panel Established

In early January 2016, the Department solicited applications for participation in the English Language Arts/Literacy and Mathematics Standards Review Panel, whose members were charged with developing evidence-based recommendations to refine the 2011 ELA/Literacy and Mathematics standards based on lessons learned during Massachusetts' implementation over the previous five years. To identify potential Review Panel members, the Department conducted outreach to various organizations and individuals across the Commonwealth, each of which is listed in Appendix A. In addition, the Department shared the invitation to apply to the Review Panel in the Commissioner's "Weekly Update" in January and February, and other offices throughout the Department (e.g., STEM) sent notice of the opportunity via their listservs. The Commissioner solicited potential candidates through the Board, and received nominations from several organizations and individuals that had expressed interest in the standards review process.

The Department reported that during the first three weeks of January 2016, it received applications and résumés from 126 individuals. The Department considered various criteria when selecting Review Panel members, including subject matter expertise and demonstrated experience in English language arts/literacy and math over the past five years. The Department also identified applications from educators with knowledge of working with special populations of students, such as English learners and students with disabilities. In addition, the Department took into consideration the grade levels with which Panel members had experience, to ensure a balance of expertise across grades: elementary (kindergarten through fifth grade), middle school (sixth through eighth grade), high school (ninth through twelfth grades), and higher education, and also considered some applicants with experience across several grade spans. In addition, the Department considered geographic representation from across the Commonwealth: Eastern, Central, and Western Massachusetts. The Department also sought members from a range of district types, including: urban, suburban/rural, charter and regional/vocational technical.

ESE analyzed the pool of applicants to ensure members represented a balance of the categories described above and then reviewed individual résumés. The factors in the résumé review included: length of experience in schools, to ensure a mix of new and experienced educators; training and/or degrees earned in ELA/literacy or math fields; teaching and/or leadership experience in ELA/literacy and math; and prior engagement with Department initiatives such as MCAS development, standards development/revisions, and the Massachusetts PARCC Fellow Program<sup>2</sup>. Where possible, the Department sought out applicants who simultaneously represented several of the categories described above.

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<sup>2</sup> The PARCC Educator Leader Fellows Program was instituted in 2012 to use the expertise of approximately 40 experienced P-16 educators in communications and professional development about the 2011 Curriculum Frameworks for Mathematics and English Language Arts and Literacy, the new question types and formats that would appear in the PARCC assessments between 2014 and 2016, and computer-based assessments. The program ceased in 2016 after the Board vote to develop the Next-Generation MCAS. In 2016, several former PARCC Fellows served on Department working groups, including the Standards Review Panel and the Panel on High School Testing.

The Department also applied exclusion criteria for individuals with any actual or perceived conflict of interest. In addition, ESE initially intended to select only Review Panel members who were not simultaneously participating in another work group related to the development of the Next-Generation MCAS, but that criterion was reconsidered and a few Panel members ultimately served on multiple work groups.<sup>3</sup>

In early February 2016, ESE selected 43 Panelists from across the state. Twenty Panelists brought expertise in ELA/Literacy and 23 in mathematics. A complete list of Review Panel members and their categories of experience can be found in Appendix B. Review Panel members consisted of 14 teachers; three principals/assistant principals; 18 department heads, coaches, directors or coordinators; one assistant superintendent and seven higher education faculty. Of these, 21 represented Eastern Massachusetts, 10 represented Central Massachusetts and four represented Western Massachusetts. Ten Panelists were from urban districts, 21 were from rural or suburban districts, one was from a charter school, and one represented a regional vocational technical school. Nine Panel members had experience making revisions to previous versions of the Massachusetts Curriculum Frameworks or serving as PARCC Fellows for the Department. Review Panel members were informed of their charge to develop recommendations for refinements to the standards based on their own experiences, and based on responses to a statewide online survey (described below).

### 2.1.2 Online Survey Created and Administered

In addition to engaging stakeholder feedback through the Review Panel, in early February 2016, the Department created and posted an online survey to solicit public input on the ELA/Literacy and Mathematics Curriculum Frameworks. Aligned with the purpose of the Review Panel, the survey was designed to provide educators across the Commonwealth an opportunity to share lessons learned from implementing the 2011 ELA and mathematics standards over the previous five years. The survey asked respondents to respond with their opinions about the following design features of the 2011 standards:

#### English Language Arts (ELA) and Literacy

- Anchor standards
- Coherent progressions across grades
- The balance of reading, writing, speaking, and listening
- Focus on informational text, research, and media
- Focus on disciplinary literacy
- College and career readiness for all students

#### Mathematics

- A balance of conceptual understanding, mathematical practices, and application
- Coherent progressions across grades
- Focus on select critical areas at each grade
- College and career readiness for all students

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<sup>3</sup> Other Next-Generation MCAS work groups included: Accessibility, Communications, High School Testing, and Test Administration.



The survey was designed to gather general information from educators familiar with the standards by inviting respondents' input mainly via open responses. The survey asked respondents to provide basic demographic information and then invited them to answer five main questions about the standards, as paraphrased below:

1. Please identify which of the above **design features you most value**. Be as specific as possible in describing the implications of each design feature.
2. Please identify the **design features that have been most problematic** in your school district's implementation of curriculum and instruction aligned to the standards. Be as specific as possible in describing the implications of each design feature.
3. What content or skills in current standards, if any, do you consider **inappropriate or unnecessary**? Please include your reasoning. (If respondents answered this question, the next question asked respondents to list the specific standard(s).)
4. What content or skills, if any, do you consider to be **missing** in the 2011 standards? Please specify the grade level and provide your reasoning for why this content/skill is critical for all students to learn.
5. Which standards, if any, could be **modified to make them clearer or technically accurate**? Please include your reasoning. If you choose to answer this question, the next question will ask you to provide the specific standard(s) to which you refer.

A full version of the survey can be found in Appendix C.

Beginning in mid-February, the Department sent announcements about the survey to the same groups that were contacted regarding the establishment of the Review Panel (listed in Appendix X). As part of the Next Generation MCAS initiative, the Department also established a Communications Workgroup that included representatives from several of these organizations, including the Massachusetts Teachers Association, the Massachusetts Charter Public Schools Association and the Massachusetts Association of School Committees. This workgroup met periodically with ESE staff to get updates on the standards revision process as well as the development of the statewide assessment. The Department invited participating organizations to forward information about and a link to the online survey and to conduct outreach encouraging their membership to participate. As with the solicitation for Review Panel applications, the Commissioner's office included information about and a link to the survey in the Commissioner's weekly update, as well as the "Teachers' Top Three from ESE" email, through communications to the Board, through the Department of Higher Education channels, and through the listservs of offices with the Department (such as the STEM listserv and Urban Literacy Network).

The survey was posted on the Department's web site from February-early September 2016. In late June, near the end of Phase 1, Abt Associates conducted an analysis of the survey, coding responses and then using qualitative analysis software to analyze them. Once coded, Abt analyzed responses to each of the five questions and identified as themes those design features most frequently mentioned by respondents.

Abt's survey analysis found that by late June, 2324 respondents had viewed the online survey, while only 364 respondents submitted complete or partially complete responses. Of these responses, 49% were from teachers, 33% from principals, coaches, superintendents and other administrators, 8% from parents and

4% from higher education professionals. Table 1 describes the types and response rates of respondents.<sup>4</sup> Note that 186 (representing .002 percent of the state’s teachers) completed the survey; consequently the survey responses are not representative and should be interpreted in this context.<sup>5</sup>

**Table 1. Online Survey Respondents**

Survey Respondents	Complete Surveys	Partially Complete Surveys	Total Surveys	Percentage
Teacher	176	10	186	48.9%
Coach/Specialist	54	2	56	14.7%
Administrator/Coordinator	40	1	41	10.8%
Parent	29	2	31	8.2%
Higher Ed Professional	16	0	16	4.2%
Superintendent/Asst. Superintendent	10	1	11	2.9%
Charter School Staff	11	0	11	2.9%
Principal/Asst. Principal	8	1	9	2.4%
Other	6	2	8	2.1%
Business/Non-Profit Person	7	0	7	1.8%
School Committee Member	2	0	2	.5%
MA DESE Staff	2	0	2	.5%
<b>TOTAL</b>	<b>361</b>	<b>19</b>	<b>380</b>	<b>100%</b>

Of the features that respondents described as most valuable, the most frequently mentioned were the ELA/literacy and mathematics standards’ coherent progression across grades (25% of responses), the balance of conceptual understanding (23% of responses), followed by the balance of reading, writing, speaking and listening in ELA/literacy (21% of responses). The most commonly referenced problematic features (12% of responses each) were the coherent progression across grades and college and career readiness.

<sup>4</sup> An additional 61 respondents viewed the survey between Abt’s analysis in late June and the close of the survey in late September, nine of whom submitted completed responses.

<sup>5</sup> In February and March 2016, ESE also administered the Views of Instruction, State Standards, Teaching, and Assessment (VISTA) Survey and invited responses from all superintendents and principals in the state as well as all teachers whose districts chose to participate. Of the five topics on which educators were invited to comment, the Massachusetts curriculum frameworks was one. Statewide, 21% of superintendents and 37% of principals responded to the VISTA survey. Responses were representative of the state, and reported results were statistically weighted to further ensure representativeness. Responses from superintendents and principals indicated that the vast majority of respondents agree somewhat or strongly that the curriculum frameworks prepare students for college and career, set appropriate expectations for learning, and stimulate instructional shifts so students meet expectations. Excerpts of relevant VISTA questions and responses can be found in Appendix D.



### **2.1.3 Review Panel Meetings**

Over the course of four different day-long meetings between February and July, members of the Review Panel met to discuss potential revisions to the standards. At these meetings, Panel members were asked by ESE staff to review and respond to suggested areas of revision from the survey responses received to date, correspondence from the public, and issues that the staff brought to the table based on their own expertise with the development, adoption, and implementation of the 2011 standards. The Department also invited Panel members to consider and develop proposed refinements to the ELA/Literacy and Mathematics Frameworks, drawing on their own expertise as educators. Before and between each meeting, ESE staff reviewed notes from the prior meeting and developed the agenda of topics that the Review Panel would consider.

**Meeting 1: February 24, 2016.** The first Review Panel meeting was designed to provide an overview of the standards review process, define the charge of the Panel and develop a common understanding of the role of curriculum frameworks within a standards-based educational system. According to ESE documentation, staff from the Department provided a definition of a standard, described how standards are developed, summarized the organization of Curriculum Frameworks and disseminated copies of the current frameworks and cross-walks of the 2011 standards and previous standards (mathematics from 2000 and ELA/Literacy from 2001), as well as other reference materials. ESE staff then led Review Panel members in several activities to help Panel members’ deepen their understanding of how the current ELA/literacy and math standards are structured and designed to address critical areas (math) or areas of emphasis (ELA/literacy) and how they progress through the grades. Staff from the Department also described the online survey and explained that at future meetings the Review Panel would be asked to review and react to feedback submitted via the survey.

ESE staff also led a discussion with Review Panel members about the potential implications of making an addition or removing a standard on the vertical alignment of the standards and encouraged Panelists to be thoughtful about these implications in their review of proposed revisions and in their proposals for new revisions. Department staff then provided examples of revisions made to Common Core State Standards in another state as an illustration of the types of revisions Review Panel members might consider. Finally, staff from the Department explained to Review Panel members that they were charged with three main tasks in addition to recommending revisions: 1) to provide evidence to support any proposed changes, 2) to consider the impact of a change for the grade(s) below and grade(s) above, and 3) to consider the impact of any proposed change on district work on curriculum development and instructional change.

**Meeting 2: April 13, 2016.** According to ESE documentation, at the second meeting, staff from the Department invited Review Panel members to review key themes from responses to the online survey (those received by April 6th) as well as to present their own topics for consideration. The Department categorized survey responses into three types: 1) suggestions for technical changes that the Department could propose to the Board, 2) substantive questions and feedback in which the Review Panel would be invited to engage, and 3) feedback outside the scope of the revision process or related to the standards *implementation* rather than standards *content*. The key themes that the Department presented from the survey were: there was overall support for the structure and design features of the standards, and there were some problems identified for consideration across grade levels in ELA/Literacy and mathematics.

Department staff then invited Review Panel members to engage in a whole Panel discussion about disciplinary literacy, standards that appear in the 2011 ELA/Literacy Framework. The Department described disciplinary literacy as the ability to use “information in specific ways and purposes that are

relevant to and enhance understanding of a discipline, being able to read, write, and speak using disciplinary conventions and language, accessing disciplinary text and knowledge, and communicating using conventions of a discipline.” The K-5 standards include expectations for reading, writing, speaking, listening, and language applicable to a range of subjects, not limited to ELA. For grades 6-12, the ELA/literacy standards are divided into two sections, one specific to ELA and the other designed for history/social studies, science, and technical subjects. ESE asked Review Panel members to consider whether disciplinary literacy<sup>6</sup> should be incorporated into the math standards and then documented Panel members’ discussion and ideas.

Informed by some of the survey responses, as well as Department priorities, ESE staff also developed specific questions or revisions for Panel members’ consideration by grade level in ELA/literacy and math. Department staff asked Panelists to divide into ELA and math groups and to further divide into grade level groupings of grades PK-5, 6-8 and 9-12 in order to respond to and discuss the following questions in English Language Arts/Literacy and mathematics.

**English Language Arts/Literacy Breakout Group Discussion**

Department staff developed the questions listed below (in italics) and facilitated discussions among Review Panel members divided into ELA subgroups and documented their deliberations (also included below) as well as their suggestions for revisions to the ELA/Literacy Framework documents.

**Table 2. ELA/Literacy Review Panel Recommendations**

Question	Response
<b>PreK-5<sup>th</sup> Grades</b>	
<i>Are the ELA/literacy standards too much for students in PK-5 in terms of their quantity and rigor?</i>	Review Panel members discussed and generally agreed that no changes were needed to PK-5 standards, explaining that many survey responses suggesting changes were not substantiated by Panel members’ review of the standards. Panel members did recommended moving the Grade 1 language standard to produce and expand complete simple and compound declarative, interrogative, imperative, and exclamatory sentences in response to prompts (L.1.1.j) to 2 <sup>nd</sup> grade (2 L2.1f), to add complex sentences to grade 3, to move the 3 <sup>rd</sup> grade standard to “produce simple, compound, and complex sentences (L3.1i) to grade 1 and to add examples, especially in kindergarten and 1st grade.
<i>Are the language standards clear and appropriate, especially in the early and middle years?</i>	The Review Panel reported that these standards were clear and appropriate but did recommend deleting the standard for kindergarteners to use the most frequently occurring inflections and as a clue to the meaning of an unknown word (L.K.4b), based on Panel members’ reasoning that this was not a pre-reading skill and was not needed for kindergarteners.

<sup>6</sup> Disciplinary literacy was a topic of discussion for the panels through July, as Department staff worked to incorporate panel feedback into the Frameworks revised draft. The revisions proposed for disciplinary literacy are reflected in the proposed recommendations in the draft Frameworks document being presented at the October BESE meeting.

## STANDARDS REVISION PROCESS

Question	Response
<i>Should the standards address the motor processes of writing more clearly or extensively?</i>	Panel members cited research demonstrating the connection between handwriting and deeper comprehension and recommended keeping the standards related to writing by hand and extending those standards through grade 5.
<b>6<sup>th</sup>-8<sup>th</sup> Grades</b>	
<i>Does the progression of the Massachusetts-specific standard focused on identifying and analyzing literary works (R.MA.8A) require modification to make the genres less limited and/or the grade level expectations less specific?</i>	Panel members identified the following options: 1. omit this standard across all grade levels, 2. include it at certain grade levels only (for example, at grade 6), or 3. omit this standard but include elements of it in other standards. They came to general consensus around option 3. Panel members reported that this standard was not integrated into the other standards and suggested removing some of the specific requirements that they found redundant, unnecessary, or restricted to certain grades.
<i>Does the progression of the Massachusetts-specific standard focused on writing in different literary genres (W.MA.3A) require modifications to make the genres less limited and/or the grade level expectations less specific?</i>	Panel members agreed that this standard should be revised in some way because the genres listed in this standard were too specific, without strong rationale for why particular genres are placed at one grade level or another. They identified the following options: <ol style="list-style-type: none"> <li>1. eliminate the standard completely as it is currently written;</li> <li>2. add its concepts to writing standards 10 or 4;</li> <li>3. consider adding a separate standard for writing poetry.</li> </ol>
<i>Do the middle school reading standards require clarification in terms of providing a clear and coherent progression across grades, and providing clarity about the integration of various texts/media?</i>	Panel members recommended adding “cause and effect” to the language in standard 3 across grades 6-8. They also recommended integrating standard 7 across the grades, into information text and literature standards. Panel members recommended adding some examples (sample text sets) to illustrate standard 9 across grades. Finally, Panel members recommended that standard 2 in the Reading: Literature and Reading: Informational Texts strands include paraphrasing across grades 6-8.
<b>9<sup>th</sup>-12<sup>th</sup> Grades</b>	
<i>Does the “Text Types and Purposes” cluster of writing standards require modification to prevent the standards from being too rigid in defining modes of writing? Do the standards relating to narrative writing require modification?</i>	Review Panel members recommended combining standards 1-3 in a way that takes into account author’s purpose and audience, that clarifies that all modes of writing (including narrative) are valued and expected to be taught.
<i>Do the standards for literacy in the content areas require modification to make clear the role of ELA teachers working with informational text related to other disciplines? Is additional guidance needed to support integration of literacy instruction across disciplines?</i>	Review Panel members noted that, in terms of their content, the standards make clear the role of ELA teachers working with the structure of informational text related to other disciplines, but recommended that standards for literacy in other subject areas should be taken out of the ELA/literacy framework and, if possible, inserted into the other subject areas’ frameworks. Panel members also recommended that speaking/listening should be included in disciplinary literacy standards for other subjects and perhaps language as well. They said that additional guidance was needed to help support the integration of literacy instruction across disciplines, noting that the development of this guidance was outside of the Panel’s charge.

Question	Response
<i>Should references to United States history in the ELA standards be removed or reduced?</i>	Panel members were split on this topic. Some members recommended broadening the references so that historical texts in general were referenced but US history in particular was not. Others recommended that the original references to US foundational documents should be retained.

**Mathematics Breakout Group Discussion**

The Department developed the following questions and asked Review Panel members to respond to them, documenting Panel members’ responses and recommendations, as included below.

**Table 3: Math Review Panel Recommendations**

Question	Response
<b>PreK-5<sup>th</sup> Grades</b>	
<i>Are there aspects of the PK-5 standards that can be reduced? For example, is the distributive property too challenging for grade 3? Do line plots need to be included in each of grades 2-5? If not, which grades can they be removed from? Should the standard for whole number quotients (4.NBT.6) be removed from grade 4? Does the group recommend any additional reductions to the PK-5 standards?</i>	While consensus was not reached, some Review Panel members indicated that the distributive property is appropriate in 3rd grade but recommended clarifying the expectations for the use of notation so that students not be required to produce an equation using parentheses. Some Panel members recommended eliminating the standards for line plots in grades 2-5. In addition, some Panel members recommended leaving standard 4.NBT.6 as is, and adding examples and strategies to help support teachers to understand the expectation and language of the standard.
<i>Are the K-3 standards missing some critical components? Should time and money be added to Kindergarten standards? Should patterns be added at the K-2 level? Should basic fraction terminology and unit fractions be added to grade 2? Should fractions of a set be explicitly added to grade 3?</i>	Members of the Review Panel recommended that the concepts of time and money not be added to kindergarten standards. Some Panel members also recommended that patterning be considered as an addition in grades 1-2, (cautioning that specificity is extremely important) and language could be added to existing standards, perhaps adding patterning in standards for finding 10 more or less of a number without counting (1.NBT.5), determining odd and even numbers (2.OA.3) and skip counting (2.NBT.2). The Panel recommended adding text to the grade 2 standard for partitioning shapes (2.G.3) to partition a line into halves, thirds, etc. and labeling them with correct fraction notation such as 1/3 or 2/2.
<b>6<sup>th</sup>-8<sup>th</sup> Grades</b>	
<i>Are there aspects of the 6-8 standards that can be reduced? Should mean absolute deviation be eliminated from grade 6? Should systems of equations be moved to high school?</i>	Review Panel members recommended that mean absolute deviation be eliminated from grade 6 and that standards related to systems of equations stay in grade 8.

Question	Response
<p><i>Should adjustments be made to critical content in the grades 6-8 standards? Should students be expected to explain a proof for the Pythagorean Theorem in grade 8 or is clarification sufficient? Should conversions between fractions, decimals, and percents be added to the grade 6 standards? Should the current focus on ratios and unit rate at grades 6-7 shift to a focus on rate?</i></p>	<p>Some members of the Review Panel recommended that students should not be expected to explain a proof of theorem but rather show that they ‘understand’ what the theorem is. Panel members also recommended not adding conversions between fractions, decimals, and percents to grade 6, but recommended a “bridge” between 4.NF.5, 4.NF.6 and 5.NF.3 that introduces decimals. Members of the Panel recommended that the Department consider including via a footnote or an example, additional denominators (2, 4, 5, 20, 25, 50) for equivalent fractions in the lower grades. Most Panel members recommended no change to the current standards focused on ratios and rate.</p>
<b>9<sup>th</sup>-12<sup>th</sup> Grades</b>	
<p><i>How can the scope of high school standards be reduced? Should some content be moved to a different course? Should the scope of Algebra I be reduced? If so, what changes do you recommend? Should concepts related to complex numbers and matrices be reduced or moved? Should the scope of statistics be reduced and/or moved to different courses? If so, what changes do you recommend? Should trigonometry be moved to Pre-Calc? Should geometric constructions be removed or moved to another course? If so, what changes do you recommend? Does the group recommend any other response to the comments on the 9-12 standards?</i></p>	<p>Review Panel members did not recommend changes to the scope of Algebra I beyond moving find inverse functions (F-BF.4) to Algebra II. Some members of the Panel also recommended that (+) Number and Quantity standards in Algebra II be removed. Panel members recommended that the statistics courses remain where they are, and some Panel members suggested removing all (+) Standards from Model Courses Alg. I, Geometry, Alg. II, Integrated Math I, II, and III.</p>

At the end of the April 13<sup>th</sup> meeting, the Department staff informed Panel members that the ESE team would examine the Panel’s recommendations and continue to make additional revisions aligned to that feedback. The Department then intended to share new, revised drafts of the Curriculum Frameworks documents with the Review Panel before the June 3<sup>rd</sup> meeting.

**Meeting 3: June 3, 2016.** Just prior to the June 3<sup>rd</sup> meeting, ESE staff sent Review Panel members drafts of the ELA/Literacy and Mathematics Curriculum Frameworks that incorporated revisions made during the April 13<sup>th</sup> meeting or revisions informed by discussions at the meeting. The goals of the June meeting were for Review Panel members to review and comment on the revisions proposed to date, consider the implications of these revisions, and propose new revisions if necessary.

The Department began the meeting with an overview of the progress on revisions to date, then reviewed revisions common across ELA/literacy and mathematics. Department staff highlighted the importance of considering the impact of proposed revisions on the scope of the standards. Staff from the Department also reviewed the changes made to incorporate mathematics into the disciplinary literacy sections of the ELA/literacy standards and add a section on disciplinary literacy (though not adding standards) to the Mathematics Framework document.



Staff from the Department also called Panel members' attention to standards that used the term "understand" and invited them to consider whether or not this term was clear, or should be changed to an "action verb that articulates the way we expect students to demonstrate 'understanding.'" Department staff encouraged Panel members in each content area to examine the standards that used this term to better define how students would show that they understand a given concept or skill.

As they did at the April meeting, the Department then asked Panel members to break into discipline-specific ELA/Literacy and Math groups to discuss their reactions to the most recent edits.

### **ELA/Literacy Breakout Group Discussion**

The ELA/Literacy group began with a discussion of two proposals for revisions that were sent to the Department independent of the survey and were relevant to all grades. The Department staff summarized the proposals, invited discussion and documented Review Panel members' corresponding recommendations. The first proposal, from the faculty of the English/Communications Department at a Massachusetts college, suggested the addition of four new anchor standards for reading, each focusing on aspects of rhetorical context. Panel members recommended integrating rhetoric into grade level/span standards because they described it as being underemphasized in the current standards (but emphasized in Advanced Placement Language courses) and being an important component of college readiness.

The second proposal, from a member of the 2009-2010 Common Core State Standards writing team, had several recommendations: a) revise the PK-8 reading standards into grade bands of PK-K, 1-3, 4-5, 6-8, in order to avoid unintended specificity; b) revise Writing Standard 9 at grades 4-12 by removing examples, which refer to reading standards that call for comparing texts, as opposed to writing about a single text; c) change the sequence of Language standards on conventions of Standard English in middle school grades to make a more meaningful progression in teaching sentence structure, clauses, pronoun agreement and move some of the more advanced skills to high school; and d) to add the terms "subject" and "predicate" to an existing grade 4 language standard. Panel members were concerned that revising the PK-8 Reading standards would be difficult for districts to implement, and deliberated the recommendations to revise Writing Standard 9 and to change the sequence of the Language standards, as well as adding subject and predicate terms.

### **Mathematics Breakout Group Discussion**

The Department asked Panel members to break into elementary, middle and high school groups and each group reviewed and discussed the revisions made to date by going through the line edits in the Frameworks document. The Department reviewed five of the main themes discussed at the April meeting and reported on which of these revisions they had chosen to incorporate in the proposed revisions included in the Frameworks document. The math group also engaged in a discussion of the terms "memorize" vs. "demonstrate fluency", some Panel members advocated for more focus on problem-solving and critical thinking than memorizing, while others expressed concern that without having key math facts memorized, students would struggle as they moved into higher levels of math. Several members suggested defining fluency as a way to provide guidance for educators.

At the end of the meeting, ESE staff gathered the full Review Panel together for a whole group discussion of potential implications of the proposed revisions on curriculum, instruction and assessment.

**Meeting 4: July 7, 2016.** At this meeting, the Department provided an overview of the process to date, beginning with presentations from Deputy Commissioner Jeffrey Wulfson and Senior Associate

Commissioner Heather Peske, who described the next steps in presenting revised standards to the Board and the goal to have revised standards adopted by spring 2017. Abt Associates then provided a general analysis of survey data to identify the key themes. Abt reported that “clarifying language” was the most frequently requested change to the standards for both ELA/Literacy and math. Using polling technology, the Department then polled the 27 Review Panel members in attendance on the common topics that had been considered by the full Panel for revisions to the ELA/Literacy and math Frameworks and found that there was general, but not complete, consensus on the topics. The most frequently selected answers to the poll questions (representing a majority of responses from Panel members present) are described below:

1. *Are you ok with the scope of the standards as is, given edits made?* The majority of panelists in attendance responded that they could support the edits: Eight Panel members responded that “the overall scope is what it needs to be,” and 14 responded they “would have liked to reduce, but can support the scope the way it is.”
2. *Do the strategies for enhancing disciplinary literacy work?* The majority of Panel members reported that they supported the changes related to disciplinary literacy: 10 responded that the strategies were “a good mix and approach which will be helpful for the field” and eight responded that “the approach is better than we had but not ideal; let’s put it out for comment.”
3. *Does College and Career Readiness (CCR) need more attention?* Panel members’ responses indicated support for several options: 11 members responded that “No, enough has been done with CCR and the standards are strong as is.” Seven Panel members supported the suggestion to “Just add visuals to illustrate how earlier grades support CCR” and six Panel members supported the suggestion that “it would also help to convene a group to discuss career perspectives and adjust the standards.”
4. *Should we provide guidance regarding social and emotional learning?* Most Panel members in attendance supported the provision of guidance for social and emotional learning: 15 Panel members responded that “Yes, and the addition of a guiding principle is an appropriate way to do it, and six responded, “Yes, but guidance should go beyond a guiding principle.”
5. *Should we provide guidance regarding students significantly behind grade level?* Panel members were split on the question of guidance for students significantly behind grade level: 11 Panel members responded “Yes, guidance in the Frameworks would be useful (strategy TBD).” And 16 responded “No, Frameworks are not an appropriate avenue to address this challenge.”
6. *Should we provide guidance regarding technology access and use?* Panel members were also divided on the question of guidance for technology: Nine Panelists responded “Yes, guidance in the Frameworks would be useful (strategy TBD)” and 14 responded “No, Frameworks are not an appropriate avenue to address this challenge.”

The Department then invited Panel members to break into content area groups, but to stay in whole group discussions (rather than grade level groups) to review the proposed edits and to consider the implications of the proposed revisions as well as to think about any changes that would significantly disrupt school and district work. The discussions from the ELA/Literacy and math groups are summarized below.

**English Language Arts/Literacy Breakout Group**

ELA/Literacy Panel members broke into their own group and ESE staff summarized the following 6 key considerations and possible edits that they had documented at previous Panel meetings, invited Review Panel members to consider and comment on these edits, and documented Panel members' responses.

1. **Balance of Speaking, Listening, Reading, and Writing** – ESE reported having added a Speaking and Listening Strand to Standards for Literacy in History/Social Studies, Science, Mathematics, and Technical Subjects 6-12.
2. **Coherent progressions across Massachusetts-specific standards in Reading and Writing** – To improve coherence to reading, writing, and language standards, ESE merged R.MA.8 into RL.4.5 and 6 in grades P-5; and into RL.7 at grades 11-12 – to allow for analysis of literary non-fiction. The Department subsumed W.MA.3 into anchor standard 4 and matching grade-level standards in grades P-12. The Department also adjusted Language Strands: L.1 in grades 1-3 for coherent progression and revised the chart for Language Progressive Skills, by Grade to reflect standards that need attention through the grades.
3. **Representation of Media** – The Department changed S/L.2 anchor standard to read, “Integrate and evaluate information presented in diverse media and formats.” The Department also adjusted grade-level standards to match this anchor standard. W.6 at grades 9-12 replaces “message boards” with “discussion boards.”
4. **Inclusion of Literature** – The Department changed “meaning or tone” to “meaning, tone, and mood” in grades 6-12 and included elements from R.MA.8 and W.MA 3 puts poetry into other standards.
5. **Sustained Reading and Writing** – Reading Standard 10 refers to the range of reading and text complexity. In the 2011 ELA Framework, measures of text complexity were presented in 2- to 3-year grades spans (i.e., 2-3, 4-5, 6-8, 9-10, and 11-12). The Department revised text at PK-8 to indicate that students should be able to read texts at their individual grade level, rather than a grade band. It added a footnote with additional resources on measuring text complexity.
6. **Representing modes of writing** – The Department added a footnote for Writing that explains the expectation that effective writing may blend elements of any of the three primary modes of argument, explanation, and narrative and added suggested resources for examples of effective writing.

**Mathematics Breakout Group**

In the math breakout group, ESE staff summarized the following seven key considerations and possible edits Department staff that had been proposed in prior Review Panel meetings, invited Review Panel members to review and discuss these edits, and then documented Panel members' discussion and rationale.

1. **Balance of conceptual understanding, skills, and application of mathematical practices.** Most Panel members described that there was enough balance in the standards of students building their conceptual understanding and skills and applying their knowledge.
2. **Focus on unit rate at grades 6-7.** Panel members discussed a proposal from one member to increase the emphasis on rate in grades 6-7 as a means to help students better understand and solve proportion problems and prepare them for more complex concepts such as linear functions and slope. Some Panel members supported minor edits to make rate more explicit without impacting current standards.



3. **Integration of statistics.** Panel members discussed the scope of statistics at high school and considered reducing it or moving it to different courses. Most Panel members recommended leaving all the non-plus (+) statistics standards in Geometry and Algebra II and removing plus standards for statistics from typical 9<sup>th</sup> and 10<sup>th</sup> grade courses.
4. **Algebra I in grade 8 for all students.** Review Panel members considered a proposal from one Panel member to develop a pathway to allow middle school students to take Algebra I and progress through the highest levels of math (calculus) in high school. ESE proposed adding a guidance section to the Framework that describes different ways to compress the middle school standards to achieve Algebra I in grade 8 and/or provide different high school pathways to get students to calculus by grade 12. This guidance was originally produced in 2011 as a separate document to support schools and districts that wanted to address these issues. That document has been integrated into the revised Framework document and included in the revisions proposed for 2016.
5. **Reduction of high school scope.** The Panel recommended that the scope of Algebra I should not be reduced but that all matrices standards be removed from Algebra II. The Panel also recommended that the information that appeared in footnotes in the 2011 standards be removed and integrated into the standards instead.
6. **Standards for high school calculus course.** Review Panel members did not recommend adding standards for calculus. Some Panel members suggested that it might be redundant to develop different standards from the current AP Calculus standards.
7. **Memory or fluency for math facts and algorithms.** Review Panel members engaged in a lengthy discussion about the difference between memory and fluency, without reaching consensus about revisions to the standards. Some Panel members called for more clarification of, and potentially the provision of definitions for, both memory and fluency.

**Final Scheduled Meeting 5: October 20, 2016.** At this meeting, the Department will provide the Review Panel with a summary of the revisions being proposed to the Board. The Department planned this meeting as an opportunity to put the Phase 1 and Phase 2 activities in a broader context for the Panelists and identify how each of those activities contributed to the recommendations being brought forward to the BESE at their October meeting. It also provides an opportunity for the Department to report to the Panelists on Phase 2 activities and discussions and describe the likely steps remaining in the standards review process.

## 2.2 Phase 2: Refine Revisions and Engage Content Advisors

In Phase 2 of the standards review process the Department documented and summarized stakeholder feedback from Phase 1 and developed a systematic approach to vetting and refining the proposed revisions in preparation for Board consideration. To lead this phase of the process, in July 2016, the Department engaged two experienced and widely-respected former staff members, Barbara Libby and Susan Wheltle to lead the revision process in mathematics and ELA/Literacy, respectively. Barbara Libby is the retired Director of the ESE Office of Science, Technology/Engineering and Mathematics and Susan Wheltle is the retired Director of the Office of Literacy and Humanities. Libby and Wheltle led ESE's previous frameworks writing and review panels in 1995-1997, 2000-2004, and 2007-2010.

Libby and Wheltle, together with current members of the ELA/Literacy and Math staff from the Department, first reviewed the Phase 1 revisions proposed for mathematics and ELA/Literacy,

respectively. These ESE ELA/Literacy and mathematics teams then identified both major issues and detailed changes being considered for recommendation in each content area.

In ELA/literacy, the Department team identified the following major categories in the revisions:

- Integrated the content from two PK-12 Reading and Writing standards added by Massachusetts in 2010 into other standards, thereby reducing the overall number of standards;
- Edited standards to create greater clarity and smoother progressions in complexity, PK-12; and
- Revised and expanded the glossary to provide a stronger resource for definitions of terms related to early literacy, writing, reading, language, and Standard English conventions.

In math, Department staff identified the following major categories for possible revisions emerging from Phase 1 activities:

- Improvements in clarity and inclusion of definitions for key mathematical terms to ensure consistency in the language of the standards;
- The development of customized descriptions of the eight PK-12 Standards for Mathematical Practice by grade-spans, PK-5; 6-8; and high school level;
- Additional guidance that presents middle and high school options for course sequencing, including pathways to Algebra I in grade 8 and to calculus by grade 12.

### 2.2.1 Content Advisors

As staff at the Department began to refine the revisions to standards that had been proposed by Panelists and survey respondents in Phase 1, they recognized the potential value of having this work reviewed by an additional set of advisors who possessed deep content area expertise as well as prior experience in reviewing state standards. Leading up to and after the June 3<sup>rd</sup> Review Panel meeting, some Panel members raised concerns that the cumulative effect of the revisions recommended across strands, clusters and grade levels, might have the unintended consequence of weakening the standards and/or disrupting their alignment across grades. The Department recognized that establishing a group of well-respected and experienced content advisors could help think through these concerns and provide new perspectives.

In August 2016, the Department established two groups of content advisors, one for ELA/literacy and one for mathematics, whose members consisted of educators from Massachusetts public and private institutions of higher education, K-12 educators and individuals with experience supporting elementary and secondary educators' instruction. Content advisors were identified by the Department with suggestions from the Executive Office of Education and other key stakeholders from the field. Advisors were selected based on the following criteria: ELA/Literacy and mathematics faculty from public and private colleges and universities in Massachusetts, experience working in Massachusetts public schools and/or with Massachusetts public educators in ELA/Literacy and mathematics, and knowledge of state standards and/or experience in prior standards revision processes. A list of content advisors is provided in Appendix E.

The content advisors met for two separate day-long meetings (one for ELA/literacy and one for math) on September 15<sup>th</sup> and 16<sup>th</sup>, 2016. The content advisors were asked to review draft revisions and draw on their own content expertise and professional experience to provide guidance and suggestions. Advisors were also asked to consider the following guiding questions about the proposed changes emerging from

the review panel: *Is the cumulative effect of the recommended edits an improvement in the clarity, coherence, and rigor of the Framework? If not, what specifically do you recommend we do differently?*

The meetings were facilitated by Susan Wheltle (ELA/Literacy) and Barbara Libby (mathematics). Both groups of content advisors were provided with documents several weeks in advance that summarized the proposed revisions to date. As described in more detail below, the facilitators structured the discussions around topics upon which there was not consensus among survey responses and Review Panel feedback. Convening the content advisors then provided an opportunity for the Department to gather new, relevant perspectives on these topics to further inform their upcoming revisions.

The Department documented the content advisors discussions and recommendations, and identified common themes among the recommendations from both ELA/Literacy and math content advisors. One common theme was that both groups were generally positive about the standards and agreed with Panelists and survey respondents that what was most needed was clarifying language, as well as additional examples and resources to help educators with implementation of the standards. Both groups of content advisors cautioned about incorporating too many examples or explanatory materials within the standards themselves and suggested the possibility of using technology in new ways to make the standards more interactive and accessible, to make stronger connections among the Frameworks' sections, and to include links to existing and new resources useful for implementation. Both ELA/Literacy and math content advisors also suggested developing guidance and resources to support districts in planning for implementation of the revised (2017) Frameworks. In addition, each group of advisors had content specific recommendations, a summary of which is provided below.

**September 15, 2016 – English Language Arts/Literacy Content Advisor Meeting.** In mid-August, the Department sent content advisors three documents summarizing the proposed revisions: 1) an Overview of Major Issues and Recommendations for the Massachusetts ELA/Literacy Framework Standards Review 2016, 2) a Summary of Detailed Issues and Recommendations for the Massachusetts ELA/Literacy Framework Standards Review 2016, which included specific standards identified for proposed revisions and a rationale for the revisions, and 3) Draft Massachusetts Curriculum Framework for ELA/Literacy (as of August 18, 2016) with tracked changes and highlights. The Overview of Major Issues document included six main issues, listed below, which Susan Wheltle used to frame the discussion with advisors:

1. Literature and sustained reading
2. Writing
3. Developmental appropriateness of PK-8 standards, PK-12 progressions, and terminology
4. Literacy in subject areas other than ELA
5. Alignment with other BESE and DESE initiatives
6. The cumulative effect of the recommended edits

ELA/literacy advisors discussed each topic area, weighed the trade-offs of making or not making the contemplated revisions and made the following over-arching recommendations:

- **Maintain the strength of the standards.** The advisors regarded the 2011 Frameworks as having been carefully designed and stated that it was critical to maintain the focus, coherence, rigor and structure of the 2011 framework.

- **Improve clarity of some standards.** Advisors suggested making edits to improve the clarity of the standards' language or to clarify expectations. They also recommended adding examples to the standards, and, in some instances, definitions to the glossary as ways to improve clarity.
- **Support implementation.** Advisors recommended using existing ESE resources published since 2011 and linking those resources and guidance documents to digital versions of the new Frameworks.
- **Improve information about text complexity.** Advisors emphasized the importance of introducing students to complex texts across the grades and suggested including more detailed information on measuring text complexity in the explanatory materials accompanying the Reading Standards.
- **Preserve strong progressions in Reading Literature Standards.** Content advisors recommended maintaining a strong emphasis on knowledge of literary concepts, either through retaining the Massachusetts standard or incorporating its concepts in the Reading, Writing, and Language standards.
- **Highlight integration in types of writing.** Consistent with revisions the Department had made in response to feedback from the survey and Review Panel discussions, advisors recommended including more detailed information on the ways in which effective writing often blends argument, explanation, and narrative to the Introduction to the Writing Standards, as opposed to the way the current standards make the three main types of writing seem separate and distinct.
- **Make stronger connections among the Language, Writing and Reading standards.** Advisors recommended simplifying the grade level Language Standards and emphasizing their relationship to interpreting texts and writing. Advisors suggested making it clearer that knowledge of Standard English conventions (grammar) is assessed in the context of writing and also recommended consolidating glossary entries related to grammar and placing them in the Language section of the Frameworks document.
- **Encourage teaching of literacy in subjects other than English.** Advisors supported the recommendation to include literacy in other subject area Frameworks.

**September 16, 2016 – Mathematics Standards Review Content Advisors Meeting.** In late August, the Department sent math content advisors three documents summarizing proposed revisions: 1) an Overview of Major Issues and Recommendations for the Massachusetts Mathematics Framework Standards Review 2016, 2) a Summary of Detailed Issues and Recommendations for the Massachusetts Mathematics Framework Standards Review 2016, which included specific standards identified for proposed revisions and a rationale for the revisions, and 3) Draft Massachusetts Curriculum Framework for Mathematics (as of August 27<sup>th</sup>, 2016) with tracked changes and highlights. ESE staff identified six main discussion topics for content advisors:

1. High School (+) Standards
2. Options for Course-taking Pathways and High School Statistics and Calculus
3. Mathematical Practice Standards
4. Rates, Ratios, and Proportional Reasoning
5. Consistent, clear language
6. The Cumulative Effect of the Recommended Edits

Math content advisors discussed each topic area, weighed the trade-offs of making or not making revisions and made the following recommendations, the first three of which are aligned to the ELA/Literacy advisors' recommendations:

- **Maintain the strength of the standards.** As with the ELA/Literacy content advisors, the 2011 Frameworks were regarded as having been carefully designed and the advisors stated that it was critical to maintain the focus, coherence, rigor and structure of the 2011 framework.
- **Improve the clarity of some standards.** Again, similar to the feedback from the ELA/Literacy advisors, math advisors suggested making edits to improve the clarity of the standards' language or to clarify expectations. They also recommended adding examples to the some standards and/or definitions to the glossary to improve clarity.
- **Support implementation.** Advisors recommended using existing ESE resources published since 2011 and linking those resources and guidance documents to digital versions of the new Frameworks.
- **Keep the Math Pathways guidance document in the revised Framework.** Advisors recommended modifying this document to expand the options for course taking pathways, noting that the current pathways all lead to calculus. Advisors suggested adding pathways leading to Advanced Quantitative Reasoning, Pre-Calculus and Statistics.
- **Keep the (+) standards in the Model High School courses.** Advisors reasoned that these standards help maintain the level of rigor of the 2011 Framework and suggested including a clear explanation of why the (+) standards are included in the Framework (i.e. they provide options for differentiation, ensure equity and prepare students who are planning to take advanced courses or pursue degrees or careers for which this content is a prerequisite).
- **No model statistics or calculus course needed now.** Math content advisors suggested instead providing a link to the AP Calculus syllabi.
- **Add guidance and rationale for statistics.** Advisors recommended including a narrative that explains the importance of statistics, particularly in the context of our modern world and noted that there is already a set of statistics standards in each of the model courses.
- **Keep current language for “fluently” and “know by memory.”** Content advisors expressed a unanimous opinion that knowing from memory was not to be done in isolation, but along with the development of conceptual understanding of numbers, quantity and number sense as well.
- **Clarify Ratio, Rate and Proportional Reasoning Progression in grade 6-7.** Content advisors recommended adding rate examples to clarify this progression.
- **Redesign the grade-span descriptions of the 8 Standards for Mathematical Practice.** Advisors suggested developing a chart that lists each Practice and provides descriptions of how the content and practices can be connected to better see the progression of content and practices through the grades.

### 2.2.2 Conclusion of Phase 2

The Department's ELA/Literacy and mathematics standards review teams have incorporated the content advisors' feedback, as well as feedback gathered through Phases 1 and 2, into the summaries of revisions that they are presenting to the Board at the October meeting. These summaries will be presented in two documents: one that presents major issues and one that presents the details by grade level with the

original and revised wording of the standard followed by the rationale for the change. These summary documents, therefore, will reflect the work of ESE's ELA/Literacy and mathematics standards review teams, led by Wheltle and Libby, to synthesize and incorporate the deliberations of the Review Panels and content advisors conducted during Phases 1 and 2 of the review process.

As ESE incorporated the feedback received through Phases 1 and 2 and prepared summaries for the Board, Department staff focused on four key areas of improvement: focus, clarity, coherence and rigor. Past iterations of standards reviews have also emphasized these areas. In the 2016 revisions, the Department is aiming to improve the focus by ensuring attention to critical areas at each grade level and to improve the clarity of standards through making wording more precise to provide clear guidance to educators. ESE intends to improve coherence by making careful adjustments to strengthen the connections within and across grades. To improve rigor, the Department is focusing on improving the skills and knowledge required for Massachusetts students to *succeed* in college and careers.

The recommendations selected for presentation to the Board have been consistent discussion topics raised through Phases 1 and 2. For both content areas, the proposed revisions respond to suggestions, concerns or questions raised by stakeholders. In English language arts/literacy, the Department has identified the issue of "reading closely and writing about complex texts" as the major recommendation that they will describe to the Board. In mathematics, the major revision that will be presented by the ESE team will be "options for course-taking sequences." Both the ELA/literacy and mathematics teams will also present examples of proposed revisions intended to increase the coherence, focus, rigor and clarity of the standards.

### **2.3 Phase 3: Soliciting Public Comment and Adopting Revisions**

The 2016 standards revision process, while not a wholesale revision of the standards, has provided a strategic opportunity to make improvements to the standards not possible, or not recognized in 2011. In Phase 3, The Department will incorporate Board feedback on proposed revisions from BESE's October meeting and will present drafts reflecting that feedback for the Board's November vote on whether to release the drafts of the Frameworks documents for public comment. From December through March or April, the Department will conduct a public comment period, synthesize public comment, and make final revisions, resulting in final ELA/literacy and Mathematics Frameworks documents submitted to the Board for adoption.



### 3. Cross-State Comparison of Other CCSS Standards Revisions

In supporting the work of ESE on behalf of the Board, Abt Associates conducted a cross-state analysis of revisions to the Common Core State Standards (CCSS) made in nine other states. This analysis was conducted to provide ESE staff with additional context for Massachusetts’ anticipated revisions. Abt initially conducted a broad scan of the standards review processes conducted across states that adopted CCSS, and ultimately settled on a more detailed review of the revised standards in nine states (AL, AR, CA, FL, GA, MS, NJ, OH, and UT) that, like Massachusetts, had revised the Common Core State Standards.<sup>7</sup> To inform the revisions that ESE was considering to specific standards, Abt also provided ESE with targeted analyses of particular Massachusetts ELA/literacy and math standards identified for revision in Phases 1 and 2, and highlighted the revisions made (and not made) to these standards in the nine states listed above.

For the general cross-state analysis, Abt reviewed the mathematics and the ELA/literacy revisions in these nine states and coded the revisions according to the type of change made. The table below describes the codes used to categorize each revision.

**Table 4. Standards Revision Categories**

Category	Definition
new standard	added a new standard
deleted standard	deleted a standard
addition	added a concept or skill to an existing standard
deletion	removed a concept or skill from an existing standard
split standards	split skills from one standard into multiple standards
combined standards	combined skills from multiple standards into one standard
moved lower	moved standard to a lower grade
moved higher	moved standard to a higher grade
moved cluster	moved to another cluster within the same grade level/subject area (9-12)
changed example	made changes to examples or "e.g." text
clarification	clarified text; changed wording, formatting or notes

<sup>7</sup> We selected these states by eliminating the 4 states (AK, NE, TX, VA) that never adopted Common Core State Standards, the 3 states (IN, OK, SC) that reported having repealed or withdrawn from CCSS, the 6 states (LA, MI, MO, PA, TN, WV) in which public accounts indicated that states intended to or had begun a process to repeal or replace CCSS, the 8 states (AZ, ID, IA, KY, MT, NY, ND, SD) undergoing a standards revision process still underway by August 31, 2016, and the 20 states (CO, CT, DE, DC, HI, IL, KS, ME, MD, MN (ELA only), NV, NH, NM, NC, OR, RI, VT, WA, WI, WY) that have made no revisions to CCSS to date.

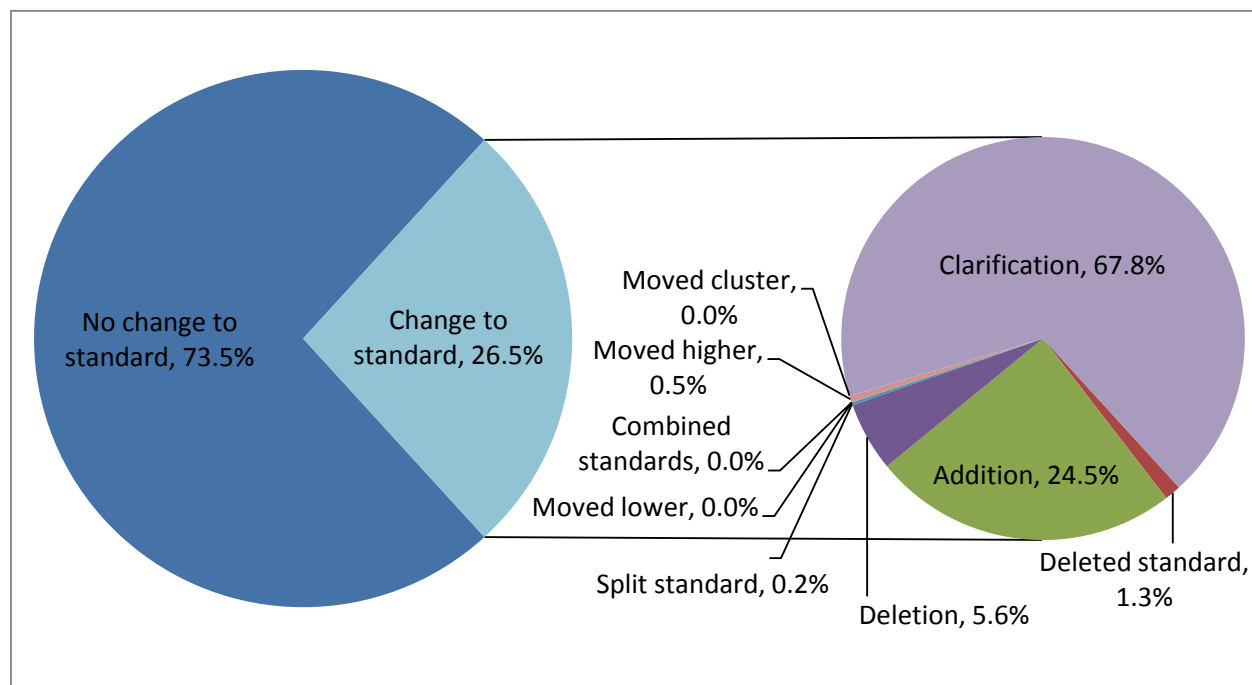
## CROSS-STATE COMPARISON OF OTHER CCSS STANDARDS REVISIONS

### Mathematics

Overall 26.5% of mathematics standards across the nine states were revised. No changes were made to 73.5% (2,548) of the standards. The number of standards revised or added by these states ranged from a 17 to 282. Additionally, across the nine states, eight states added 51 total new standards. Some states added standards for new courses. For example, three states added calculus standards and one state added courses for Algebraic Connections, Discrete Mathematics, Mathematical Investigations, and Analytical Mathematics standards.

Among the revisions made in these nine states, we found that the majority (68%) of the math revisions were clarifying changes in which states revised standards' wording, formatting or notes or made changes to the examples provided. The next most common type of revision (25%) was to add a concept or skill to a standard. Figure 1 shows the percentage of mathematics standards that were revised and not revised, and, among the revised standards, the percentages of each type of revision made across the nine states reviewed.

**Figure 1. Nine-State Analysis of Mathematics Standards Revisions**





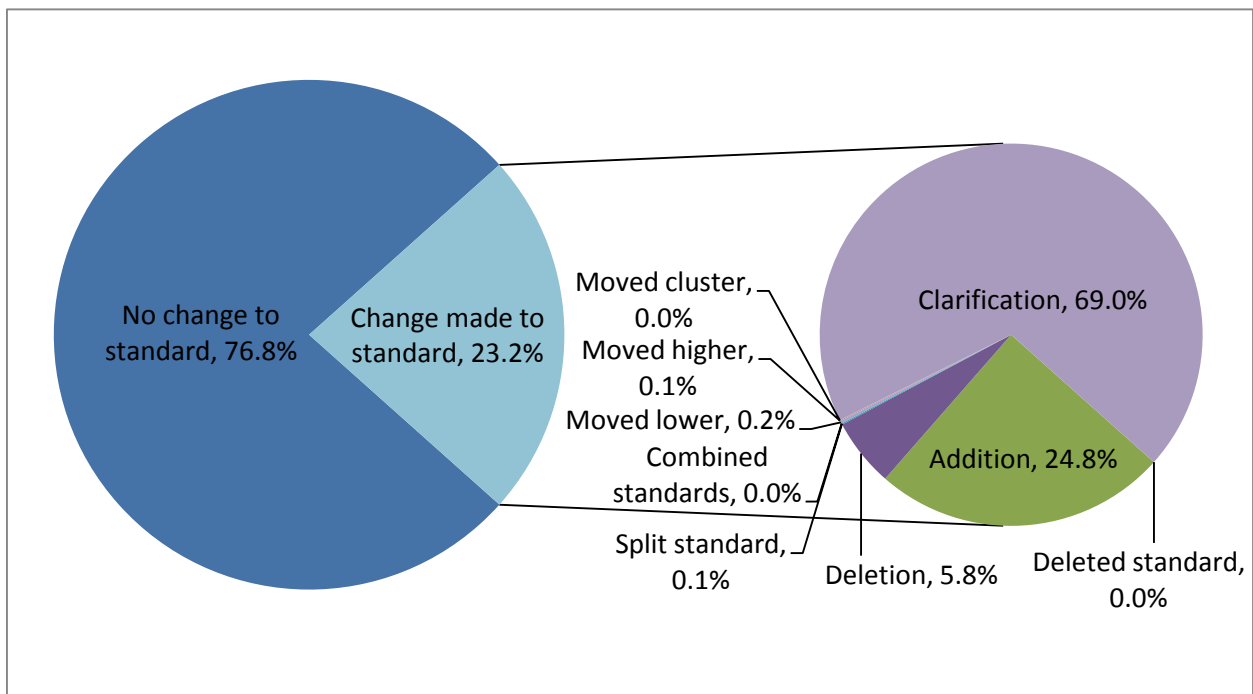
## CROSS-STATE COMPARISON OF OTHER CCSS STANDARDS REVISIONS

### English Language Arts

In ELA, across the nine states reviewed, the average number of changes made to standards was 102 (23.2%). We found that 2,851 (76.8%) ELA standards were not revised and 794 (23.2%) were revised.

The majority (69.0%) of the ELA revisions were clarifying changes. Adding a concept or skill to a standard was the next most common revision (24.8%). In addition to revising standards, states also added a total of six new ELA standards, with states ranging from adding zero new standards to adding three new standards. The number of standards revised by each state ranged from 12 to 330 of total standards revised. Figure 2 below shows the breakdown of changes by type of revision to the ELA standards.

**Figure 2. Nine-State Analysis of ELA Standards Revisions**



On balance, the large majority of changes made in these nine states focused on clarifying the standards already in place. The revisions suggest that states mainly retained the original standards as adopted.

## Appendix A: List of Individuals and Organizations Contacted for Review Panel and Survey

### Individuals:

- MA state senators, representatives, and their aides
- BESE members
- ESE staff members
- Next-Generation Workgroup applicants (accepted and rejected) – Accessibility, Communications, ELA/math panel, High School Testing, Test Administration
- PARCC Fellows (43 K-12 and higher ed faculty who supported PD around the PARCC assessment)
- Science Ambassadors

### And the following organizations:

- American Federation of Teachers Massachusetts
- Arts|Learning
- Association of Teachers of Mathematics in Massachusetts
- Center for Applied Special Technology
- Center for Education Policy Research
- Citizens for Public Schools
- Citywide Parent Council (Boston)
- Citywide Parent Planning Advisory Council (Worcester)
- Federation for Children with Special Needs
- Massachusetts Administrators of Special Education
- Massachusetts Advocates for Children
- Massachusetts Afterschool Partnership
- Massachusetts Association for Curriculum Development
- Massachusetts Association of 766 Approved Private Schools
- Massachusetts Association of School Committees
- Massachusetts Association of School Superintendents
- Massachusetts Association of Science Teachers
- Massachusetts Association of Teachers of Speakers of Other Languages
- Massachusetts Association of Vocational Administrators
- Massachusetts Business Alliance for Education
- Massachusetts Charter Public Schools Association
- Massachusetts Computer Using Educators
- Massachusetts Council for the Social Studies
- Massachusetts Cultural Council
- Massachusetts Department of Early Education and Care
- Massachusetts Department of Higher Education
- Massachusetts Education Technology Administrators Association
- Massachusetts Elementary School Principals' Association
- Massachusetts Foreign Language Association

- Massachusetts Office for Refugees and Immigrants
- Massachusetts Office of Information Technology
- Massachusetts Organization of Educational Collaboratives
- Massachusetts Parent Teacher Association
- Massachusetts Reading Association
- Massachusetts School Counselors Association
- Massachusetts Science Education Leadership Association
- Massachusetts Secondary School Administrators' Association
- Massachusetts Teachers Association
- Massachusetts Technology Education/Engineering Collaborative
- Massachusetts Writing Project
- National Center on Time and Learning
- New England Association of Teachers of English
- Pioneer Institute
- Rennie Center for Education Research and Policy
- Stand for Children
- Massachusetts Digital Learning Advisory Council
- Massachusetts Student Advisory Council
- Teach Plus
- WGBH Educational Foundation

**Appendix B: Massachusetts ELA/Literacy and Mathematics Standards Review Panel**

Review Panelist Name	Expertise Area			District/School Role					Location	Setting				Grade Level	Other Qualifications		
	ELA	Math	SPED/ELL	Teacher	Principal /Asst. Principal	Director/ Coordinator/ Dept Head/ Coach	Superintendent/ Asst. Superintendent	Professor		Urban	Suburb/ Rural	Charter School	Reg'// Voc. Tech		PARCC Fellow	Former FW Panel Member	ADC
<b>ELA Review Panel</b>																	
Rachel Barlage	✓			✓					East	✓				High			
Eileen McQuaid	✓					✓			East					Middle	✓	✓	
Tricia Clifford	✓		✓		✓	✓			East		✓			Elem.			
Linda Crockett	✓			✓					West		✓			Middle			✓
Lisa Dion	✓					✓			East	✓				Elem./ Middle/ School			
Oneida Fox Roye	✓					✓			East	✓				Elem.	✓		
Andrea Gobbi	✓					✓			East	✓				High			
Donna Goldstein	✓					✓			East		✓			Middle	✓		
Andrea Griswold	✓			✓					West		✓			Middle			
Susan Hehir	✓			✓					Cent.		✓			Elem.			
Anna Hill	✓		✓	✓					Cent.		✓			Middle			
John Kucich	✓							✓	East					High. Ed			
David Langston	✓							✓	West					High. Ed			
Danika Ripley	✓					✓			East		✓			Elem.	✓	✓	✓
Melissa Ryan	✓		✓		✓				East		✓			Middle			
Karyn Saxon	✓					✓			Cent.		✓			Elem.			
Kathleen Tobiasson	✓			✓					Cent.		✓			Middle/ High			
Nancy Verdolino	✓					✓			Cent.		✓			Elem.			
Rob Whitman	✓							✓	East					High. Ed			
Kerry Winer	✓					✓			East		✓			Middle			

Review Panelist Name	Expertise Area			District/School Role					Location	Setting				Grade Level	Other Qualifications		
	ELA	Math	SPED/ELL	Teacher	Principal /Asst. Principal	Director/ Coordinator/ Dept Head/ Coach	Superintendent/ Asst. Superintendent	Professor		Urban	Suburb/ Rural	Charter School	Reg'/ Voc.Tech		PARCC Fellow	Former FW Panel Member	ADC
<b>Math Review Panel</b>																	
Jennifer Berg		✓						✓	Cent.					High. Ed			
Tara Brandt		✓	✓			✓			West					Elem.			
Linda Dart-Kathios		✓						✓	East					High. Ed			
Linda Davenport		✓	✓			✓			East					Elem.	✓		
Beth Delaney		✓				✓			East	✓				Elem.			
Tom Fortmann		✓							N/A					N/A		✓	
Sarah Hopson		✓				✓			West		✓			Elem.			✓
Nancy Johnson		✓		✓		✓			Cent.		✓			High			
Patty Juranovits		✓	✓	✓		✓			East	✓				Elem.			
Elizabeth Kadra		✓		✓					Cent.		✓			Middle			
Patrica Kavanaugh		✓		✓					East		✓			Middle			
Stephanie Lowe		✓	✓						East	✓				Middle			
Jim McCleary		✓					✓		Cent.			✓		Middle/ High			
Linda McKenna		✓				✓			Cent.		✓			Elem.			
Raigen O'Donohue	✓	✓		✓					East		✓			Elem.			
Eileen Perez		✓						✓	Cent.					High. Ed			
Laura Raposa	✓	✓		✓					Cent.		✓			Elem.			✓
Heather Ronan		✓				✓			East	✓				Elem	✓		
Fran Roy		✓					✓		East	✓				Elem			
Jeffrey Strasnick		✓	✓		✓				East		✓			Elem			
Brian Travers		✓						✓	East					High. Ed			
Meghan Walsh	✓	✓		✓					Cent.		✓			Elem			✓
Joanne Zaharis		✓		✓					East	✓				Elem			

## Appendix C: Massachusetts ELA and Math Standards Review Online Survey

### Massachusetts ELA and Math Standards Review Feedback

Lessons learned from implementing the 2011 [ELA](#) and [mathematics](#) standards over the past 5 years

The 2011 standards were designed to achieve the following features:

#### [English Language Arts \(ELA\)](#)

- Anchor standards
- Coherent progressions across grades
- A balance of reading, writing, speaking, and listening
- Focus on informational text, research, and media
- Focus on disciplinary literacy
- College and career readiness for all students

#### [Mathematics](#)

- A balance of conceptual understanding, mathematical practices, and application
- Coherent progressions across grades
- Focus on select critical areas at each grade
- College and career readiness for all students

### Survey Questions for K-12 Educator/Teacher/Administrator, Parent, Student, or Other

1. Please identify which of the above design features of the 2011 ELA and mathematics standards you most value after your school district implemented curriculum and instruction aligned to the standards. Be as specific as possible in describing the implications of each design feature.
2. Please identify the design features of the 2011 ELA and mathematics standards that have been most problematic in your school district's implementation of curriculum and instruction aligned to the standards. Be as specific as possible in describing the implications of each design feature.
3. What content or skills currently included in the 2011 standards, if any, do you consider inappropriate or unnecessary (you recommend taking out that content or skill)? Please include your reasoning. If you choose to answer this question, the next question will ask you to provide the specific standard(s) to which you refer.
  - 3a. (If answered Question 3) Given your answer to the previous question, please list the specific grade-level standard(s) to which you refer (e.g. "ELA Reading Standards: Foundational Skills, Grade 2, #3b")
4. What content or skills, if any, do you consider to be missing in the 2011 standards (you recommend adding that content or skill)? Please specify the grade level and provide your reasoning for why this content/skill is critical for all students to learn.

5. Which standards, if any, could be modified to make them clearer or technically accurate? Please include your reasoning. If you choose to answer this question, the next question will ask you to provide the specific standard(s) to which you refer.

5a. (If answered Question 5) Given your answer to the previous question, please list the specific grade-level standard(s) to which you refer (e.g. "ELA Reading Standards for Literature, Grades 9-10, #7").

6. Please describe your experience with the standards and your ideas on how to improve them.

### **Survey Questions for Higher education professor/administrator**

1. Please identify which of the above design features of the 2011 ELA and mathematics standards you most value in support of college and career readiness to the degree that they prepare students to be successful in a college entry-level credit course. Be as specific as possible in describing the implications of each design feature.

2. Please identify the design features of the 2011 ELA and mathematics standards that have been most problematic in support of college and career readiness to the degree that they prepare students to be successful in a college entry-level credit course. Be as specific as possible in describing the implications of each design feature.

3. What content or skills currently included in the 2011 standards, if any, do you consider inappropriate or unnecessary in support of college and career readiness to the degree that they prepare students to be successful in a college entry-level credit course? Please include your reasoning. If you choose to answer this question, the next question will ask you to provide the specific standard(s) to which you refer.

3a. (If answered Question 3) Given your answer to the previous question, please list the specific grade-level standard(s) to which you refer (e.g. "ELA Reading Standards: Foundational Skills, Grade 2, #3b")

4. What content or skills, if any, do you consider to be missing in the 2011 standards (you recommend adding that content or skill)? Please specify the grade level and provide your reasoning for why this content/skill is critical for all students to learn.
5. Which standards, if any, could be modified to make them clearer or technically accurate? Please include your reasoning. If you choose to answer this question, the next question will ask you to provide the specific standard(s) to which you refer.

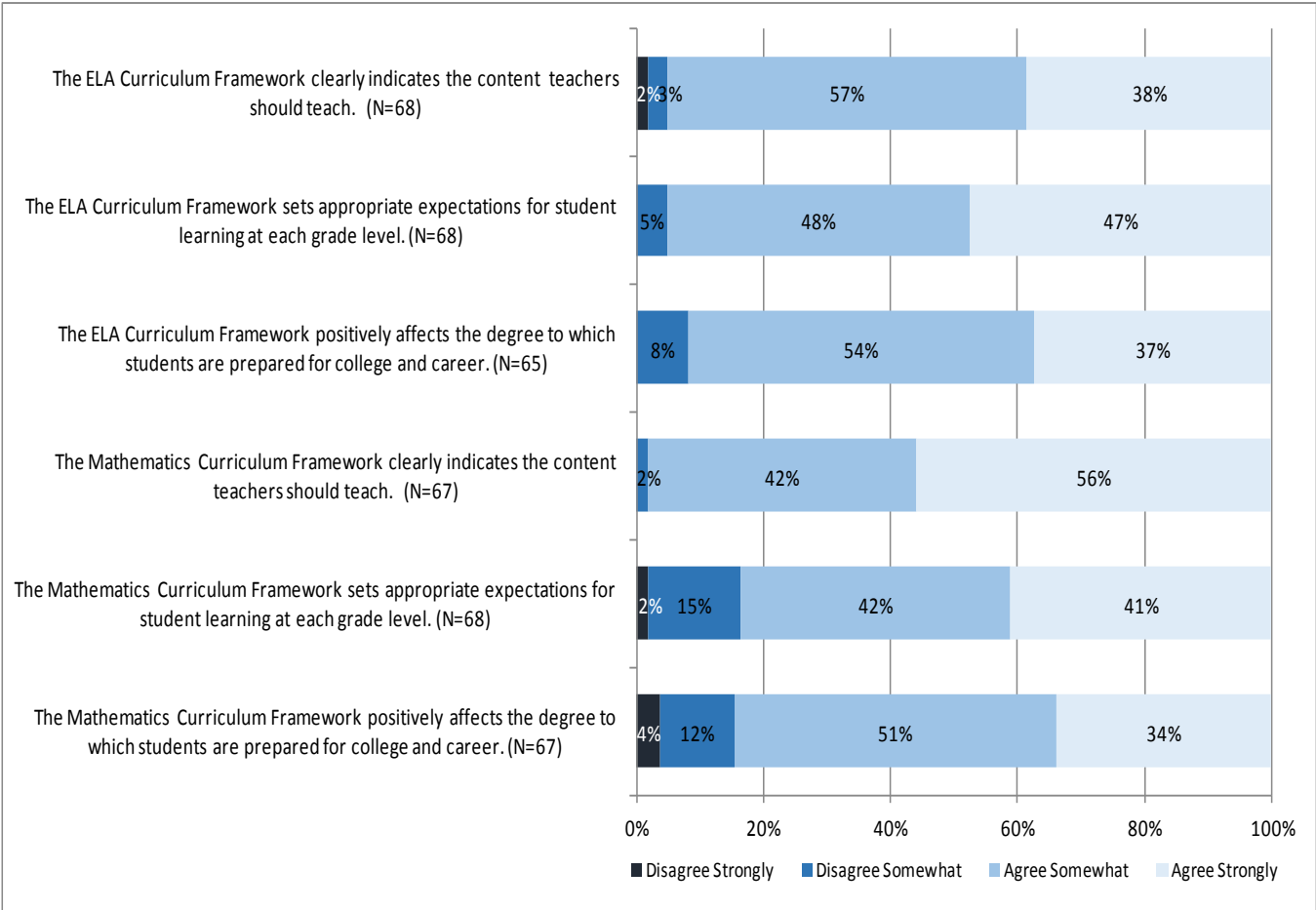
5a. (If answered Question 5) Given your answer to the previous question, please list the specific grade-level standard(s) to which you refer (e.g. "ELA Reading Standards for Literature, Grades 9-10, #7").

6. Please describe your experience with the standards and your ideas on how to improve them.

## Appendix D: VISTA Survey Questions and Responses Related to Curriculum Frameworks

### Superintendent Responses

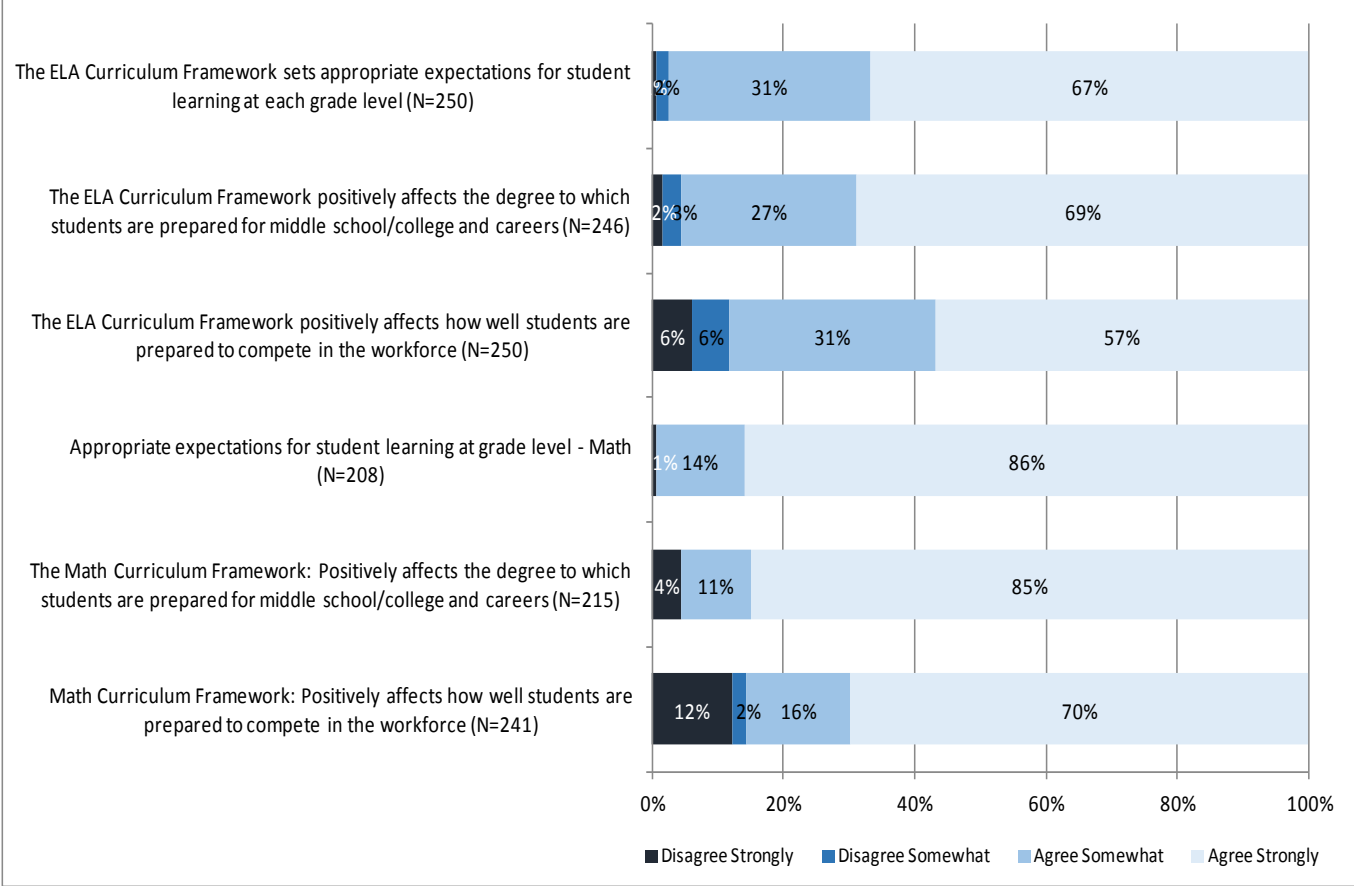
Please indicate the extent to which you agree or disagree with the following statements about the Massachusetts Curriculum Framework.





**Principal Responses**

Please indicate the extent to which you agree or disagree with the following statements about the Massachusetts Curriculum Framework.



## Appendix E: List of ELA/Literacy and Mathematics Content Advisors

Name	Expertise Area		Institution/Organization Role				School/ Organization	Institution Type	Grade Level	Contributor to 1996/1997 or 2011 MA ELA and Mathematics Frameworks
	ELA	Math	Principal/ Asst. Principal	Super/ Asst. Super	Professor	Consultant				
<b>ELA Content Advisors</b>										
William Amorosi	✓					✓				
Mary Ann Cappiello	✓					✓	Lesley University	Private	High. Ed	✓
Erika Thulin Dawes	✓					✓	Lesley University	Private	High. Ed	
Lorretta Holloway	✓					✓	Framingham State University	Public	High. Ed	✓
Brad Morgan	✓		✓				Essex Technical High School	Voc. Tech	High School	
Deborah Reck	✓					✓				
Jane Rosenzweig	✓					✓	Harvard University	Private	High Ed.	✓
<b>Math Content Advisors</b>										
Richard Bisk		✓				✓	Worcester State University	Public	High Ed.	
Andrew Chen		✓				✓	EduTron Corporation			✓
Al Cuoco		✓				✓	Education Development Center			
Sunny Kang		✓				✓	Bunker Hill Community College	Community	High Ed.	
Maura Murray		✓				✓	Salem State University	Public	High Ed.	✓
Kimberly Steadman		✓		✓			Edward Brooke Charter School	Charter School	Elem./ Middle	