

**Massachusetts Standards Added to the**  
*Common Core State Standards for Mathematics*

**Draft for the**  
**Board of Elementary and Secondary Education Discussion**

**December 10, 2010**

## I. Massachusetts Additions: Pre-Kindergarten Standards for Mathematics

As a result of the feedback from the public comment forums and survey, edits were made and are indicated by underlining or striking.

### Counting and Cardinality PK.CC

#### **Know number names and the counting sequence.**

MA.1 Listen to and say the names of numbers in meaningful contexts.

MA.2 Recognize and name written numerals 0 – 10.

#### **Count to tell the number of objects.**

MA.3 Understand the relationship between numerals and quantities up to ten.

#### **Compare numbers.**

MA.4 Count many kinds of concrete objects and actions up to ten, using one-to-one correspondence, and accurately count as many as seven things in a scattered configuration.

MA.5 Use comparative language such as more/less than, equal to, to compare and describe collections of objects.

### Operations and Algebraic Thinking PK.OA

#### **Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.**

MA.1 Use concrete objects to model real-world addition (putting together) and subtraction (taking apart) problems up through five.

### Measurement and Data PK.MD

#### **Describe and compare measurable attributes.**

MA.1 Recognize the attributes of length, area, weight, and capacity of everyday objects using appropriate vocabulary (e.g., long, short, tall, ~~small~~, heavy, light, big, small, wide, narrow).

MA.2 Compare the attributes of length and weight for two objects, including longer/shorter/same length; heavier/lighter/same weight; holds more/less/holds the same amount.

#### **Classify objects and count the number of objects in each category.**

MA.3 Sort, categorize, and classify objects by more than one attribute.

#### **Work with money.**

MA.4 Recognize that certain objects are coins and that dollars and coins represent money.

### Geometry PK.G

#### **Identify and describe shapes (squares, circles, triangles, rectangles, ~~hexagons, cubes, cones, cylinders, and spheres~~).**

MA.1 Identify relative position of objects in space, and use appropriate language (e.g., beside, inside, next to, close to, above, below, apart).

MA.2 Identify various two-dimensional shapes using appropriate language.

#### **Analyze, compare, create, and compose shapes.**

MA.3 Create and represent three-dimensional shapes (ball/sphere, square box/cube, tube/cylinder) using various manipulative materials, such as popsicle sticks, blocks, pipe cleaners, pattern blocks, and so on.

## II. Additional K-12 Standards in Mathematics and Model High School Courses

As a result of the feedback from the public comment forums and survey, edits and changes were made and are indicated by underlining or striking.

### Kindergarten

No additions; no changes

### Grade 1 (2 additions); no edits or changes

MA.1.OA.9 Write and solve number sentences from problem situations that express relationships involving addition and subtraction within 20.

MA.1.MD.5 Identify the values of all U.S. coins, know their comparative values (e.g., a dime is of greater value than a nickel), find equivalent values (e.g., a nickel is equivalent to 5 pennies), and use appropriate notation (e.g., 69¢).

### Grade 2 (2 additions) one edited

MA.2.OA.2a By the end of Grade 2, know from memory related subtraction facts of sums for two one-digit numbers.

MA.2.MD.7a Know relationships of time, including seconds in a minute; minutes in an hour; hours in a day; days in a week, ~~or~~ month, or year; and weeks in a month or a year.

### Grade 3 (0 additions), no edits or changes

No additions

### Grade 4 (1 addition), no edits or changes

MA.4.NBT.5a Know multiplication facts and related division facts through 12 x 12.

### Grade 5 (1 addition), no edits or changes

MA.5.NS.1 Use positive and negative integers to describe quantities such as temperature above/below zero, elevation above/below sea level, or credit/debit.

### Grade 6 (2 additions), one new addition relates to science

MA.6.RP.3e Solve problems that relate the mass of an object to its volume.

MA.6.NS.4a Apply number theory concepts, including prime factorization and relatively prime numbers, to the solution of problems.

MA.6.G.1a Use the relationship between radius, diameter, and center of a circle to find the circumference and area; solve real world and mathematical problems involving the measurements of circles.

MA.6.SP.4a Read and interpret circle graphs.

### Grade 7 (1 addition), no edits or changes

MA.7.EE.4c Extend analysis of patterns to include analyzing, extending, and determining an expression for simple arithmetic and geometric sequences (e.g., compounding, increasing area), using tables, graphs, words, and expressions.

### Grade 8 (0 additions), no edits or changes

No additions

### Grades 9-12 (9 additions), one edited, one additional standard

MA.9-12.N.Q.3a Describe the effects of approximate error in measurement and rounding on measurements and on computed values from measurements. Identify significant

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precision of the tools used to measure.

MA.CC.9-12A.REI.3a. Solve linear equations and inequalities in one variable involving absolute value.

MA.9-12.A.REI.4c Demonstrate an understanding of the equivalence of factoring, completing the square, or using the quadratic formula to solve quadratic equations.

MA.A.APR.1.a Divide polynomials.

MA.9-12.F.IF.8c Translate between different representations of functions and relations: graphs, equations, point sets, and tables.

MA.9-12.F.IF.10 Given algebraic, numeric and/or graphical representations of functions, recognize the function as polynomial, rational, logarithmic, exponential, or trigonometric.

MA.9-12.G.CO.11a Prove theorems about polygons. *Theorems include: measures of interior and exterior angles, properties of inscribed polygons.*

MA.9-12.G.C.8a Derive the formula for the relationship between the number of sides and sums of the interior and sums of exterior angles of polygons and apply to the solutions of mathematical and contextual problems.

MA.9-12.G.GPE.3a (+) Use equations and graphs of conic sections to model real-world problems.

MA.9-12.G.MG.4 Use dimensional analysis for unit conversions to confirm that expressions and equations make sense.

#### Model High School Courses

In response to the public comment high school survey, footnotes were added or clarified to further specify the scope of content to be covered in each course. In addition, the appropriate probability standards were included in the Geometry model course.