

Math Presentation for Sixth Grade Parents

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"The math you learn in grades 6, 7, and 8 is more important in most people's lives than any math you'll learn after that. It is the mathematics you use in real life and on most jobs... If it's so important, maybe we should spend more time on it, not less time on it."

- Phil Daro
Common Core writer

Agenda

- Common Core Curriculum
- New Middle School Math
 - Grade 6 math
 - Entrance Exam for grade 7 math
 - Grade 7 math
 - Grade 8 math
- High School changes
- Middle Schoolers' development
- Waivers
- Questions and answers?

Our Past Practice

Grade 6

- All students take same course, instruction is differentiated
- In spring, teachers recommend students to 7-1 or 7-2 math

Grade 7

- The same textbook is used in both levels
- 7-1 moves faster and makes room for advanced work and additional concepts
- In spring, teachers recommend students for Pre-Algebra or Algebra

Grade 8

- Algebra I taken by over half of students
- Pre-Algebra taken by less than half of students
- In spring, students recommended for Geometry or Algebra I

New Common Core Math Standards Inform New Massachusetts Math Standards (2011)

The new standards are characterized by:

- Less breadth and more depth
- Less repeated coverage of concepts
- Greater emphasis on application mastery
- Greater real world relevance
- Greater emphasis on developing math practices (habits and ways of thinking)

The Goal: *College and Career Ready* by Grade 12

The Result: Higher expectations in all preceding grades

New Math Standards = More Rigor

Grade 7: 25 Content Standards

Grade 8: 28 Content Standards

Grade 9 - Algebra I: 50 Content Standards

A Compacted Curriculum for Accelerated Middle School Math Students

Accelerated 7th grade course:

Learn all seventh grade standards	25
Learn some of the eighth grade standards	15
Total Standards to Learn	40

Accelerated 8th grade course:

Learn remaining eighth grade standards	13
Learn all of the ninth grade standards	50
Total Standards to Learn	63

Grade 7 Compacted Curriculum

- **Unit 1: Rational Numbers and Exponents**
(6 additional standards involving irrational numbers, decimal expansion, rational approximations, integer exponents, cube roots, scientific notation expressions and problem solving)
- **Unit 2: Proportionality and Linear Relationships**
(3 additional standards involving graphing and comparing proportional relationships, similar triangles, slope, linear equations, solving systems of equations)
- **Unit 3: Introduction to Sampling and Inference**
(No additional standards)
- **Unit 4: Creating, Comparing, and Analyzing Geometric Figures**
(6 additional standards involving transformations, transversals, congruence, similar figures, volume of cylinders, cones and spheres)

Sample Gr. 8 Standard in Gr. 7 Compacted Curriculum

Understand congruence and similarity using physical models, transparencies, or geometry software.

8.G.1 Verify experimentally the properties of rotations, reflections, and translations:

- a. Lines are taken to lines, and line segments to line segments of the same length.
- b. Angles are taken to angles of the same measure.
- c. Parallel lines are taken to parallel lines.

Sample Gr. 8 Standard in Gr. 7 Compacted Curriculum

Understand congruence and similarity using physical models, transparencies, or geometry software.

8.G.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

Sample Gr. 8 Standard in Gr. 7 Compacted Curriculum

Understand congruence and similarity using physical models, transparencies, or geometry software.

8.G.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

8.G.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

Sample Gr. 8 Standard in Gr. 7 Compacted Curriculum

Understand congruence and similarity using physical models, transparencies, or geometry software.

8.G.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*

Grade 8 Compacted Curriculum

<p>Standard Curriculum: 28 Content Standards</p> <ul style="list-style-type: none"> • Unit 1: Formulating, Reasoning, and Modeling with Linear Equations • Unit 2: Linear Functions • Unit 3: Patterns of Association with Bivariate Data • Unit 4: Creating, Comparing, and Analyzing Geometric Figures • Unit 5: Expressions and Equations 	<p>Compacted Curriculum: 63 Content Standards</p> <ul style="list-style-type: none"> • Unit 1: Relationships between Quantities and Reasoning with Equations • Unit 2: Linear and Exponential Functions • Unit 3: Descriptive Statistics • Unit 4: Expressions and Equations • Unit 5: Quadratic Functions and Modeling
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From a Sample Textbook

PACING GUIDE

Regular:
Chapters 1-10: 154 Days

Accelerated:
Chapters 1-18: 152 Days

	Regular	Accelerated
Scavenger Hunt	1 Day	1 Day
Chapter 1	14 Days	4 Days
Chapter Opener	1 Day	1 Day
Section 1.1	2 Days	1 Day
Section 1.2	2 Days	0.5 Day
Section 1.3	2 Days	0.5 Day
Study Help/Quiz	1 Day	0 Days
Section 1.4	2 Days	0.5 Day
Section 1.5	2 Days	0.5 Day
Chapter Review/Chapter Tests	2 Days	0 Days

Who should take the Compacted Curriculum?

- Students who learn abstract math concepts quickly
- Students who excel at applying math concepts in new and complex ways
- Students with well developed and consistent study habits

Student Placement

Sixth grade teachers will make a recommendation based upon the following factors:

- Test scores from this year's course
- A district placement test to be given soon
- Previous standardized test scores: MCAS & GMADE
- Consideration of the student's demonstrated work and study habits.

High School Implications

Scenario 1: From Grade 8 Compacted Course

Grade 9: Geometry
Grade 10: Algebra II
Grade 11: Pre Calculus
Grade 12: Calculus, AP Statistics

Scenario 2: From Grade 8 Standard Course

Grade 9: Algebra I
Grade 10: Geometry
Grade 11: Algebra II
Grade 12: Pre Calculus

High School Implications

Scenario 3: From Grade 8 Standard Course

Gr. 9: Algebra I (Honors)
Gr. 10: Geometry (Honors)
Gr. 11: Algebra II(Honors)
Grade 12: Pre Calculus (Honors)

Scenario 4: From Grade 8 Standard Course

Gr. 9: Algebra I
Gr. 10: Geometry & Algebra II
Grade 11: Pre Calculus
Grade 12: Calculus, Advanced Statistics

Considerations

- Parents waiving students into compacted sequence—this is a two year decision
- Moving students out of compacted class in Grade 7
- Moving students out of compacted class in Grade 8
- HS implications for students who earn Cs or lower in compacted Grade 8

Questions ?


