Amherst Regional Middle School
7th Grade Math Program

Informational Session

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Overview

1. K-12 Math Program Goals
2. Math 7 & Math 7 Flex
3. “Big Ideas”
4. MS to HS course sequence
5. Next Steps
Math (K-12)

Provide a **rigorous, meaningful, coordinated, standards-based** and **engaging** mathematics curriculum for **all** students.

Have as many students as possible **prepared to take** and **succeed** in **advanced HS math courses**.

**Four Features:**

- High quality, research-based curriculum materials
- Differentiated instruction
- Professional development
- Criterion-based assessments
Math Program Goals (6-8)

- Ensure **access** to a guaranteed, viable, rigorous, and aligned **core math curriculum** for all students
- **Align** math curriculum with the Massachusetts Curriculum Frameworks, the Common Core State Standards and new assessments
- Create a sustainable and **transparent math course pathway** for 6th, 7th, 8th, and HS program.
- Provide **resources** to support math learning for all students (e.g., technology, challenge, practice)
- Develop **targeted intervention program** to support the core math program.
Model for Supporting High Math Achievement

- Extended **window of opportunity** for movement between courses.
- **Aligned** and interrelated courses
- **Intervention** aligned with core program
Math 7 and Math 7 Flex

Math 7 and Math 7 Flex
• Same standards-based textbook
• Distribution of class time:
  – Practice Math Skills
  – Apply Math Concepts and Skills
  – Explicit Teaching
  – Mathematical Discussion/Argumentation

Math 7 Flex
  – Quickly learn skills/algorithms
  – Fully participate in class discussions/activities
  – Apply concepts to new situations
  – Explain concepts and their thinking, orally and in writing
  – Maintain high level of performance on all assessments
Initial Placement

• Multiple Forms of Assessments
  – MCAS
  – Mid-Unit Assessments
  – End-of-Unit Assessments
  – Open Response Questions

• Teacher Recommendations:
  – Participation in activities and assignments
  – Takes on challenging work
  – Participation in debates
  – Not afraid to work slowly to fully understand a concept/problem
  – Shows and explains thinking
Movement Between Math 7 & Math 7 Flex

• Multiple Data Sources
  – Quizzes, tests
  – Performance tasks
  – Teacher observations
  – Student class work
  – MCAS

• Team Process

7th grade math teachers teach both course sections.
Math Intervention (7-8)

• Balance Student Needs
  – Review and pre-teach core curriculum
  – Target specific concepts/skills

• “Big Ideas”
  – Differentiation lessons
  – Skills review/practice

• Math Navigator
  – Targeted concept focus

• VELA after school and summer program
Big Ideas Math

Complete Common Core Programs for Middle School
by Ron Larson and Laurie Boswell

Big Ideas Math is the only research-based program developed using the Common Core Standards for Mathematical Practice.

Learn More
- Program Overview
- Multiple Pathways
- Mathematical Practices
- A Balanced Approach
- Daily Support for Teachers
- Personalized Learning
- Assessment Preparation

Introducing...
the new edition of the Common Core Multiple Pathways Big Ideas Math Program
Essential Question: How can you simplify an algebraic expression?

ACTIVITY: Simplifying Algebraic Expressions

Work with a partner.

a. Evaluate each algebraic expression when \( x = 0 \) and when \( x = 1 \). Use the results to match each expression in the left table with its equivalent expression in the right table.

<table>
<thead>
<tr>
<th>Expression</th>
<th>Value When</th>
</tr>
</thead>
<tbody>
<tr>
<td>( 3x + 2 - x + 4 )</td>
<td>( x = 0 )</td>
</tr>
<tr>
<td>( 5(x - 3) + 2 )</td>
<td>( x = 0 )</td>
</tr>
<tr>
<td>( x + 3 - (2x + 1) )</td>
<td>( x = 0 )</td>
</tr>
<tr>
<td>( -4x + 2 - x + 3x )</td>
<td>( x = 0 )</td>
</tr>
<tr>
<td>( -(1 - x) + 3 )</td>
<td>( x = 0 )</td>
</tr>
<tr>
<td>( 2x + x - 3x + 4 )</td>
<td>( x = 0 )</td>
</tr>
<tr>
<td>( 4 - 3 + 2(x - 1) )</td>
<td>( x = 0 )</td>
</tr>
<tr>
<td>( 2(1 - x + 4) )</td>
<td>( x = 0 )</td>
</tr>
<tr>
<td>( 5 - (4 - x + 2x) )</td>
<td>( x = 0 )</td>
</tr>
<tr>
<td>( 5x - (2x + 4 - x) )</td>
<td>( x = 0 )</td>
</tr>
</tbody>
</table>

b. Compare each expression in the left table with its equivalent expression in the right table. In general, how do you think you obtain the equivalent expression in the right column?
3.1 Lesson

Key Vocabulary
- Like terms, p. 82
- Simplest form, p. 82

Parts of an algebraic expression are called terms. **Like terms** are terms that have the same variables raised to the same exponents. Constant terms are also like terms. To identify terms and like terms in an expression, first write the expression as a sum of its terms.

**EXAMPLE 1**

**Identifying Terms and Like Terms**

Identify the terms and like terms in each expression.

- **a.** $9x - 2 + 7 - x$
  - Rewrite as a sum of terms.
  - Terms: $9x$, $-2$, $7$, $-x$
  - Like terms: $9x$ and $-x$, $-2$, and 7

- **b.** $z^2 + 5z - 3z^2 + z$
  - Rewrite as a sum of terms.
  - Terms: $z^2$, $5z$, $-3z^2$, $z$
  - Like terms: $z^2$ and $-3z^2$, $5z$ and $z$

An algebraic expression is in **simplest form** when it has no like terms and no parentheses. To combine like terms that have variables, use the Distributive Property to add or subtract the coefficients.

**EXAMPLE 2**

**Simplifying an Algebraic Expression**

Simplify $\frac{3}{4}y + 12 - \frac{1}{2}y - 6$.

- Rewrite as a sum.
  - $\frac{3}{4}y + 12 - \frac{1}{2}y - 6 = \frac{3}{4}y + 12 + \left(-\frac{1}{2}y\right) + (-6)$
  - $= \frac{3}{4}y + \left(-\frac{1}{2}y\right) + 12 + (-6)$ (Commutative Property of Addition)
  - $= \left[\frac{3}{4} + \left(-\frac{1}{2}\right)\right]y + 12 + (-6)$ (Distributive Property)
  - $= \frac{1}{4}y + 6$

**On Your Own**

Identify the terms and like terms in the expression.

1. $y + 10 - \frac{3}{2}y$
2. $2r^2 + 7r - r^2 - 9$
3. $7 + 4p - 5 + p + 2q$

Simplify the expression.

4. $14 - 3z + 8 + z$
5. $2.5x + 4.3x - 5$
6. $\frac{3}{8}b - \frac{3}{4}b$
At Home

• Parent Letter
• [www.bigideasmath.com](http://www.bigideasmath.com)
  – Complete student textbook
  – Additional resources
    • Printable resources
    • Interactive models
    • Video tutorials
    • Glossary
    • Review and Practice
  – Game Closet
  – Basic Skills Handbook
  – Skills Review Handbook
8th Grade Math

Two 8th Grade Math Courses

• Algebra 8
• Algebra 8+

Algebra 8+ moves at a faster pace such that additional math content will be taught:

Exponential Equations and Factors
Polynomial Equations and Factoring
Graphing Quadratic Functions
Solving Quadratic Equations

Successful completion of Algebra 8+ positions students to be able to take high school math courses that lead to the option of taking Calculus in high school.
What Options Do Algebra 8 Students Have for Being Prepared to Take a 9th Grade Honors Math?

Option 1: Grade 8 Math Elective

Option 2: Four Week Summer Program (2 hours/day)

Option 3: Grade 9 Math Elective

The goal of these options is to give students more time to learn the required course content such that students are positioned to succeed in a more advanced math course.

We plan to survey students and families about these options as part of the elective course registration process.
Next Steps

• Standards-based progress reports
  (February, April, June)

• All students will receive a letter home
  indicting seventh course placement for Fall 2014.
  (Letter to arrive no later than May 29th).
Thank You
MS/HS Course Sequence

Math 7

Math 7 Flex

Algebra 8

Algebra 8+

Elective

College Prep

Honors

Summer
Calculus in 11th Grade Option

Amherst Regional High School (current)
• “Doubling Up:” Four trimesters math in one school year
• Self-Study Option
  – 95% test average from current course
  – Portfolio to represent understanding of concepts and skills
  – 85% on final exam
  – Working with teacher, tutor, or parent/guardian with strong math background to engage in mathematical discourse

Amherst Regional Middle School (beginning Feb 2014)
• Offer a student portfolio option for 9th grade math course content. MS students complete a Carnegie Learning self-study course and assessments, submit portfolio problems, and participate in an afterschool program and/or engage in ongoing electronic communication with portfolio teacher.