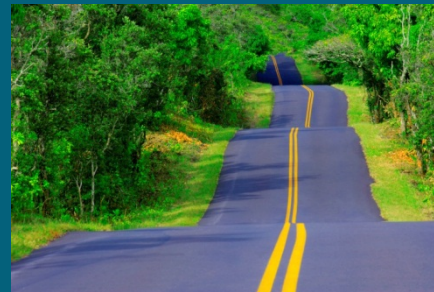


MUSD'S ROAD MAP TO THE COMMON CORE



Middle School Math Presentation

Background

- State-led effort, not a federal mandate
- Internationally benchmarked
- 21st Century Learning
- Consistent standards across states

Created by Collaborative Groups

- Parents
- Educators
- Experts
- Researchers
- National Organizations
- Community Groups

California's Influence on CCSS

The state standards of California and Massachusetts greatly aided in the development of the CCSS. Many of the authors of California's standards also worked on the new standards.

Goal of the CCSS

To create students
who are college and
career ready



College and Career Ready Students

- Demonstrate independence
- Build strong content knowledge
- Respond to the varying demands of audience, task, purpose and discipline
- Comprehend and critique
- Utilize evidence
- Use technology and digital media strategically and capably
- Understand other perspectives and cultures

Why Common Core?



Attributes of Common Core State Standards

The Standards DO.....

- establish what students need to learn
- Provide a clear set of shared goals and expectations for what knowledge and skills will help students succeed

The Standards DO NOT.....

- dictate how teachers should teach
- amount to a national curriculum for schools

Students, Teachers and Administrators Can Expect to See More...

- project-based learning,
- fewer multiple-choice tests,
- more open-ended questions on schoolwork, and
- a greater emphasis on informational texts and non-fiction text.

CCSS Two Organizational Frameworks

English Language Arts

- **College and Career Readiness Anchor Standards**
- **K-12 Content Standards**
- **6-12 Literacy Standards for History/Social Studies, Science and Technical Subjects.**

Mathematics

- **Mathematical Practices “Habits of Mind”**
- **K-12 Content Standards**

What does English Language Arts Include?

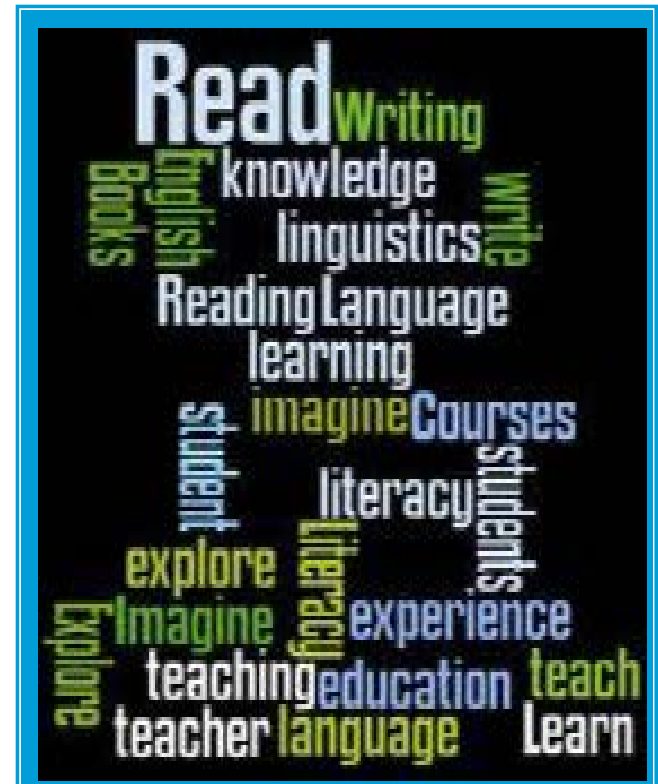
Reading

Writing

Speaking

Listening

Language



ELA Shifts

1. **Building knowledge through content-rich nonfiction**
2. Reading, writing, and speaking grounded in **evidence from text**, both literary and informational
3. Regular practice with **complex text** and its **academic language**

What are the Standards for Mathematical Practice?

Describe “habits of mind” of a mathematically proficient student



Mathematical Practices: Life Skills

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning

Math Shifts

- 1. Focus:** Focus strongly where the Standards focus.
- 2. Coherence:** Think across grades, and link to major topics within grades.
- 3. Rigor:** In major topics, pursue **conceptual understanding**, procedural skill and **fluency**, and **application**.

Guiding Principles for Common Core Math Standards

- Math content and habits of mind needed for college and career
- Get away from a curriculum that's “a mile wide and an inch deep”
- Build mathematics in meaningful progressions of related ideas rather than isolated pieces of information
- Math presented as reasoning and problem solving rather than procedures to get answers

Organizing: From Content to Courses

- K-8 math is taught as an integrated subject, with connections across the domains: number, algebra, geometry, measurement and statistics & probability
- How should the first 3 years of “high school” math be organized:
 - * Algebra 1, Geometry, Algebra 2 (U.S. Tradition)
 - OR
 - * Math 1, Math 2, Math 3 (International Model)
- Pre-Calculus & Calculus taught as integrated subjects (Algebra, Trigonometry & Geometry)

High School Pathways

Courses in higher level mathematics: Precalculus, Calculus*, Advanced Statistics, Discrete Mathematics, Advanced Quantitative Reasoning, or courses designed for career technical programs of study.

Algebra II

Geometry

High School
Algebra I

Traditional Pathway
Typical in U.S.

Mathematics III

Mathematics II

Mathematics I

Integrated Pathway
Typical outside of U.S.

Critical question

- What is the main difference between the two pathways?
 - ▣ The traditional pathway teaches Geometry as a topic apart from Algebra and Functions.
 - ▣ The integrated pathway continues to teach Geometry, Algebra, and Functions together, just as it is in K-8.

MUSD Chooses Math Integrated Pathway



Math Integrated Pathway

- The United States ranked 25th out of 34 top performing countries in Math and 17th in Science (2012, Programme for International Student Assessment of Educational Progress)
- Current performance of U.S. students is not strong enough to keep up with changing economy
 - 42% of 4th graders and 36% of 8th graders scored proficient or advanced in mathematics on the National Assessment of Educational Progress, the Nation's Report Card
 - Approximately 40% of UC/CSU students enroll in remedial classes in mathematics. Although performance on math CST's have been increasing, they are not adequately preparing our students for success in career or college preparation

Math Integrated Pathway

- “The strength of the integrated model is not that standards are taught in context, but rather that they are viewed as connected to other standards, both within and across mathematical domains”
- Critical to long-term success in mathematics and STEM disciplines

Math Integrated Pathway

- Math for life requires use of all math skills in an integrated way
- Proven success of the integrated approach internationally (U.S. ranked 26th of 34 countries on PISA)
- Strengthening “coherence” as links are built naturally between math domains
- Smarter Balanced Assessments are all integrated
- Performance Tasks require use of all math skills in an integrated way

Math 6/6H: Integrated Approach

□ Big Ideas

*Slightly narrowed focus

□ Numbers

- Fractions and other rational numbers

□ Ratios & Proportional Relationships

□ Expressions & Equations (Beginning of Formal Algebra)

□ Geometry

- Areas and Volumes

□ Statistics & Probability

- Sharing and summarizing data

ALL Math 6/6H Students

- Will be assessed at end of year
 - ▣ Determine if developmentally ready to enter into math acceleration pathway
- First entry point into math acceleration pathway

Math 7: An Integrated Approach

□ Big Ideas

□ Numbers

- Integer Operations

□ Ratios & Proportional Reasoning

□ Expressions & Equations

□ Geometry

- Areas and Volumes
- Scales and drawing scale figures

□ Statistics and Probability

- Probability and variability in data

Math 8: An Integrated Approach

□ Big Ideas

□ Numbers

- Rational and Irrational Numbers (Currently Algebra I)

□ Linear Algebra (Currently Algebra I)

□ Geometry

- Transformational Geometry (currently high school geometry)
- Pythagorean Theorem (currently high school geometry)

□ Statistics & Probability

- Linear Regression (currently AP Statistics)

Middle School Honors Sequence

- Math 6H: Math 6 with enrichment activities
- Math 7H: Math 7 plus first half of Math 8
- Math 8H: Second half of Math 8 plus Math 1

Math 1: An Integrated Approach

- Algebra
 - ▣ Extending Linear Algebra
 - Systems of Equations & Inequalities
 - Arithmetic & Geometric Sequences (currently Algebra II)
 - Exponential Functions
- Geometry
 - ▣ Congruence & Coordinate Geometry
- Statistics
 - ▣ Normal distributions & Standard Deviations
 - ▣ Correlations
 - ▣ Linear Regression using correlation coefficients and residuals to analyze the “goodness of fit” of your model

Opportunities for Acceleration

(5 Ways to Enroll in AP Calculus)

7 th Grade	8 th Grade	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Algebra I	Geometry	Algebra II	Pre-Calculus	AP Calculus AB	AP Calculus BC or AP Statistics
Math 7H (2015- 2016)	Math 8H	Math 2H	Math 3H	AP Calculus AB	AP Calculus BC or AP Statistics
Math 7	Math 8	Math 1H	Math 2H	Math 3H	AP Calculus
Math 7	Math 8	Math 1	Math 2H	Math 3H	AP Calculus
Math 7	Math 8	Math 1	Math 2	Math 3 *Pre-Calc in Summer	AP Calculus

Opportunities for Acceleration

(5 Ways to Enroll in AP Calculus)

7 th Grade	8 th Grade	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Algebra I	Geometry	Algebra II	Pre-Calculus	AP Calculus AB	AP Calculus BC or AP Statistics
Math 7H (2015-2016)	Math 8H	Math 2H	Math 3H	AP Calculus AB	AP Calculus BC or AP Statistics
Math 7	Math 8	Math 1H	Math 2H	Math 3H	AP Calculus
Math 7	Math 8	Math 1	Math 2H	Math 3H	AP Calculus
Math 7	Math 8	Math 1	Math 2	Math 3 *Pre-Calc in Summer	AP Calculus

Opportunities for Acceleration

(5 Ways to Enroll in AP Calculus)

7 th Grade	8 th Grade	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Algebra I	Geometry	Algebra II	Pre-Calculus	AP Calculus AB	AP Calculus BC or AP Statistics
Math 7H (2015-2016)	Math 8H	Math 2H	Math 3H	AP Calculus AB	AP Calculus BC or AP Statistics
Math 7	Math 8	Math 1H	Math 2H	Math 3H	AP Calculus
Math 7	Math 8	Math 1	Math 2H	Math 3H	AP Calculus
Math 7	Math 8	Math 1	Math 2	Math 3 *Pre-Calc in Summer	AP Calculus

Opportunities for Acceleration

(5 Ways to Enroll in AP Calculus)

7 th Grade	8 th Grade	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Algebra I	Geometry	Algebra II	Pre-Calculus	AP Calculus AB	AP Calculus BC or AP Statistics
Math 7H (2015-2016)	Math 8H	Math 2H	Math 3H	AP Calculus AB	AP Calculus BC or AP Statistics
Math 7	Math 8	Math 1H	Math 2H	Math 3H	AP Calculus
Math 7	Math 8	Math 1	Math 2H	Math 3H	AP Calculus
Math 7	Math 8	Math 1	Math 2	Math 3 *Pre-Calc in Summer	AP Calculus

Opportunities for Acceleration

(5 Ways to Enroll in AP Calculus)

7 th Grade	8 th Grade	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Algebra I	Geometry	Algebra II	Pre-Calculus	AP Calculus AB	AP Calculus BC or AP Statistics
Math 7H (2015-2016)	Math 8H	Math 2H	Math 3H	AP Calculus AB	AP Calculus BC or AP Statistics
Math 7	Math 8	Math 1H	Math 2H	Math 3H	AP Calculus
Math 7	Math 8	Math 1	Math 2H	Math 3H	AP Calculus
Math 7	Math 8	Math 1	Math 2	Math 3 *Pre-Calc in Summer	AP Calculus

2014-2015 Timeline

□ 2013-2014

□ 5th graders:



□ 6th graders:



□ 7th graders

▣ Math 7 (Pre-Algebra)

▣ Math 7H (Pre-Algebra H)

▣ Algebra CP

□ 8th graders

▣ Algebra Readiness

▣ Algebra CP

▣ Geometry

2014-2015

Math 6/Math 6H

Math 7/Math 7H

Math 8

Math 8

Geometry

Math 1 or Math 1A

Geometry or Math 1

Algebra II



Thank You!

□ Questions?

- Fill out card with your email address
- Visit MUSD Web Page:
 - www.mrpk.org
 - For Parents
 - Common Core State Standards
- Contact your child's school
- Attend Back to School Night in Fall 2014