Mathematics in the Middle Grades

View this presentation to learn information about middle school mathematics articulation; see examples of course work as determined by the new common core standards and understand mathematic course pathways from elementary through high school.

Mathematics in the Middle Grades

This presentation provides information about the mathematics program in middle school as Montgomery County Public Schools (MCPS) moves to additional courses based on the Common Core State Standards. This information has also been shared with all county elementary and middle schools. If you have questions, please contact your school directly.

Goals of the MCPS Mathematics Program

- Develop students who love math and see it as useful to solving problems and making sense of the world.
- All students will reach proficiency in math – Understanding, Computing, Applying, Reasoning, and Engaging (UCARE).
- Provide students the skills and option to take AP level math in high school.

The Changing Landscape

2009–2010

Math Work Group

2010

Begin Common Core State Standards & Curriculum 2.0

USM

Minimum Entrance Requirement Class of 2015

PARCC

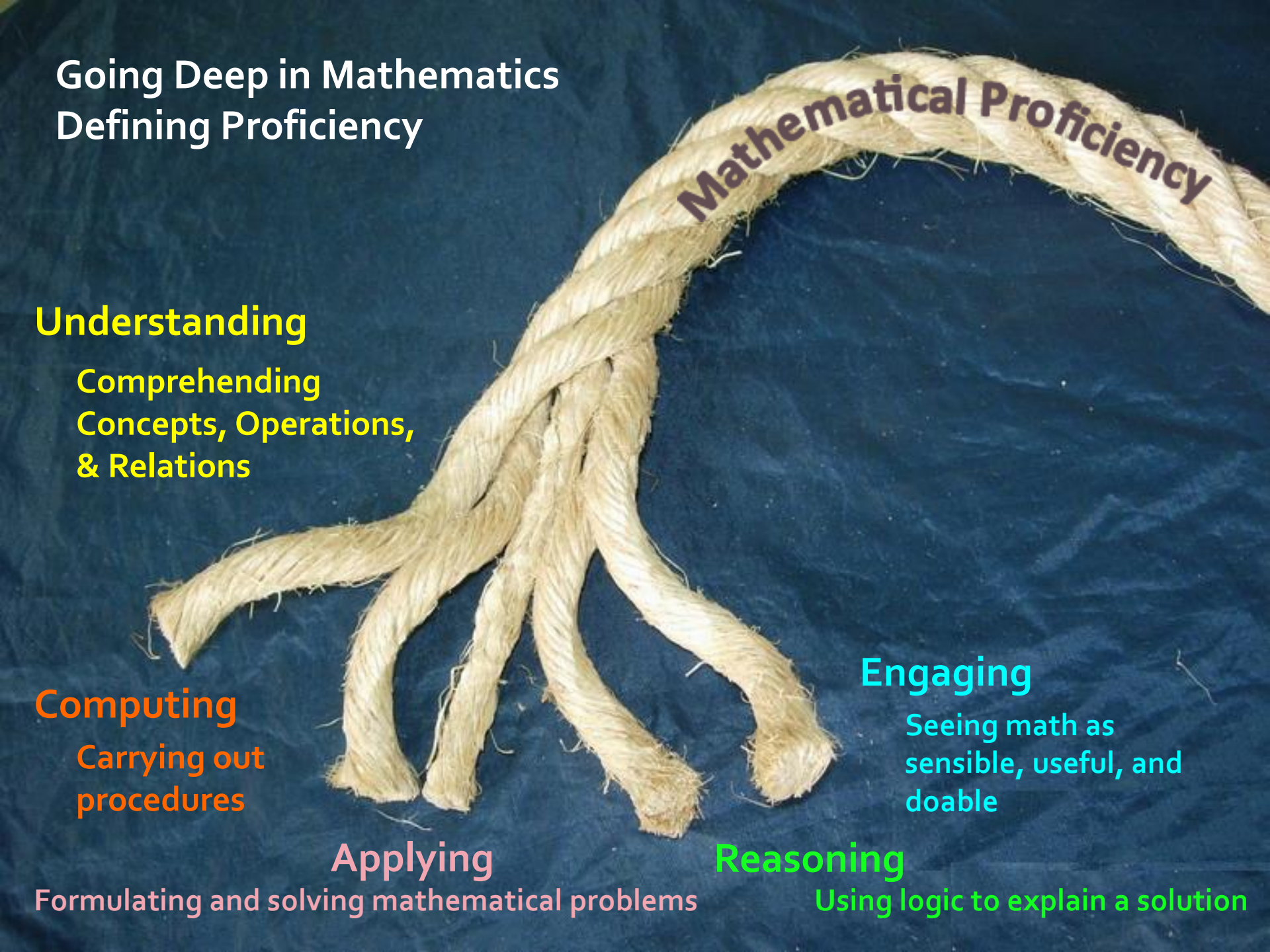
2014

Baseline Year

Deeper Understanding In Math

Building a Stronger Foundation

So what does deeper understanding in math look like?


Going Deep in Mathematics
Defining Proficiency
Mathematical Proficiency
Understanding
Comprehending
Concepts, Operations,
& Relations
Computing
Carrying out
procedures
Engaging
Seeing math as
sensible, useful, and
doable
Applying
Formulating and solving mathematical problems
Reasoning
Using logic to explain a solution

Comparison of Assessments

The next two slides talk about the differences in the way student knowledge is tested.

The first example is a sample from the current Maryland School Assessment (MSA) Grade 6 Math test.

The second examples is a sample from the Partnership for Assessment of Readiness for College and Career (PARCC). This test will be field tested this year and in place for 2014-2015.

Comparing Math 6: MSA

George is making two cakes using two different recipes. One recipe uses $1\frac{1}{3}$ cups of flour and the other recipe uses $1\frac{3}{4}$ cups of flour. What is the total amount of flour, in cups, needed for both recipes?

A. $2\frac{1}{12}$ cups

B. $2\frac{4}{7}$ cups

C. $3\frac{1}{12}$ cups

D. $3\frac{3}{7}$ cups

Comparing Math 6: PARCC

Mr. Ruiz is starting a marching band at his school. He first does research and finds the following data about other local marching bands.

	Band 1	Band 2	Band 3
Number of Brass Instrument Players	123	42	150
Number of Percussion Instrument Players	41	14	50

Part A

Type your answer in the box. Backspace to erase.

Mr. Ruiz realizes that there are ☐ brass instrument player(s) per percussion player.

Part B

Mr. Ruiz has 210 students who are interested in joining the marching band. He decides to have 80% of the band be made up of percussion and brass instruments. Use the unit rate you found in Part A to determine how many students should play brass instruments.

Show or explain all your steps.

Comparison of Curriculums

The next three slides provide comparisons between current MCPS courses (from the 2001 curriculum framework) and the new Curriculum 2.0 courses (based on the Common Core State Standards).

Comparing Math 6

MCPS Version 2001 Framework Math 6	C2.0 Math 6
Content	Content and Practices Classroom Culture shift
Correct answer (& explanation)	Strategies and correct answer Depth of understanding
Individual achievement	Small group collaboration and individual achievement
Coherence and rigor	Focus, coherence, rigor
Teach and test	Learning progressions

Comparing MCPS Math 7 and C2.0 Math 6

MCPS Version 2001 Framework Math 7	**C2.0 Math 6**
Content	Content and Practices Classroom Culture shift
Correct answer (& explanation)	Strategies and correct answer Depth of understanding
Individual achievement	Small group collaboration and individual achievement
Coherence and rigor	Focus, coherence, rigor
Teach and test	Learning progressions

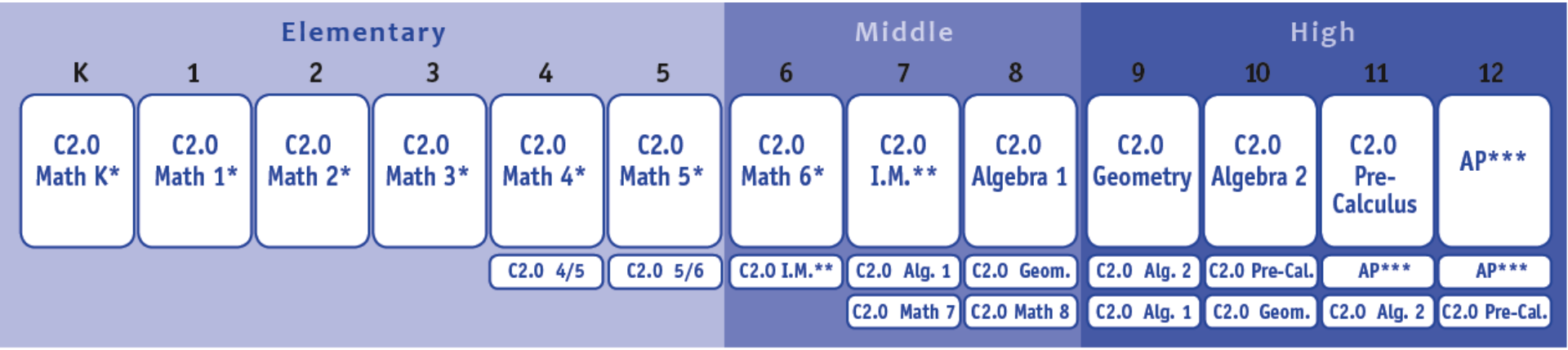
Comparing MCPS and C2.0 IM

MCPS Version 2001 IM	C2.0 IM
Statistical reasoning, data distributions, set theory, probability	Sampling, inferences, probability
Rational number operations, roots and powers, proportions	Rational number operations, radicals, integer exponents, proportionality
Constructions, congruence/similarity, surface area and volume	Angles, area, surface area, volume, congruence/similarity
Patterns and functions	Expressions, equations, rate of change, systems of equations
Equations, rate of change, graphing, lines of best fit	
Finite number systems	

The New Curriculum

The following two slides provide an overview of the courses that will eventually be the courses available in mathematics and when these courses will be implemented in MCPS.

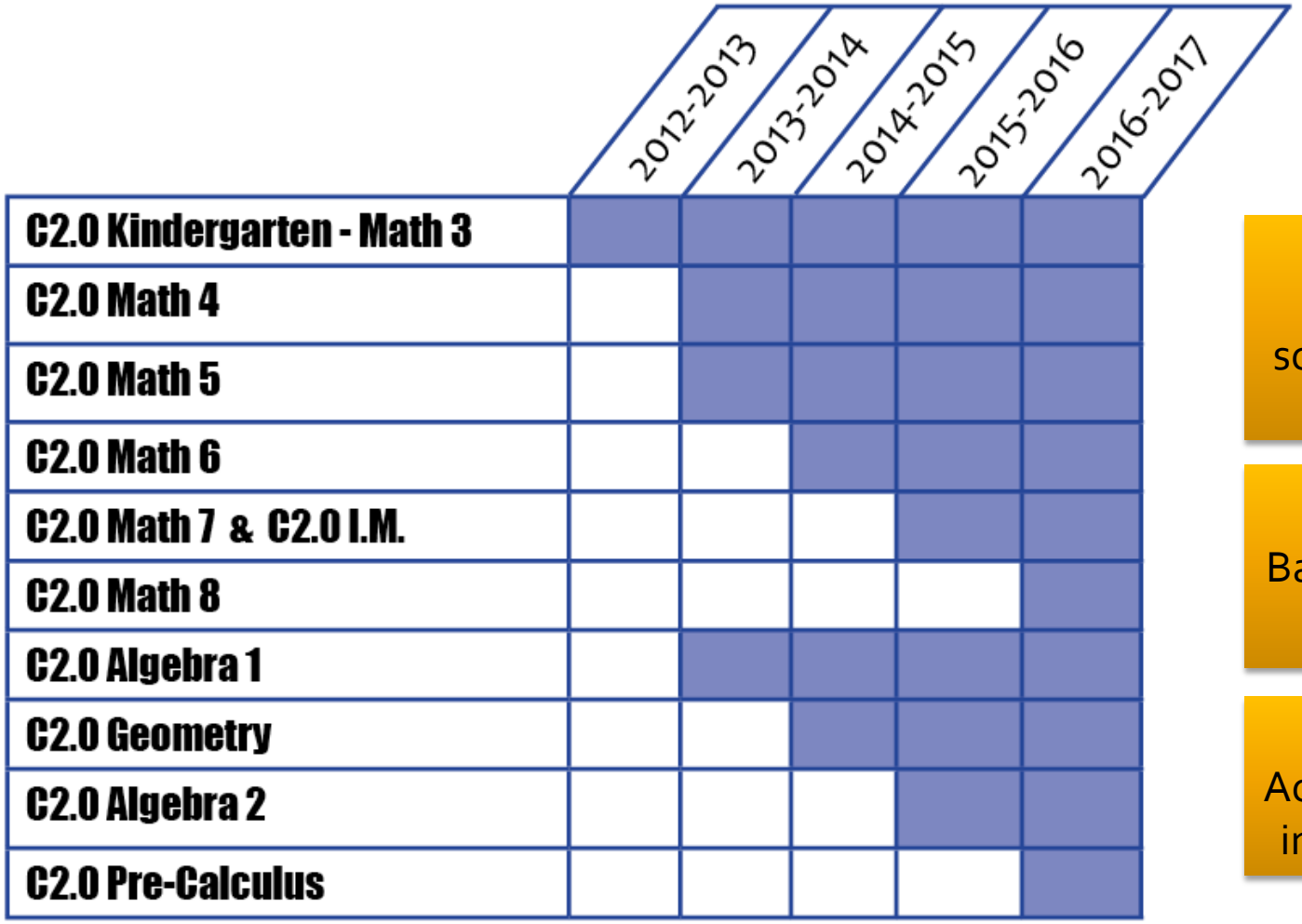
Courses That Lead To College and Career Readiness



** Including MCPS enrichment and acceleration opportunities*
*** Investigations in Math*
**** Advanced Placement Calculus, Advanced Placement Statistics, or other college-level courses*

* Including MCPS enrichment and acceleration opportunities
** Investigations in Math
*** Advanced Placement Calculus, Advanced Placement Statistics, or other college-level courses

Rollout Plan



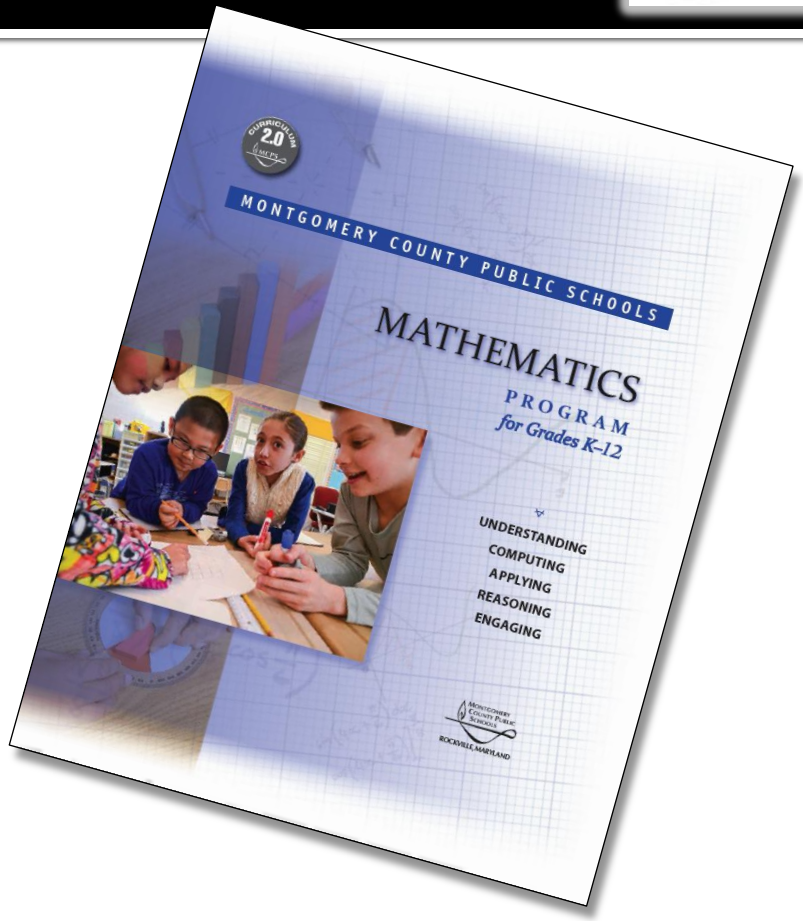
PARCC Field Test scheduled for 2013-2014

PARCC Baseline set in 2014-2015

PARCC Accountability in 2015-2016

Mathematics Brochure

There is a brochure available that describes the K-12 mathematics program of MCPS. It is available online at:



http://www.montgomeryschoolsmd.org/curriculum/math/