

Brief Course Descriptions – CCSS Mathematics 2014-2015

Middle School

Grade 6:

Common Core Critical Areas of Focus for Math 6

Students are engaged in...

1. Reasoning about multiplication and division to solve ratio and rate problems;
2. Using the meaning of fractions, the meaning of multiplication and division, and the relationship between multiplication and division to understand and explaining why the procedure for division make sense;
3. Writing, interpreting, and using expressions and equations; and
4. Developing an understanding of statistical thinking.

Common Core Critical Areas of Focus for Accelerated Math 6

Students are engaged in...

1. Connecting ratio and rate to whole number multiplication and division, and use concepts of ratio and rate to solve problems;
2. Complete understanding of division of fractions and extend the notion of number to the system of rational numbers, which includes negative numbers;
3. Write, interpret, and use expressions and equations; and
4. Develop understanding of statistical thinking.

In addition to the Grade 6 Critical Areas of Focus, the following Grade 7 Focus Areas are addressed:

1. Develop understanding of and apply proportional relationships.
2. Extend the learning of operations to include rational numbers and work with expressions and linear equations.
3. Apply and extend properties of operations to all real numbers.
4. Draw inference about a population based on samples.

Grade 7:

Common Core Critical Areas of Focus for Math 7

Students are engaged in...

1. Developing understanding of and apply proportional relationships.
2. Developing understanding of operations with rational numbers and work with expressions and linear equations.
3. Solving problems involving scale drawings and informal geometric constructions, and work with two- and three-dimensional shapes to solve problems involving area, surface area, and volume.
4. Drawing inferences about populations based on samples.

Common Core Critical Areas of Focus for Accelerated Math 7

Students are engaged in...

- Completion of the Grade 7 Critical Areas of Focus and all Grade 8 Focus Areas:
3. Solving problems involving scale drawings and informal geometric constructions, and work with two- and three-dimensional shapes to solve problems involving area, surface area, and volume.
 4. Drawing inferences about populations based on samples.

Additional Grade 8 Focus Areas:

1. Formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations.
2. Grasping the concept of a function and using functions to describe quantitative relationships.
3. Analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence and understanding and applying the Pythagorean Theorem. Students also work towards fluency with solving simple sets of two equations with two unknowns by inspection.

Grade 8:

Common Core Critical Areas of Focus for Grade 8

Students are engaged in...

1. Formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations.

2. Grasping the concept of a function and using functions to describe quantitative relationships.
3. Analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence and understanding and applying the Pythagorean Theorem. Students also work towards fluency with solving simple sets of two equations with two unknowns by inspection.

Integrated Math I, Advanced

Common Core Critical Areas of Focus for Integrated Math I

Students are engaged in...

1. Creating equations to describe situations.
2. Building on previous work with solving linear equations and systems of linear equations using more formal solution methods, attending to the structure of linear expressions and solve linear inequalities.
3. Formalizing understanding of the definition of a function, particularly understanding of linear functions, emphasizing the structure of linear expressions.
4. Begin to work with exponential functions, comparing and contrasting them to linear functions.
5. Working with congruence and similarity transformations. Students consider sufficient conditions for congruence of triangles and prove triangle congruence.
6. Working with bivariate data and scatterplots extending to determining lines of best fit, including tests for linearity.

In addition, the advanced course will address:

1. Determining magnitude and direction of vectors
2. Performing operations on matrices and use matrices in applications.

High School

Common Core Critical Areas of Focus for Integrated Math I

Students will be engaged in...

1. Creating equations to describe situations.
2. Building on previous work with solving linear equations and systems of linear equations using more formal solution methods, attending to the structure of linear expressions and solve linear inequalities.
3. Formalizing understanding of the definition of a function, particularly understanding of linear functions, emphasizing the structure of linear expressions.
4. Beginning the work with exponential functions, comparing and contrasting them to linear functions.
5. Working with congruence and similarity transformations. Students consider sufficient conditions for congruence of triangles and prove triangle congruence
6. Working with bivariate data and scatterplots extending to working to determining the lines of best fit.

Integrated Math II

Common Core Critical Areas of Focus for Integrated Math II

Students are engaged in...

1. Extending the laws of exponents to rational exponents and explore distinctions between rational and irrational numbers. They also are introduced to complex numbers and learn when quadratic equations do not have real solutions.
2. Considering quadratic functions, comparing the key characteristics of quadratic functions to those of linear and exponential functions and identifying real solutions. Additionally they select from these functions to model phenomena.
3. Focusing on the structure of expressions, writing equivalent expressions, create and solve equations, inequalities and systems.
4. Building on probability concepts previously learned, students use the language of set theory to compute and interpret both theoretical and experimental probabilities.
5. Applying experiences with transformations and proportional reasoning to build a formal understanding of congruence and similarity and applying similarity in right triangles to solve problem. Additionally they prove basic theorems about circles, chords, secants, tangents, and angle measure.

Advanced Integrated Math II

Common Core Critical Areas of Focus for Advanced Integrated Math II

Students are engaged in...

1. Extending the laws of exponents to rational exponents and explore distinctions between rational and irrational numbers. They also are introduced to complex numbers and learn when quadratic equations do not have real solutions.
2. Considering quadratic functions, comparing the key characteristics of quadratic functions to those of linear and exponential functions and identifying real solutions. Additionally they select from these functions to model phenomena.
3. Focusing on the structure of expressions, writing equivalent expressions, create and solve equations, inequalities and systems.
4. Building on probability concepts previously learned, students use the language of set theory to compute and interpret both theoretical and experimental probabilities.
5. Applying experiences with transformations and proportional reasoning to build a formal understanding of congruence and similarity and applying similarity in right triangles to solve problem. Additionally they prove basic theorems about circles, chords, secants, tangents, and angle measure.

In addition the advanced course will contain advanced standards (plus standards):

1. extending knowledge of circles to include the study of all conic sections, including analyzing the conic algebraically.
2. expand on complex numbers to the geometric interpretation of both a point and a vector. They do operations on complex numbers.
3. relate probability to binomial expansions and develop formulas. They use combinations and permutations to calculate probabilities.