San Diego Unified School District
Common Core Critical Areas of Focus –Mathematics 2014-2015

Middle School – Common Core and Accelerated Common Core Sequence

Common Core Grade 6
Students will

1. Reason about multiplication and division to solve ratio and rate problems;
2. Use the meaning of fractions, the meaning of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedure for division make sense;
3. Write, interpret, and use expressions and equations; and
4. Develop an understanding of statistical thinking.

Accelerated Math 6
Students will

1. Connect ratio and rate to whole number multiplication and division, and use concepts of ratio and rate to solve problems;
2. Understand 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.
5. Develop understanding of and apply proportional relationships.
6. Extend the learning of operations to include rational numbers and work with expressions and linear equations.
7. Apply and extend properties of operations to all real numbers.
8. Draw inferences about a population based on samples.

Common Core Grade 7
Students will

1. Develop understanding of and apply proportional relationships.
2. Develop understanding of operations with rational numbers and work with expressions and linear equations.
3. Solve 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. Draw inferences about populations based on samples.

Accelerated Math 7
Students complete the Grade 7 Critical Areas of Focus and all Grade 8 Focus Areas:

Common Core Grade 8
Students will

1. Formulate and reason about expressions and equations, including modeling an association in bivariate data with a linear equation, and solve linear equations and systems of linear equations.
2. Grasp the concept of a function and use functions to describe quantitative relationships.
3. Analyze two- and three-dimensional space and figures using distance, angle, similarity, and congruence and understand and apply the Pythagorean Theorem.
4. Work toward fluency with solving simple sets of two equations with two unknowns by inspection.

Integrated Math I, Advanced-see high school description

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High School – Integrated Mathematics Sequence

Integrated Math I
Students will

1. Create equations to describe situations.
2. Build 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 solving linear inequalities.
3. Formalize understanding of the definition of a function, particularly understanding of linear functions, emphasizing the structure of linear expressions.
4. Begin work with exponential functions, comparing and contrasting them to linear functions.
5. Work with congruence and similarity transformations. Consider sufficient conditions for congruence of triangles and prove triangle congruence.
6. Work with bivariate data and scatterplots extending to determining lines of best fit, including tests for linearity.

Integrated Math I, Advanced
Students will complete all the content of Integrated Math I (see above) plus

1. Determine magnitude and direction of vectors
2. Perform operations on matrices and use matrices in applications.

Integrated Math II
Students will

1. Extend the laws of exponents to rational exponents and explore distinctions between rational and irrational numbers. Explore complex numbers and learning when quadratic equations do not have real solutions.
2. Consider quadratic functions, compare the key characteristics of quadratic functions to those of linear and exponential functions and identify real solutions. Select from these functions to model phenomena.
3. Focus on the structure of expressions, write equivalent expressions, create and solve equations, inequalities and systems.
4. Build on probability concepts previously learned, using the language of set theory to compute and interpret both theoretical and experimental probabilities.
5. Apply experiences with transformations and proportional reasoning to build a formal understanding of congruence and similarity and apply similarity in right triangles to solve problems.
6. Prove basic theorems about circles, chords, secants, tangents, and angle measure

Integrated Math II, Advanced
Students will complete all the content of Integrated Math II (see above) plus

1. Consider the intersection of a plane with various three-dimensional solids, visualize the slices and describe
   them in different ways as well as identify and use the geometric properties of the conic sections.
2. Extend the study of vectors to include vectors in the complex number plane, combine vectors and solve problems involving velocity and other quantities that can be represented by vectors.
3. study matrices, perform operations on matrices as well as use them to solve problems.