Common Core Mathematics Standards – Cluster Heading Matrix



DOMAINS	Grade K	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Counting and Cardinality Operations and Algebraic Thinking	Know number names and the count sequence Count to tell the number of objects Compare numbers Understand addition as putting together and adding to, and	Represent and solve problems involving addition and	Represent and solve problems involving addition and	Represent and solve problems involving multiplication and	Use the four operations with whole numbers to solve	Write and interpret numerical expressions Analyze patterns and			
	understand subtraction as taking apart and taking from	subtraction Understand and apply properties of operations and the relationship between addition and subtraction Add and subtract within 20 Work with addition and subtraction equations	subtraction Add and subtract within 20 Work with equal groups of objects to gain foundations for multiplication	division Understand properties of multiplication and the relationship between multiplication and division Multiply and divide within 100 Solve problems involving the four operations, and identify and explain patterns in arithmetic	problems Gain familiarity with factors and multiples Generate and analyze patterns	relationships			
Number and Operations - Base Ten	Work with numbers 11-19 to gain foundations for place value	Extend the counting sequence Understand place value Use place value understanding and properties of operations to add and subtract	Understand place value Use place value understanding and properties of operations to add and subtract	Use place value understanding and properties of operations to perform multi-digit arithmetic	 Generalize place value understanding for multi-digit whole numbers Use place value understanding and properties of operations to perform multi-digit arithmetic 	Understand the place value system Perform operations with multi-digit whole numbers and with decimals to hundredths			
Number and Operations - Fractions		<u>, </u>		Develop understanding of fractions as numbers	Extend understanding of fraction equivalence and ordering Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers Understand decimal notation for fractions, and compare decimal fractions	 Use equivalent fractions as a strategy to add and subtract fractions Apply and extend previous understandings of multiplication and division to multiply and divide fractions 			



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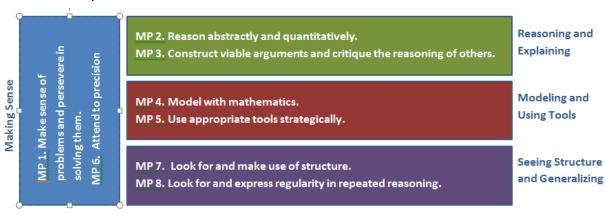
DOMAINS	Grade K	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Measurement and Data	Describe and compare measurable attributes Classify objects and count the number of objects in each category	Measure lengths indirectly and by iterating length units Tell and write time Represent and interpret data	Measure and estimate lengths in standard units Relate addition and subtraction to length Work with time and money Represent and interpret data	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects Represent and interpret data Geometric measurement: understand concepts of area and relate area to multiplication and to addition Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit Represent and interpret data Geometric measurement: understand concepts of angle and measure angles	Convert like measurement units within a given measurement system Represent and interpret data Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition			
Geometry	Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres) Analyze, compare, create, and compose shapes	Reason with shapes and their attributes	Reason with shapes and their attributes	Reason with shapes and their attributes	Draw and identify lines and angles, and classify shapes by properties of their lines and angles	Graph points on the coordinate plane to solve real-world and mathematical problems Classify two-dimensional figures into categories based on their properties	Solve real-world and mathematical problems involving area, surface area, and volume	 Draw construct, and describe geometrical figures and describe the relationships between them Solve real-life and mathematical problems involving angle measure, area, surface area, and volume 	Understand congruence and similarity using physical models, transparencies, or geometry software Understand and apply the Pythagorean Theorem Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres

Common Core Mathematics Standards – Cluster Heading Matrix



DOMAINS	Grades K-5	Grade 6	Grade 7	Grade 8
Ratios and Proportional Relationships		Understand ratio concepts and use ratio reasoning to solve problems	Analyze proportional relationships and use them to solve real-world and mathematical problems	
The Number System		 Apply and extend previous understandings of multiplication and division to divide fractions by fractions Compute fluently with multi-digit numbers and find common factors and multiples Apply and extend previous understandings of numbers to the system of rational numbers 	Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers	Know that there are numbers that are not rational, and approximate them by rational numbers
Expressions and Equations		 Apply and extend previous under-standings of arithmetic to algebraic expressions Reason about and solve one-variable equations and inequalities Represent and analyze quantitative relationships between dependent and independent variables 	Use properties of operations to generate equivalent expressions Solve real-life and mathematical problems using numerical and algebraic expressions and equations	 Expressions and Equations Work with radicals and integer exponents Understand the connections between proportional relationships, lines, and linear equations Analyze and solve linear equations and pairs of simultaneous linear equations
Statistics and Probability		 Develop understanding of statistical variability Summarize and describe distributions 	 Use random sampling to draw inferences about a population Draw informal comparative inferences about two populations Investigate chance processes and develop, use, and evaluate probability models 	Investigate patterns of association in bivariate data
Functions				Define, evaluate, and compare functionsUse functions to model relationships between quantities

Another way to look at the Standards for Math Practices:



Making Sense (MP 1 and 6)	Students say multiple, connected sentences (spontaneously or prompted by others) to explain their thinking; they represent their solution in multiple ways, using symbols, academic vocabulary, and labeling to effectively communicate.	Written explanations Posters Spoken explanations Student interviews
Reasoning and Explaining (MP 2 and 3)	Students talk about each other's thinking: student work includes revisions, especially revised explanations and justifications; students compare and contrast various solution strategies.	Video
Modeling and Using Tools (MP 4 and 5)	Students use a variety of models, symbolic representations, and technology tools to demonstrate a solution; they can justify their tool selection.	
Seeing Structure and Generalizing (MP 7 and 8)	Students connect concepts to prior concepts and tasks; they can generate exploratory questions; they can compose and decompose situations and relationships through observed patterns in order to simplify solutions.	