Math 6 CCSS Alignment

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CMP2 Unit Order (2013-14)	Standards of Mathematical Practice - infuse throughout lessons
Unit 1: Bits and Pieces II - ALL	1. Make sense of problems and persevere in solving them.
Unit 2: Prime Time - Inv 3 - 4 only	2. Reason abstractly and quantitatively.
Unit 3: Bits and Pieces III - ALL	3. Construct viable arguments and critique the reasoning of others.
Unit 4: Covering and Surrounding - Investigations 1,3,4 only	4. Model with mathematics.
Unit 5: Filling and Wrapping - Investigations 1-2 only	5. Use appropriate tools strategically.
Unit 6: Comparing and Scaling - ALL	6. Attend to precision.
Unit 7: CC Investigation 3 only	7. Look for and make use of structure.
Unit 8: Variables and Patterns/CC2 - ALL	8. Look for and express regularity in repeated reasoning.
Unit 9: Data About Us - Investigations 1 & 2, 3.3/CC5	

Common Core State Standard			
Unit 1: Fractions			
Resource: Bits and Pieces II - ALL			SBAC
6.NS.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?		p. 50
Unit 2: Factors and Multiples (could switch unit 1 and 2 if use CD version of Prime Time book)			
Resource: Prime Time Inv. 3 - 4 only			SBAC
6.EE.1	Write and evaluate numerical expressions involving whole-number exponents.	Addt'l practice Inv 4 or supplement needed	p. 7
6.NS.4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express 36 + 8 as 4 (9 + 2).	Supplment needed for distributive property; introduce distributive property term and connect to factors; do not teach with variables; extension distributive property(i.e. 36 + 8 = 4(9 + 2))	
6.EE.2.b	Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.	emphasize vocab: term, sum, difference, product, quotient, coefficient	
6.NS.2	Fluently divide multi-digit numbers using the standard algorithm.	supplement needed	
Unit 3: Decimals			
Resource: Bits and Pieces III - ALL			SBAC
6.RP.3.c	Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.		
6.NS.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	Emphasize standard algorithm	p. 11, 13, 21
Unit 4: Area			
Resource: Covering and Surrounding Inv. 1,3,4 only			SBAC
6.G.1	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.		p. 35, 59
Unit 5: Three-Dimensional Measurements			
Resource: Filling and Wrapping Inv 1-2 only			SBAC
6.G.4	Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.		p. 63

6.G.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.		p. 13, 35		
Unit 6: Rates and Ratios					
Resource: Comparing and Scaling - ALL			SBAC		
6.RP.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”		pg. 8, 21		
6.RP.2	Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship. For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar.” “We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger.”1		p. 21		
6.RP.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.		p. 9, 11, 21, 57, 58		
6.RP.3.a	Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.				
6.RP.3.b	Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?				
6.RP.3.d	Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	supplement needed			
Unit 7: Integers and the Coordinate Plane					
Resource: CC Investigation 3 only			SBAC		
6.EE.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.				
6.EE.8	Write an inequality of the form x>c or x<c to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form x>c or x<c have infinitely many solutions; represent solutions of such inequalities on number line diagrams.		p. 49		
6.G.3	Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.		p. 59		
6.NS.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	Need more real-world examples			
6.NS.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.		p. 74		
6.NS.6.a	Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite.				
6.NS.6.b	Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.				
6.NS.6.c	Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.				
6.NS.7	Understand ordering and absolute value of rational numbers.		pg 52		
6.NS.7.a	Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.				

6.NS.7.b	Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write -3°C > -7°C to express the fact that -3°C is warmer than -7°C.		
6.NS.7.c	Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.		
6.NS.7.d	Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.		
6.NS.8	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.		p. 54, 77, 80
Unit 8: Introducing Algebra			
Resource: Variables and Patterns/CC2 - ALL			SBAC
6.EE.2	Write, read, and evaluate expressions in which letters stand for numbers.		p. 7
6.EE.2.a	Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation “Subtract y from 5” as 5 – y.	Vocab: sum, difference, product, quotient; http://www.kutasoftware.com/FreeWorksheets/Alg1Worksheets/Variable%20and%20Verbal%20Expressions.pdf	
6.EE.2.c	Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving wholenumber exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas V = s3 and A = 6 s2 to find the volume and surface area of a cube with sides of length s = 1/2.		
6.EE.3	Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.	can use manipulatives to build conceptual understanding and connect to the process	p. 16, 47
6.EE.4	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.		p. 66
6.EE.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.		p. 4, 48
6.EE.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.		p. 16, 50, 68
6.EE.7	Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers.		p. 21, 70
6.EE.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.		p. 21, 35
Unit 9: Statistics			
Resource: Data About Us - Inv 1, 2, & 3.3/CC5			SBAC
6.SP.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.		
6.SP.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.		

6.SP.3	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.				
6.SP.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	do not have to calculate outliers using formula, dot plots are the same as line plots	p. 83		
6.SP.5	Summarize numerical data sets in relation to their context, such as by:		p. 18, 83		
6.SP.5.a	Reporting the number of observations.				
6.SP.5.b	Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.				
6.SP.5.c	Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.				
6.SP.5.d	Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.				
Links:					
CCSS website					
http://www.corestandards.org/					
MAISA Common Core Units (Subject:math, Map Type: common core)					
http://oaklandk12-public.rubiconatlas.org/Atlas/Browse/View/Default					
MDE CCSS site (Crosswalks, Assessment Transition Plans, etc.)					
http://michigan.gov/mde/0,1607,7-140-6530_30334_51042-232021--,00.html					
Prime Time Problem 3.1 - Ferris Wheel Simulator					
http://www.mesacc.edu/~davvu41111/FerrisWheel/ferriswheel.html					
Prime Time Problem 3.2 - Cicada data					
http://insects.ummz.lsa.umich.edu/fauna/michigan_cicadas/Periodical/Index.html					
Unit activities					
http://www.dynamicgeometry.com/General_Resources/Classroom_Activities/KCPT/Activities_for_Young_Learners/Connected_Mathematics_Project/Activities.html					
North Carolina Department of Public Instruction - Common Core Support Tools (Math Unpacking Standards)					
http://www.ncpublicschools.org/acre/standards/common-core-tools/#unmath					
NCSM PD online					
http://www.mathedleadership.org/ccss/itp/index.html					
Free webinars for sketchpad					
http://www.keycurriculum.com/training/webinars					