6th Grade Curriculum Map

Essential Questions	Major Understanding	Common Core Standards	Content and Skills	Assessment Formal/Informal	Materials
What are whole number and decimal place values? How can whole numbers and decimals be written, compared, and ordered?	Numbers can be used to tell how many. Our number system is based on groups of ten. Whenever we get ten in one place, we move to the next greater place value. Place value can be used to compare and order numbers. Place values can be represented using exponents. Numbers can be broken apart using place value. Numbers can be used to tell how many. Patterns can be used to determine the location of the decimal point in the product when multiplying the decimal by 10, 100, and 1000. Some problems can be solved generating a list of outcomes and organizing the list in a systematic way.	6.NS.3 6.EE.1	1-1 Place Value 1-2 Comparing and ordering whole numbers 1-3 Exponents and place value 1-4 Decimal place value 1-5 Multiplying and dividing by 10, 100, and 1000 1-6 Comparing and ordering decimals 1-7 Make an organized list	Pretest(placement test) Envisions Topic 1 Test Teacher Observations Envisions Quick Check - Quizzes	Envisions Topic 1
What are algebraic expressions and how can they be written and evaluated? What arithmetic number relationships, called properties, are always true?	Some mathematical phrases can be represented using a variable in an algebraic expression. You can add or multiply two numbers in any order. There is an agreed upon order in which operations are carried out in a numerical expression. The distributive property of multiplication lets you multiply a sum by multiplying each addend separately. There is more than one to do a mental calculation. Properties of operations make some calculations easy to do mentally. The value of an algebraic expression can be found by replacing the variables with given numbers. Patterns can sometimes be used to identify a relationship between two quantities. Some problems can be solved by recording and organizing data in a table and using numerical patterns.	6.EE.2 6.EE.2a 6.EE.3 6.EE.6	2-1 Using variables to write expressions 2-2 Properties of operations 2-3 Order of operations 2-4 Distributive Property 2-5 Mental Math 2-6 Evaluating Expressions 2-7 Using expressions to describe patterns 2-8 Make a table	Envisions Topic 2 Test Teacher observations Envisions Quick Check – Quizzes	Envisions Topic 2
How are sums, differences, products, and quotients involving decimals estimated and found?	There is more than one way to estimate a sum, difference, product or quotient. Standard addition and subtraction algorithms break calculations into simpler calculations using place value. The standard multiplication and division algorithms involving decimals are an extension of the standard algorithms for multiplying and dividing whole numbers. The sharing interpretation of division can be used to model the standard division algorithm. A number divided by a decimal can be represented as an equivalent calculation using place value to change the divisor to whole number. There is an agreed upon order in which operations are carried out in a numerical expression. Numbers can be substituted for the variables to make an expression, equation, or inequality true. Some problems can be solved by first finding and solving a sub-problem.	6.NS.2 6.NS.3 6.EE.2c 6.EE.5	3-1 Estimating sums and differences 3-2 Adding and subtracting 3-3 Estimating products and quotients 3-4 Multiplying decimals 3-5 Dividing whole numbers 3-6 Dividing by a whole number 3-7 Dividing decimals 3-8 Evaluating expressions 3-9 Solutions for equations and inequalities 3-10 Problem solving: Multiple-step problems	Envisions Topic 3 Test Teacher Observations Envisions Quick Checks – Quizzes	Envisions Topic 3
What procedures can be used to solve equations?	The same number can be added, subtracted, multiplied or divided from both sides of an equation and not change the equality. Solving an equation involves finding the value of the unknown. Information in a problem can often be shown using a picture. Some problems can be solved by writing a number sentence of equation.	6.EE.4 6.EE.7	4-1 Properties of equality 4-2 Solving addition and subtraction equations 4-3 Problem solving: Draw a picture and write an equation 4-4 Solving multiplication and division equations.	Envisions Topic 4 Test Teacher Observations Envisions Quick Checks – Quizzes Benchmark test(topics 1-4)	Envisions Topic 4

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How can numbers be broken apart into factors? How can fractions be represented and simplified?	Every counting number can be divided by one and itself. Every positive integer can be represented as a product of one or more prime numbers. There is always a greatest number that divides evenly each of two whole numbers. A fraction describes the division of a whole into equal parts. Equivalent fractions are found by multiplying or dividing a numerator and denominator by the same nonzero number. A fraction can be expressed in its simplest form by dividing the numerator and denominator by common factors. Conjectures can be used to make generalizations about relationships.	6.NS.4	5-1 Factors, multiples, and divisibility 5-2 Prime factorization 5-3 Greatest common factor 5-4 Understanding fractions 5-5 Equivalent fractions 5-6 Fractions in simplest form 5-7 Problem solving: Making test conjectures	Envisions Topic 5 Test Teacher Observations Envisions Quick Checks – Quizzes	Envisions Topic 5
How are decimals and fractions related?	A fraction describes the division of a whole into equal parts. A decimal is another name for a fraction. Whole number amounts can be represented as fractions. When the numerator and denominator are equal, the fraction is equal to one. Mixed numbers can also be represented using decimals. Information in a problem can often be shown by drawing a picture or diagram that can be used to understand and solve the problem.	6.NS.3	6-1 Fractions and division 6-2 Fractions and decimals 6-3 Improper fractions and mixed numbers 6-4 Decimal forms of fractions and mixed numbers 6-5 Problem solving: Draw a picture.	Envisions Topic 6 Test Teacher Observations Envisions Quick Checks – Quizzes	Envisions Topic 6
What are standard procedures for estimating and finding sums and differences of fractions and mixed numbers?	Adding or subtracting fractions with like denominator is similar to adding or subtracting whole numbers. All non-zero whole numbers have common multiples. To add or subtract with unlike denominators, change to an equivalent calculation with like denominators. Sums and differences of mixed numbers can be estimating by rounding to the nearest whole number. One way to add or subtract mixed numbers is to add or subtract the fractional parts and the whole number parts. Sometimes whole numbers or fractions need to be renamed. Recording information in a table can help you understand and solve some problems.	6.NS.4 6.RP.1	7-1 Adding and subtracting like denominators 7-2 Least common multiple 7-3 Add and subtracting unlike denominators 7-4 Estimating sums and differences of mixed numbers 7-5 Adding mixed numbers 7-6 Subtracting mixed numbers 7-7 Problem Solving: Make a table	Envisions Topic 7 Test Teacher Observations Envisions Quick Checks – Quizzes	Envisions Topic 7

Essential Questions	Major Understanding	Common Core Standards	Content and Skills	Assessment Formal/Informal	Materials
What are standard procedures for estimating and finding products of fractions and mixed numbers?	The product of a fraction and a whole number can be found by dividing the whole number by the denominator and then multiplying by the numerator. Rounding and compatible numbers can be used to estimate the product of fractions or mixed numbers. The product of two fractions can be found by writing the product of the numerators over the product of the denominators. When multiplying two fractions that are both less than 1, the product is smaller than either fraction. The product of two mixed numbers can be found by first changing the mixed numbers to improper fractions, and then multiplying the improper fractions. Some problems can be solved by first finding and solving a sub problem.		8-1 Multiplying a fraction and a whole number 8-2 Estimating products 8-3 Multiplying fractions 8-4 Multiplying mixed numbers 8-5 Problem solving: Multiple-Step problems	Envisions Topic 8 Test Teacher Observations Envisions Quick Checks – Quizzes Benchmark test topics 5-8	Envisions Topic 8
What are standard procedures for estimating and finding quotients of fractions and mixed numbers?	When dividing by a fraction that is less than 1, the quotient is greater than the dividend. A division expression with a fraction divisor can be changed to an equivalent multiplication expression. Rounding and compatible numbers can be used to estimate the quotient of mixed numbers. The quotient of 2 mixed numbers can be found by changing the mixed numbers to improper fractions, then changing the division expression to an equivalent multiplication expression. Equations with fractions and mixed numbers can be solved using properties of equality and inverse operations. Some problems can be solved by identifying elements that repeat in a predictable way.	6.NS.1 6.NS.6 6.EE.7	9-1 Understanding division of fractions 9-2 Dividing a whole number by a fraction 9-3 Dividing fractions 9-4 Estimating quotients 9-5 Dividing mixed numbers 9-6 Solving equations 9-7 Problem solving: Look for a pattern	Envisions Topic 9 Test Teacher Observations Envisions Quick Checks – Quizzes	Envisions Topic 9

Essential Questions	Major Understanding	Common Core Standards	Content and Skills	Assessment Formal/Informal	Materials
How are integers related to whole numbers? How can integers be added, subtracted, multiplied, and divided?	Numbers that are the same distance from 0 on a number line are opposites. Integers are the counting numbers their opposites and zero. Numbers to the right of 0 are positive and to the left of 0 are negative. A number to the right of another on the number line is the greater value. Each rational number can be associated with a unique point on a number line. Addition and subtraction of integers can be modeled as moves on a number line. Patterns show why rules for adding and subtracting integers makes sense. Patterns show why rules for multiplying and dividing integers make sense. The inverse relationship between multiplication and division can show why rules for dividing integers make sense. Absolute value is used to define the distance from a number to 0, regardless of whether the number is positive or negative. The Cartesian Coordinate System uses 2 perpendicular number lines to tell the location of points in the plane. Some problems can be solved by reasoning about the conditions in the problem.	6.NS.5 6.NS.6.c 6.NS.7.a 6.NS.7.d 6.G.3 7.NS.1.b 7.NS.1.c 7.NS.2.a 7.NS.2.b	10-1 Understanding integers 10-2 Comparing and ordering integers 10-3 Rational numbers on a number line 10-4 Adding integers 10-5 Subtracting integers 10-6 Multiplying integers 10-7 Dividing integers 10-8 Absolute value 10-9 Graphing points on a coordinate plane 10-10 Problem solving: Use reasoning	Envisions Topic 10 Test Teacher Observations Envisions Quick Checks – Quizzes	Envisions Topic 10
How can angles be measured, drawn, and classified? What are special shapes and how can they be described and compared?	Lines can be classified by their relationship to other lines. Point, line, line segment, ray, and plane are the core attributes of space objects. An angle is formed by 2 intersecting lines or by 2 different rays with a common endpoint. Angles can be classified by their size. Some pairs of angles have special relationships based on their relative positions or their measures. Polygons can be described and classified by their sides and angles. The angles of a triangle can form a straight line so that the sum of the measures of the angles is 180 degrees. Polygons can be described and classified by their sides and angles. A quadrilateral can be broken into 2 triangles so the sum of the measures of the angles of the quadrilaterals is 360 degrees. A circle is the set of all points in the plane an equal distance from a given point. Shapes in the plane can be translated to another position in the plane. The translated image is the same size and shape as the original figure. Some shapes can be reflected across one or more lines passing through the shape so the shape folds onto itself exactly. Some problems can be solved by recording and organizing data in a table.	6.EE.9	11-1 Basic Geometric Ideas 11-2 Measuring and Drawing Angles 11-3 Angle pairs 11-4 Triangles 11-5 Quadrilaterals 11-6 Circles 11-7 Transformations and congruence 11-8 Symmetry 11-9 Problem solving: Make a table and look for a pattern	Envisions Topic 11 Test Teacher Observations Envisions Quick Checks – Quizzes	Envision Topic 11

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What are rations and rates and how are they used in solving problems?	A ratio is a special relationship between 2 quantities. The quantities being compared in a ration are called terms. In a proportional relationship there are infinite number of ratios equal to the lowest terms or constant ratio. Equal ratios can be found by multiplying both terms by the same non-zero number. A rate is a special ration that compares 2 quantities with different units of measure. A unit rate is a rate that compares a quantity to one unit of another quantity. Rates are easily compared when each is expressed as a unit rate. A formula is a common relationship between quantities expressed as an equation. A special proportional relationship involves distance, rate, and time. Information in a problem can often be shown using a picture to understand and solve the problem.	6.RP.1 6.RP.2 6.RP.3 6.RP.3.b 6.EE.9	12-1 Understanding ratios 12-2 Equal ratios and proportions 12-3 Understanding rates and unit rates 12-4 Comparing rates 12-5 Distance, rate, and time 12-6 Problem Solving: Draw a picture	Envisions Topic 12 Test Teacher Observations Envisions Quick Checks – Quizzes Benchmark test topics 9-12	Envisions Topic 12
What procedures can be used to solve proportions?	Some proportion problems can be solved by generating equal ratios using multiplication or division. Some proportions can be solved by finding and using the common factor that relates the terms. Some proportions can be solved by finding and using the unit amount. Tape diagrams and double number lines can show ratio relationships and be used to reason about solution to problems. Mathematical explanations can be given using words, pictures, numbers, or symbols. A good explanation should be correct, simple, complete, and easy to understand. Equivalent ratios can be represented in a table, and the pairs of values can be plotted on a coordinate plane. Equal ratios are used in map scales and scale drawings.	6.RP.3 6.RP.3.a 6.RP.3.b	13-1 Using ratio tables 13-2 Using unit rates 13-3 Applying ratios 13-4 Problem solving: Writing to explain 13-5 Ratios and graphs 13-6 Maps and Scale drawings	Envisions Topic 13 Test Teacher Observations Envisions Quick Checks – Quizzes	Envisions Topic 13
What is the meaning of percent? How can percent be estimated and found?	A percent is a special kind of ratio in which a part is compared to a whole with 100 parts. A part of a whole or a part of a set can be represented by a fraction, a decimal, or a percent. A percent is a special kind of ratio in which a part is compared to a whole with 100 parts. Some percents can be approximated by simple fractions and used to estimate the percent of a number. Finding a percent of a whole is like finding a fractional part of a whole. You can find the percent of a number by changing the percent to a decimal and multiplying or using a proportion. The whole can be found when you are given a percent and a part. Answers to problems should always be checked for reasonableness.	6.RP.3 6.RP.3.c	14-1 Understanding Percent 14-2 Fractions, Decimals, and Percents 14-3 Percents greater than 100 and less than 1 14-4 Estimating Percent 14-5 Finding the percent of a number 14-6 Applying percents: Finding the whole 14-7 Problem solving: Reasonableness	Envisions Topic 14 Test Teacher Observations Envisions Quick Checks – Quizzes	Envisions Topic 14

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How can equations be graphed? What patterns can be found in the graphs of equations?	Equations can be transformed into equivalent equations and solved using properties of equality and inverse operations. Patterns can sometimes help identify the relationship between quantities, and an equation can be written describing the relationship. Graphs of relationships in the form y = ax and y = x + a are straight lines. Graphs of relationships in the form y = ax + b are straight lines. A solution to an inequality is a value that makes the inequality true. Some problems can be solved by using objects to act out the actions in the problem others can be solved by reasoning.	6.EE.5 6.EE.8 6.EE.9	15-1 Equations with more than one operations 15-2 Patterns and equations 15-3 More patterns and equations 15-4 Graphing equations 15-5 Graphing equations with more than one operation 15-6 Understanding inequalities 15-7 Problem solving: Act it out and use reasoning	Envisions Topic 15 Test Teacher Observations Envisions Quick Checks – Quizzes	Envisions Topic 15
How can customary and metric measurements be converted to other units? How are customary and metric units related?	Measurements can be represented in equivalent ways using different units. Relationships exist that enable you to convert between units by multiplying or dividing. The smaller the units on the scale of a measuring instrument, the more precise the measurement is. The time between the start and end of an event is called elapsed time and can be calculated. Time can be expressed using different units that are related to each other. Some problems can be solved by reasoning about the conditions in the problem.	6.RP.3.d	16-1 Converting customary measures 16-2 Converting metric measures 16-3 Units of measure and precision 16-4 Relating customary and metric measures 16-5 Elapsed time 16-6 Problem solving: Use reasoning	Envisions Topic 16 Test Teacher Observations Envisions Quick Checks – Quizzes Benchmark test topics 13-16	Envisions Topic 16
What are the meanings of perimeter and area? How can the perimeter and area of certain shapes be found?	The distance around a figure is its perimeter. Formulas exist for finding perimeter of some polygons. The measure of a region inside a shape is its area, an area can be found using square units. The area of some irregular shapes can be found by decomposing the shape into polygons. The formula for area of a parallelogram is derived from the formula for area of a rectangle. The formula for area of a triangle is derived from the formula for area of a parallelogram. The perimeter of a circle is called its circumference. The ratio of the circumference of any circle to its diameter is a constant value called pi. A circle can be broken apart and arranged to approximate a parallelogram which can be used to generate the formula for the area of a circle. Some problems can be solved by using objects to act out the actions in the problem.	6.EE.2.c 6.G.4	17-1 Perimeter 17-2 Area of rectangles and irregular figures 17-3 Area of parallelograms and triangles 17-4 Circumference 17-5 Area of a circle 17-6 Problem solving: Use objects	Envisions Topic 17 Test Teacher Observations Envisions Quick Checks – Quizzes	Envisions Topic 17

Essential Questions	Major Understanding	Common Core Standards	Content and Skills	Assessment Formal/Informal	Materials
What is meaning of volume and how can volume be found? What is the meaning of surface area and how can surface area be found? How can the volume of certain figures be found?	A polyhedron is a three-dimensional figure made of flat surfaces. The shape of these flat surfaces and the way they are connected at edges and vertices determine the characteristics of a polyhedron. Formulas for finding the area of polygons can be used to find the surface area of some solids. Volume is a measure of the amount of space inside a solid figure. Volume can be measured by counting the number of cubic units needed to fill a three-dimensional object. The volume of rectangular prisms with fractional edge lengths can be determined in the same way as volume of rectangular prisms with whole-number edge lengths. Some problems can be solved by using objects to act out the actions in the problem others can be solved by reasoning.	6.G.2 6.G.4	18-1 Solid figures 18-2 Surface Area 18-3 Volume of rectangular prisms 18-4 Volume with fractional edge lengths 18-5 Problem solving: Use objects and reasoning	Envisions Topic 18 Test Teacher Observations Envisions Quick Checks – Quizzes	Envisions Topic 18
How can graphs be used to represent data and answer questions?	Statistical questions anticipate variability in the data. These questions can be answered by collecting and analyzing data. A set of data collected to answer a statistical question has a distribution; which can be described by its center, spread, and overall shape. Different measures can be used to describe the center of a numerical data set. Each measure is most appropriate depending on characteristics of the data. Each type of graph is most appropriate for certain kinds of data. A histogram uses bars to compare continuous numerical data grouped into intervals. Box plots are useful for plotting data over a number line. Box plots show the spread for each quarter of the data. A measure of variability describes how the values in a data set vary using a single number. The best descriptor of the center of numerical data is determined by the nature of the data and the question to be answered. Organizing data makes it easier to find measures of central tendency. Some problems can be solved using reasoning.	6.SP.1 6.SP.2 6.SP.3 6.SP.4 6.SP.5.a 6.SP.5.c 6.SP.5.d	19-1 Statistical questions 19-2 Looking at data sets 19-3 Mean 19-4 Median, Mode, and range 19-5 Frequency tables and histograms 19-6 Box Plots 19-7 Measures of variability 19-8 Appropriate use of statistical measures 19-9 Summarizing data distributions 19-10 Problem solving: Try, check, and revise	Envisions Topic 19 Test Teacher Observations Envisions Quick Checks – Quizzes Benchmark test topics 17-19 End of year test topics 1-19	Envisions Topic 19