NYS Grades 3-8 Mathematics Common Core Learning Standards Testing Program Guidance—September-April / May-June

Grade 3

CCLS Code	Standard	Content Emphasis	Sept.-April / May-June Instructional Periods
Operations and Algebraic Thinking			
3.OA.1	Interpret products of whole numbers	Major	Sept.-April
3.OA.2	Interpret whole-number quotients of whole numbers	Major	Sept.-April
3.OA.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities	Major	Sept.-April
3.OA.4	Determine the unknown whole number in a multiplication or division equation relating to three whole numbers	Major	Sept.-April
3.OA.5	Apply properties of operations as strategies to multiply and divide	Major	Sept.-April
3.OA.6	Understand division as an unknown-factor problem	Major	Sept.-April
3.OA.7	Fluently multiply and divide within 100	Major	Sept.-April
3.OA.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding	Major	Sept.-April
3.OA.9	Identify arithmetic patterns and explain them using properties of operations	Major	Sept.-April
Number and Operations in Base Ten			
3.NBT.1	Use place value understanding to round whole numbers to the nearest 10 or 100	Additional	Sept.-April
3.NBT.2	Fluently add and subtract within 1000 using strategies and algorithms	Additional	Sept.-April
3.NBT.3	Multiply one-digit whole numbers by multiples of 10 in the range 10-90 using strategies based on place value and properties of operations	Additional	Sept.-April
Number and Operations--Fractions			
3.NF.1	Understand a fraction 1/b as the quantity formed by 1 part when a whole part is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b	Major	Sept.-April
3.NF.2	Understand a fraction as a number on the number line; represent fractions on a number line diagram	Major	Sept.-April
3.NF.3	Explain equivalence of fractions in special cases and compare fractions by reasoning about their size	Major	Sept.-April

Measurement and Data			
3.MD.1	Tell and write time to the nearest minute and measure the time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes	Major	Sept.-April
3.MD.2	Measure and estimate liquid volumes and masses of objects using standard units of grams, kilograms, and liters. Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes	Major	Sept.-April
3.MD.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.	Supporting	Sept.-April
3.MD.4	Generate measurement data by measuring using rulers marked with halves and fourths of an inch. Show the data by making a line plot	Supporting	May-June
3.MD.5	Recognize area as an attribute of plane figures and understand concepts of area measurement	Major	Sept.-April
3.MD.6	Measure areas by counting unit squares	Major	Sept.-April
3.MD.7	Relate area to the operations of multiplication and division	Major	Sept.-April
3.MD.8	Solve real world and mathematical problems involving perimeters of polygons	Additional	May-June
Geometry			
3.G.1	Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category.	Supporting	May-June
3.G.2	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.	Supporting	Sept.-April

Key to Common Core Learning Standard (CCLS) Code:	3.OA.9 3 = 3rd Grade OA = Operations and Algebraic Thinking 9 = CCLS number

Grade 4

CCLS Code	Standard	Content Emphasis	Sept.-April/ May-June Instructional Periods
Operations and Algebraic Thinking			
4.OA.1	Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations.	Major	Sept.-April
4.OA.2	Multiply or divide to solve word problems involving multiplicative comparison	Major	Sept.-April
4.OA.3	Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	Major	Sept.-April
4.OA.4	Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.	Supporting	Sept.-April
4.OA.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.	Additional	Sept.-April
Number and Operations in Base Ten			
4.NBT.1	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right	Major	Sept.-April
4.NBT.2	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and <	Major	Sept.-April
4.NBT.3	Use place value understanding to round multi-digit whole numbers to any place.	Major	Sept.-April
4.NBT.4	Fluently add and subtract multi-digit whole numbers using the standard algorithm	Major	Sept.-April
4.NBT.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Major	Sept.-April
4.NBT.6	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between	Major	Sept.-April

	multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.		
Number and Operations--Fractions			
4.NF.1	Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	Major	Sept.-April
4.NF.2	Compare two fractions with different numerators and different denominators. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions.	Major	Sept.-April
4.NF.3	Understand a fraction a/b with a>1 as a sum of fractions $1/b$.	Major	Sept.-April
4.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	Major	Sept.-April
4.NF.5	Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.	Major	May-June
4.NF.6	Use decimal notation for fractions with denominators 10 or 100.	Major	May-June
4.NF.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are only valid when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or < and justify the conclusions	Major	May-June
Measurement and Data			
4.MD.1	Know relative sizes of measurement units within one system of units including km, m, cm, kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.	Supporting	May-June
4.MD.2	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	Supporting	May-June
4.MD.3	Apply the area and perimeter formulas for rectangles in real world and mathematical problems	Supporting	Sept.-April
4.MD.4	Make a line plot to display a data set of measurements in fractions of a unit. Solve problems involving addition and subtraction of fractions by	Supporting	Sept.-April

	using information presented in line plots.		
4.MD.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint and understand concepts of angle measurement	Additional	Sept.-April
4.MD.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure	Additional	Sept.-April
4.MD.7	Recognize angle measure as additive	Additional	Sept.-April
Geometry			
4.G.1	Draw points, lines, line segments, rays, angles, and perpendicular and parallel lines. Identify these in two-dimensional figures	Additional	Sept.-April
4.G.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles	Additional	Sept.-April
4.G.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	Additional	Sept.-April

Key to Common Core Learning Standard (CCLS) Code:	4.NBT.2 4 = 4th Grade NBT = Number and Operations in Base Ten 2 = CCLS number

Grade 5

CCLS Code	Standard	Content Emphasis	Sept.-April/ May-June Instructional Periods
Operations and Algebraic Thinking			
5.OA.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols	Additional	Sept.-April
5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	Additional	Sept.-April
5.OA.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.	Additional	May-June
Number and Operations in Base Ten			
5.NBT.1	Recognize that in a multi-digit whole number a digit in one place represents 10 times as much as it represents in the place to its right and $^1/_{10}$ of what it represents in the place to its left	Major	Sept.-April
5.NBT.2	Explain patterns in the number of zeroes of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	Major	Sept.-April
5.NBT.3	Read, write, and compare decimals to thousandths.	Major	Sept.-April
5.NBT.4	Use place value understanding to round decimals to any place.	Major	Sept.-April
5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm	Major	Sept.-April
5.NBT.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Major	Sept.-April
5.NBT.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	Major	Sept.-April
Number and Operations—Fractions			
5.NF.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given	Major	Sept.-April

	fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.		
5.NF.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers	Major	Sept.-April
5.NF.3	Interpret a fraction as division of the numerator by the denominator. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers	Major	Sept.-April
5.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	Major	Sept.-April
5.NF.5	Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.	Major	Sept.-April
5.NF.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	Major	Sept.-April
5.NF.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions	Major	Sept.-April
Measurement and Data			
5.MD.1	Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step, real world problems.	Supporting	Sept.-April
5.MD.2	Make a line plot to display a data set of measurements in fractions of a unit. Use operations on fractions for this grade to solve problems involving information presented in line plots.	Supporting	Sept.-April
5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.	Major	Sept.-April
5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	Major	Sept.-April
5.MD.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.	Major	Sept.-April

Geometry			
5.G.1	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).	Additional	May-June
5.G.2	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	Additional	May-June
5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	Additional	Sept.-April
5.G.4	Classify two-dimensional figures in a hierarchy based on properties.	Additional	Sept.-April

Key to Common Core Learning Standard (CCLS) Code:	5.NF.5 5 = 5th Grade NF = Number and Operations—Fractions 5 = CCLS number

Grade 6

CCLS Code	Standard	Content Emphasis	Sept.-April/ May-June Instructional Periods
Ratios and Proportional Relationships			
6.RP.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities	Major	Sept.-April
6.RP.2	Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship	Major	Sept.-April
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.	Major	Sept.-April
The Number System			
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	Major	Sept.-April
6.NS.2	Fluently divide multi-digit numbers using the standard algorithm	Additional	Sept.-April
6.NS.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation	Additional	Sept.-April
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	Additional	Sept.-April
6.NS.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation	Major	Sept.-April
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.	Major	Sept.-April
6.NS.7	Understand ordering and absolute value of rational numbers	Major	Sept.-April
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	Major	Sept.-April

Expressions and Equations			
6.EE.1	Write and evaluate numerical expressions involving whole-number exponents.	Major	Sept.-April
6.EE.2	Write, read, and evaluate expressions in which letters stand for numbers	Major	Sept.-April
6.EE.3	Apply the properties of operations to generate equivalent expressions.	Major	Sept.-April
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).	Major	Sept.-April
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	Major	Sept.-April
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	Major	Sept.-April
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	Major	Sept.-April
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	Major	Sept.-April
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.	Major	Sept-April
Geometry			
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.	Supporting	Sept.-April
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	Supporting	Sept.-April

	problems.		
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	Supporting	Sept.-April
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.	Supporting	Sept.-April
Statistics and Probability			
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.	Additional	May-June
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	Additional	May-June
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	Additional	May-June
6.SP.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots	Additional	May-June
6.SP.5	Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. 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. 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.	Additional	May-June

Key to Common Core Learning Standard (CCLS) Code:	6.NS.7 6 = 6th Grade NS = The Number System 7 = CCLS number

Grade 7

CCLS Code	Standard	Content Emphasis	Sept.-April/ May-June Instructional Periods
Ratios and Proportional Relationships			
7.RP.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	Major	Sept.-April
7.RP.2	Recognize and represent proportional relationships between quantities	Major	Sept.-April
7.RP.3	Use proportional relationships to solve multistep ratio and percent problems	Major	Sept.-April
The Number System			
7.NS.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram	Major	Sept.-April
7.NS.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	Major	Sept.-April
7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers	Major	Sept.-April
Expressions and Equations			
7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	Major	Sept.-April
7.EE.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.	Major	Sept.-April
7.EE.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	Major	Sept.-April
7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are	Major	Sept.-April

	specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.		
Geometry			
7.G.1	Solve problems involving scale drawings of geometric figures, such as computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	Additional	Sept.-April
7.G.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	Additional	May-June
7.G.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	Additional	May-June
7.G.4	Know the formulas for the area and circumference of a circle and solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	Additional	Sept.-April
7.G.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and use them to solve simple equations for an unknown angle in a figure	Additional	May-June
7.G.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms	Additional	May-June
Statistics and Probability			
7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	Supporting	Sept.-April
7.SP.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions	Supporting	Sept.-April
7.SP.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.	Additional	Sept.-April
7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	Additional	Sept.-April
7.SP.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the	Supporting	Sept.-April

	likelihood of the event occurring. Larger numbers indicate greater likelihood.		
7.SP.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.	Supporting	Sept.-April
7.SP.7	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy	Supporting	Sept,-April
7.SP.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	Supporting	Sept.-April

Key to Common Core Learning Standard (CCLS) Code:	7.G.4 7 = 7th Grade G = Geometry 4 = CCLS number

Grade 8

CCLS Code	Standard	Content Emphasis	Sept.-April/ May-June Instructional Periods
The Number System			
8.NS.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	Supporting	May-June
8.NS.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2).	Supporting	May-June
Expressions and Equations			
8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions.	Major	Sept.-April
8.EE.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.	Major	May-June
8.EE.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.	Major	Sept.-April
8.EE.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities	Major	Sept.-April
8.EE.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.	Major	Sept.-April
8.EE.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.	Major	Sept.-April
8.EE.7	Solve linear equations in one variable.	Major	Sept.-April
8.EE.8	Analyze and solve pairs of simultaneous linear equations.	Major	Sept.-April
Functions			
8.F.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function	Major	Sept.-April

	is the set of ordered pairs consisting of an input and the corresponding output		
8.F.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	Major	Sept.-April
8.F.3	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.	Major	Sept.-April
8.F.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	Supporting	Sept.-April
8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	Supporting	Sept.-April
Geometry			
8.G.1	Verify experimentally the properties of rotations, reflections, and translations: a. Lines are taken to lines, and line segments to line segments of the same length. b. Angles are taken to angles of the same measure. c. Parallel lines are taken to parallel lines.	Major	Sept.-April
8.G.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	Major	Sept.-April
8.G.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	Major	Sept.-April
8.G.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	Major	Sept.-April
8.G.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.	Major	Sept.-April
8.G.6	Explain a proof of the Pythagorean Theorem and its	Major	May-June

	converse.		
8.G.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions	Major	May-June
8.G.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	Major	May-June
8.G.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	Additional	Sept.-April
Statistics and Probability			
8.SP.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	Supporting	Sept.-April
8.SP.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	Supporting	Sept.-April
8.SP.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.	Supporting	Sept.-April
8.SP.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.	Supporting	Sept.-April

Key to Common Core Learning Standard (CCLS) Code:	8.SP.4 8 = 8th Grade SP = Statistics and Probability 4 = CCLS number