6th Grade Academic Scope & Sequence

Days May vary	Unit	Standard(s)/Outcome(s)	Essential/Guiding Questions
13-15	Unit 1: The Number System - Decimals	• 6.NS.2 Fluently divide multi-digit numbers using the standard algorithm. This may be the first time that students have been presented with the Standard Algorithm. • 6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	• How are decimals applied in the real world? • How do you model multiplication and division of decimals? • How would you describe the process of multiplying and dividing decimals without using models? • How is dividing decimals different than dividing by whole numbers?
17-21	Unit 2: The Number System - Fractions	• 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	• How are fractions applied in the real world? • Why are fractions also decimals? • How do you differentiate between factors and multiples? • How do you use models to accurately add, subtract, multiply, and divide

		and division to explain that (2/3)÷(3/4) = 8/9 because 3/4 of 8/9 is 2/3. How much chocolate will each person get if 3 people share 12 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 3/4mi and area 1/2 square mi? ● 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).	fractions? ● Why is more efficient to use the least common denominator as the common denominator? ● When multiplying and dividing proper fractions, what can you predict about the product? ● Why does it work to invert and multiply when dividing fractions?
8-10	Unit 3: The Number System - Integers	● 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, debits/credits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	● How are absolute values and opposites related to integers, the number line, and the coordinate plane? ● How does the concept of absolute value relate to distance and magnitude? ● What are the signs of coordinates in each of the Quadrants?

		• 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. • 6.NS.7 Understand ordering and absolute value of rational numbers. • 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.	
13-15	Unit 4: 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. 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.” • 6.RP.2 Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0 (b not equal to zero), and use rate language in the context of a ratio relationship. For example, "This recipe	• How are ratios and rates similar? How are they different? • What is the relationship between ratio reasoning and converting measurement units? • Where are three situations in the real-world where unit rates are applied?

		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." (Expectations for unit rates in this grade are limited to non-complex fractions.) ● 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.	
10-13	Unit 5: Equations	● 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.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. ● 6.EE.9 Use variables to represent two quantities in a real-world problem	● What is the appropriate mathematical language needed to convert algebraic equations to verbal statements and vice versa? ● What are the various ways to represent all operations in equations? ● How does substitution determine whether a given number in a specified set makes an equation true? ● How can one use a variable 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.	
5-7	Unit 7: Inequalities	• 6.EE.5 Understand an 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. • 6.EE.8 Recognize that inequalities of the form x > c or x < c have infinitely	• What is the appropriate mathematical language needed to convert algebraic inequalities to verbal statements and vice versa? • What are the various ways to represent all operations in inequalities? • How does substitution determine whether a given number in a specified set makes an inequality true? • How can one use an

		many solutions; represent solutions of such inequalities on number line diagrams.	inequality to represent a real world problem?
15-17	Unit 8: Geometry	• 6.G.1 Find 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. • 6.G.2-1 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. • 6.G.2-2 Apply the formulas and to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. *V = lwh and V = Bh* • 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	• How will I apply my prior knowledge of area formulas when determining the area of a composite shape? • What steps are required when finding the surface area of a variety of shapes using nets?

		second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. ● 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.	
16-18	Unit 9: 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. 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	● What are elements of effective statistical questions? ● How are different measures of center more valid than others depending on data set composition? ● What elements of statistical data can be used to describe its distribution? ● What effect do outliers have on measures of center and measures of variability?

		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. ● 6.SP.5 Summarize numerical data sets in relation to their context	