# 6th Grade Advanced Math

*Course Syllabus*


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## 1. INTRODUCTION

Primary Resource: Ohio Department of Education Academic Standards and Learning Targets and Youngstown City Schools Pacing Guides

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The following document provides a detailed layout of how a 6th grade math class can be taught. The pacing guide table provides information on each lesson, when a lesson should be taught, and the length of time each lesson will take.

## 2. PACING GUIDE

The intent of this course pacing guide is to provide a practical guide that educators can follow for a yearlong 6th grade advanced math class. The intent of this pacing guide is to provide a bridge between 6th grade and high school. This pacing guide will give the first year in a two year path to have a student ready to entire into high school level Algebra 1 as an eighth grade student. This pacing guide will bridge the 6th grade level standards along with 7th grade level standards. Sixth grade standards were replaced with 7th grade standards when standards aligned and matched up. Additional 7th grade standards were integrated to enrich specific lessons. This part 1 of 2 should be taught during the students 6th grade year, and will cover all 6th grade standards a teacher should cover during a year.

The pacing guide is based on Ohio Content Standards and Learning Targets. The content pacing guide provides the Domain from which the content comes. The percentage of questions from each Domain that will appear on the Ohio AIR State Test is also included as well as the Ohio Content Standard(s) and the Ohio Learning Target that each lesson covers. The title of each lesson, the order in which each lesson should be taught, and the amount of time each lesson should take is also given. Finally, a column is provided to allow for teach notes regarding the effectiveness of changes a lesson might need, offering each teacher the opportunity to edit the document to fit their individual classroom needs.

## 2.1. PACING GUIDE KEYS

Table 1 provides a Key so teachers can gain a better understanding of the pacing guide that follow.

Table 1: Pacing Guide Format

| Font Style | Description |
|---|---|
| Green | Critical Areas of Focus on State Testing |
| Black | Minor Areas of Focus on State Testing |
| **Bold** | Standard(s) covered |
| Underline | Percentage of questions from each Domain appearing on the Ohio AIR State Test |

Table 2 provides a Key so teachers understand what percentage of questions are on the state test, what domain each unit falls into, as well as what standard is in each lesson and if it is a major or minor area for state testing.

Table 2: Pacing Guide

| Percentage of Questions on State Test | Unit & Domain | Major Areas | Minor Areas |
|---|---|---|---|
| **20% - 25%** | ***Unit 1*** The Number System | 6.NS.1 / 7.NS.2.a / 7.NS.1.d | 6.NS.4 / 6.NS.3 |
| **24% - 33%** | ***Unit 2*** Proportional Relationships | 6.RP.1 / 7.RP.1 / 7.RP.3 / 7.RP.2.b / 7.RP.2.d / 6.RP.3.d | |
| **20% - 25%** | ***Unit 3*** The Number System | 7.NS.1.a / 7.NS.1.b / 7.NS.1.c / 6.NS.6.b / 6.NS.6.c / 6.NS.7.a / 6.NS.7.b / 6.NS.7.c / 6.NS.7.d | |
| **31% - 44%** | ***Unit 4*** Expressions & Equations | 6.EE.1 / 7.EE.2 / 6.EE.2.b / 6.EE.2.c / 6.NS.6 / 6.EE.3 / 6.EE.4 / 6.EE.6 | 7.NS.2.a / 7.NS.1.d |
| **20% - 25%** | ***Unit 5*** The Number System / Expressions & Equations | 6.NS.5 / 6.NS.7.a / 6.NS.7.b / 6.EE.2.a / 6.EE.2.b / 6.EE.2.c / 6.EE.5 / 7.EE.4.b / 6.RP.3.b / 6.EE.4 / 6.EE.9 / 6.EE.3 / 6.EE.6 / 6.EE.7 / 6.NS.6.c / 6.NS.8 / 6.NS.6.b | 6.G.3 / 7.G.1 |
| **20% - 25%** | ***Unit 6*** Statistics & Probability | | 6.SP.1 / 6.SP.5.a / 6.SP.5.b / 7.SP.3 / 6.SP.5.d / 6.SP.4 |
| **20% - 25%** | ***Unit 7*** Proportional Relationships / Geometry | 6.RP.1 / 6.RP.3.b / 6.RP.3.d / 6.EE.9 | 6.G.2 / 7.G.6 / 6.G.1 / 7.G.6 / 6.G.2 / 6.G.4 / 7.G.3 / 7.G.2 |
| **20% - 25%** | ***Unit 8*** Statistics & Probability | | 7.SP.1 / 7.SP.2 / 7.SP.4 |
| **20% - 25%** | ***Unit 9*** Statistics & Probability | | 7.SP.5 / 7.SP.6 / 7.SP.7.a / 7.SP.7.b / 7.SP.8.a / 7.SP.8.b / 7.SP.8.c |

## 2.2. SEMESTER 1

| Domain | Standards | Learning Target | Lesson | Pacing | Teacher Notes |
|---|---|---|---|---|---|
| ***Unit 1: The Number System***<br><br>36 Days | **6.NS.4**<br>**6.NS.1**<br>**7.NS.2.a**<br>**7.NS.1.d**<br>**6.NS.3** | | **Pre-Test** | 1 Day | **7.NS.2.a replaces 6.NS.2**<br>**7.NS.1.d replaces 6.NS.3 adding & subtracting** |
| *The Number System*<br><br>36 Days<br><br>Minor Area | **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). | • I can find the greatest common factor (GCF) of two whole numbers.<br>• I can find the least common multiple (LCM) of two whole numbers less than or equal to 12.<br>• I can express the sum of two whole numbers using the distributive property. | **Domain 2: Lesson 1 -** Least Common Multiple | 4 Days | |
| *The Number System*<br><br>36 Days<br><br>Minor Area | **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). | • I can find the greatest common factor (GCF) of two whole numbers.<br>• I can find the least common multiple (LCM) of two whole numbers less than or equal to 12.<br>• I can express the sum of two whole numbers using the distributive property. | **Domain 2: Lesson 2 -** Greatest Common Factor | 4 Days | |
| *The Number System*<br><br>36 Days | **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 | • I know that a fraction can represent a quotient and I can find that quotient using models and equations. | **Domain 2: Lesson 3 -** Fraction Representation | | |

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| Critical Area | 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 ½? | | | 7 Days | |
| *The Number System*<br><br>36 Days<br><br>Critical Area | **7. NS-2.a.** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. - Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. | • I can explain the multiplication rules for rational numbers by relating it to the rules I learned for whole numbers and fractions.<br>• I can explain the multiplication of rational number by using real-world examples. | **Domain 2: Lesson 4 -** Integer Multiplication & Division / Mixed Number Addition & Subtraction / Fraction Multiplication & Division | 11 Days | **7.NS.2.a replaces standard 6.NS.2** |
| *The Number System*<br><br>36 Days<br><br>Critical Area | **7. NS-1d.** 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. - Apply properties of operations as strategies to add and subtract rational numbers.<br>**6. NS-3.** Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. | • I can efficiently add and subtract rational numbers.<br>• I can EASILY(quickly?) and ACCURATELY add, subtract, multiply, and divide multi-digit decimal numbers | **Domain 2: Lesson 5 -** Decimal Addition & Subtraction / Decimal Multiplication & Division | 7 Days | **7.NS.1.d replaces the adding and subtracting part of standard 6.NS.3** |
| ***Unit 1: The Number System***<br><br>36 Days | **6.NS.4**<br>**6.NS.1**<br>**7.NS.2.a**<br>**7.NS.1.d**<br>**6.NS.3** | | **Post-Test & Summative Assessment** | 2 Days | **7.NS.2.a replaces 6.NS.2**<br>**7.NS.1.d replaces 6.NS.3 adding & subtracting** |
| ***Unit 2 : Proportional*** | **6.RP.1**<br>**7.RP.1** | | | | **7.RP.1 replaces 6.RP.2 /** |

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| ***Relationship***<br><br>19 Days | **7.RP.3**<br>**7.RP.2.b**<br>**7.RP.2.d**<br>**6.RP.3.d** | | **Pre-Test** | 1 Day | **7.RP.2.b & 7.RP.2.d replaces 6.RP.3.a / 7.RP.2.b replaces 6.RP.3.b but you must add unit pricing and constant speed / 7.RP.3 replaces 6.RP.3.b** |
| *Proportional Relationship*<br><br>19 Days<br><br>Critical Area | **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." | • I can explain how a ratio is comparing two quantities. | **Domain 1: Lesson 6 -** Equivalent Ratios and Rates | 3 Days | |
| *Proportional Relationship*<br><br>19 Days<br><br>Critical Area | **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. | • I can compute a unit rate from a ratio. | **Domain 1: Lesson 7 -** Unit Rates | 3 Days | **7.RP.1 replaces standard 6.RP.2** |
| *Proportional Relationship*<br><br>19 Days<br><br>Critical Area | **7. RP-3.** Use proportional relationships to solve multistep ratio and percent problems.<br>- Simple Interest, Tax Markups & Markdowns, Gratuities & Commissions, fees, percent increase & decrease, and percent error. | • I can solve a variety of real-world problems involving proportional reasoning. | **Domain 1: Lesson 8 -** Fraction, Decimal, and Percent Conversions / Percent Conversions/ Percent's and Proportions / Percent Change | 4 Days | **7.RP.3 replaces standard 6.RP.3.c** |
| *Proportional* | **7. RP-2b.** Recognize and represent proportional | • I can determine the constant of | **Domain 1:** | | **7.RP.2.b-(add** |

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| *Relationship*<br><br>19 Days<br><br><u>Critical Area</u> | relationships between quantities.<br>**6. RP-3.d.** 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. - Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. | proportionality in a proportional relationship.<br>• I can explain the meaning of each coordinate of the ordered pair taken from a graph of the proportional relationships.<br>• I can solve problems involving rates like unit pricing and constant speed.<br>• I can determine the constant of proportionality in a proportional relationship.<br>• I can determine the constant of proportionality in a proportional relationship.<br>• I can convert units of measurement using ratios. | **Lesson 9 -** Equations of Direct Variation / Problem Solving with Equivalent Ratios and Rates / Graphs of Direct Variation | 6 Days | **unit pricing and constant speed) replace standard 6.RP.3.b** |
| ***Unit 2 : Proportional Relationship***<br><br>19 Days | **6.RP.1**<br>**7.RP.1**<br>**7.RP.3**<br>**7.RP.2.b**<br>**7.RP.2.d**<br>**6.RP.3.d** | | **Post-Test & Summative Assessment** | 2 Days | **7.RP.1 replaces 6.RP.2 / 7.RP.2.b & 7.RP.2.d replaces 6.RP.3.a / 7.RP.2.b replaces 6.RP.3.b but you must add unit pricing and constant speed / 7.RP.3 replaces 6.RP.3.b** |
| ***Unit 3: The Number System***<br><br>9 Days | **7.NS.1.a**<br>**7.NS.1.b**<br>**7.NS.1.c**<br>**6.NS.6.b**<br>**6.NS.6.c**<br>**6.NS.7.a**<br>**6.NS.7.b** | | **Pre-Test** | 1 Day | **7.NS.1.a replaces 6.NS.5 / 7.NS.1.b & 7.NS.1.c replaces 6.NS.6.a** |

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| | **6.NS.7.c**<br>**6.NS.7.d** | | | | |
| *The Number System*<br><br>9 Days<br><br><u>Critical Area</u> | **7. NS-1.a.** Apply and extend previous understanding of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. - Situations in which opposite quantities combine to make 0.<br>**7. NS-1b.** 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. - Understand p + q as the number located a distance IqI from p, in the positive or negative direction.<br>**7. NS-1c.** 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. - Understand subtraction of rational numbers as adding the inverse, p-q = p + (-q).<br>**6. NS-6.b** 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. - 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.<br>**6. NS-6.c** 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. - 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. | • I can describe real-world situations in which opposite quantities add together to zero.<br>• I can explain how each rational number has an opposite that adds to zero.<br>• I can explain how the sum of p+q is actually a distance of IqI from the value of p.<br>• I can explain why p-q and p+ (-q) are the same value<br>• I can explain why the distance between two rational numbers on the number line is the absolute value of their difference.<br>• I can solve real-world problems involving the previous concepts.<br>• I can explain how the signs of any ordered pair change in each quadrant of the coordinate graph.<br>• I can explain how changing the sign of the numbers in an ordered pair causes it to reflect on one or both axes.<br>• I can locate a rational number on the number line.<br>• I can plot an ordered pair of rational numbers on the coordinate plane. | **Domain 2:**<br>**Lesson 10 -**<br>Real Number System / Integer Addition & Subtraction/Negative Numbers & Number Lines | 3 Days | **7.NS.1.a replaces standard 6.NS.5**<br><br>**7.NS.1.b & 7.NS.1.c replaces standard 6.NS.6.a** |

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| *The Number System*<br><br>9 Days<br><br><u>Critical Area</u> | **6. NS-7.a** Understand ordering and absolute value of rational numbers. - 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.<br>**6. NS-7.b** Understand ordering and absolute value of rational numbers. - Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write –3o C > –7o C to express the fact that –3o C is warmer than –7o C.<br>**6. NS-7.c** Understand ordering and absolute value of rational numbers. - 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.<br>**6. NS-7.d** Understand ordering and absolute value of rational numbers. - 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. | • I can compare two rational numbers on a number line and in an inequality.<br>• I can explain the meaning of ordering rational numbers in a real world situation.<br>• I can explain how the absolute value of a number relates to its distance from zero.<br>• I can explain how the absolute value of a number is used in real world situations to show magnitude.<br>• I can compare how the absolute value of a number relates to value of the number on the number line. | **Domain 2: Lesson 11 -** Absolute Value | 3 Days | |
| ***Unit 3: The Number System***<br><br>9 Days | **7.NS.1.a**<br>**7.NS.1.b**<br>**7.NS.1.c**<br>**6.NS.6.b**<br>**6.NS.6.c**<br>**6.NS.7.a**<br>**6.NS.7.b**<br>**6.NS.7.c**<br>**6.NS.7.d** | | **Post-Test & Summative Assessment** | 2 Days | |
| ***Unit 4: Expressions & Equations*** | **7.NS.2.a**<br>**7.NS.1.d**<br>**6.EE.1** | | | | |

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| 23 Days | **7.EE.2**<br>**6.EE.2.b**<br>**6.EE.2.c**<br>**6.NS.6**<br>**6.EE.3**<br>**6.EE.4**<br>**6.EE.6** | | **Pre-Test** | 1 Day | |
| *Expressions & Equations*<br><br>23 Days<br><br><u>Minor Area</u> | **7. NS-2.a**. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. - Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules<br>**7. NS-1d.** 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. - Apply properties of operations as strategies to add and subtract rational numbers. | • I can explain the multiplication rules for rational numbers by relating it to the rules I learned for whole numbers and fractions.<br>• I can explain the multiplication of rational number by using real-world examples<br>• I can efficiently add and subtract rational numbers | **Domain 3: Lesson 12 -** Integer Addition & Subtraction/ Integer Multiplication & Division | 1 Day | **7.NS.2.a & 7.NS.1.d replaces standard 6.NS.6.c** |
| *Expressions & Equations*<br><br>23 Days<br><br><u>Critical Area</u> | **6. EE-1.** Write and evaluate numerical expressions involving whole-number exponents. | • I can simplify numeric expressions with exponents. | **Domain 3: Lesson 13 -** Squares & Cubes | 2 Days | |
| *Expressions & Equations*<br><br>23 Days<br><br><u>Critical Area</u> | **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. For example, a + 0.05a = 1.05a means that “increase by 5%” is the same as “multiply by 1.05.”<br>**6. EE-2.b.** Write, read, and evaluate expressions in which letters stand for numbers. - Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more | • I can explain the advantages of rewriting an expression to better explain how quantities are related in a real world context.<br>• I can identify the parts of an expression that mean sum, term, product, factor, quotient, and coefficient.<br>• I can view a "chunk" of the | **Domain 3: Lesson 14 -** Order of Operations with Variable Expressions/ Picture Algebra & Equations | 2 Days | **7.EE.2 replaces standard 6.EE.2.a** |

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| | 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 | expression as a single "thing". | | | |
| *Expressions & Equations*<br><br>23 Days<br><br><u>Critical Area</u> | **6. EE-2.c.** Write, read, and evaluate expressions in which letters stand for numbers. - 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 whole number 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 = 6s2 to find the volume and surface area of a cube with sides of length s = 1/2. | • I can substitute numbers for variables in a number sentence and simplify.<br>• I can solve a real-world problem given the formula.<br>• I can apply the order of operations to simplify a number sentence with no parentheses. | **Domain 3: Lesson 15 -** Patterns & One-Step Expressions | 2 Days | |
| *Expressions & Equations*<br><br>23 Days<br><br><u>Critical Area</u> | **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. - 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. | • I can plot an ordered pair of rational numbers on the coordinate plane. | **Domain 3: Lesson 16 -** Point Plotting n First Quadrant | 2 Days | |
| *Expressions & Equations*<br><br>23 Days<br><br><u>Critical Area</u> | **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. | • I can apply the properties of operations to make equivalent expressions. | **Domain 3: Lesson 17 -** Expression Evaluation Using Integers | 2 Days | |
| *Expressions & Equations* | **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 | • I can apply the properties of operations to make equivalent expressions. | **Domain 3: Lesson 18 -** Distributive | | |

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| 23 Days<br><br><u>Critical Area</u> | 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. | | Property | 2 Days | |
| *Expressions & Equations*<br><br>23 Days<br><br><u>Critical Area</u> | **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. - 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.<br>**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. | • I can plot an ordered pair of rational numbers on the coordinate plane.<br>• I can apply the properties of operations to make equivalent expressions. | **Domain 3: Lesson 19 -** One Quadrant Graphs & One-Step Expressions | 2 Days | |
| *Expressions & Equations*<br><br>23 Days<br><br><u>Critical Area</u> | **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.<br>**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. | • I can identify and explain when two expressions are equivalent.<br>• I can write an expression with variables to represent a real-world problem.<br>• I understand that a variable can represent an unknown number or set of numbers. | **Domain 3: Lesson 20 -** Variable Expression & Simplification | 2 Days | |
| *Expressions & Equations* | **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 | • I can identify and explain when two expressions are equivalent.<br>• I can write an expression with | **Domain 3: Lesson 21 -** Expression | | |

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| 23 Days<br><br><u>Critical Area</u> | 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.<br>**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. | variables to represent a real-world problem.<br>• I understand that a variable can represent an unknown number or set of numbers. | Evaluation Using Fractions & Decimals | 1 Day | |
| *Expressions & Equations*<br><br>23 Days<br><br><u>Critical Area</u> | **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.<br>**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. | • I can identify and explain when two expressions are equivalent.<br>• I can write an expression with variables to represent a real-world problem.<br>• I understand that a variable can represent an unknown number or set of numbers. | **Domain 3: Lesson 22 -** Expression Evaluation with Multiple Variables | 2 Days | |
| ***Unit 4: Expressions & Equations***<br><br>23 Days | **7.NS.2.a**<br>**7.NS.1.d**<br>**6.EE.1**<br>**7.EE.2**<br>**6.EE.2.b**<br>**6.EE.2.c**<br>**6.NS.6**<br>**6.EE.3**<br>**6.EE.4**<br>**6.EE.6** | | **Post-Test & Summative Assessment** | 2 Days | |

## 2.3. SEMESTER 2

| Domain | Standards | Learning Target | Lesson | Pacing | Teacher Notes |
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| ***Unit 5: Number System / Expressions & Equations***<br><br>17 Days | **6.NS.5**<br>**6.NS.7.a**<br>**6.NS.7.b**<br>**6.EE.2.a**<br>**6.EE.2.b**<br>**6.EE.2.c**<br>**6.EE.5**<br>**7.EE.4.b**<br>**6.RP.3.b**<br>**6.EE.4**<br>**6.EE.9**<br>**6.EE.3**<br>**6.EE.6**<br>**6.EE.7**<br>**6.NS.6.c**<br>**6.NS.8**<br>**6.NS.6.b**<br>**6.G.3**<br>**7.G.1** | | **Pre-Test** | 1 Day | |
| *Number System / Expressions & Equations*<br><br>17 Days<br><br><u>Critical Area</u> | **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.<br>**6. NS-7.a** Understand ordering and absolute value of rational numbers. - 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 | • I can explain how positive and negative numbers relate to real world examples and the meaning of zero in each case.<br>• I can translate a written mathematical expression into a symbolic expression. | **Domain 2 & 3: Lesson 23 -** Pan Balances and One-Step Equations | | |

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| | right. I can compare two rational numbers on a number line and in an inequality. Explain in words and demonstrate on a number line what -3 > -7 means. Write an inequality comparing the two numbers shown on the number line.<br>**6. NS-7.c** Understand ordering and absolute value of rational numbers. - 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.<br>**6. EE-2.a** Write, read, and evaluate expressions in which letters stand for numbers. - 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. | | | 2 Days | |
| *Number System / Expressions & Equations*<br><br>17 Days<br><br><u>Critical Area</u> | **6. EE-2.b** Write, read, and evaluate expressions in which letters stand for numbers. b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, and 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.<br>**6. EE-2.c** Write, read, and evaluate expressions in which letters stand for numbers. 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 whole number 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 = 6s2 to find the volume and surface area of a cube with sides of length s = ½. | • I can identify the parts of an expression that mean sum, term, product, factor, quotient, and coefficient.<br>• I can view a "chunk" of the expression as a single "thing".<br>• I can substitute numbers for variables in a number sentence and simplify.<br>• I can solve a real-world problem given the formula.<br>• I can apply the order of operations to simplify a number sentence with no parentheses. | **Domain 2 & 3: Lesson 24 -** Solving One-Step Linear Equations | 2 Days | |

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| *Number System / Expressions & Equations*<br><br>17 Days<br><br><u>Critical Area</u> | **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.<br>**7. EE-4.b 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. 4b. Solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. | • I understand that solving an equation or inequality means to find the values that make it true.<br>• I can determine whether a value makes an equation/inequality true or false.<br>• I can represent problems in real-world context with an inequality.<br>• I can graph the solution set of an inequality.<br>• I can explain the solution of the equality as it relates to the context of the problem. | **Domain 2 & 3: Lesson 25 -** One-Step Linear Inequalities/ Two Step Inequalities / Problem Solving with Inequalities | 2 Days | **7.EE.4.b replaces standard 6.EE.8** |
| *Number System / Expressions & Equations*<br><br>17 Days<br><br><u>Critical Area</u> | **6. RP-3.b** 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. - 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?<br>**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.<br>**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 | • I can solve problems involving rates like unit pricing and constant speed.<br>• I can identify and explain when two expressions are equivalent.<br>• I can explain the difference between independent and dependent variables.<br>• I can write an expression from a real-world problem that relates independent and dependent quantities.<br>• I can explain the relationship between dependent and independent variables using graphs and tables. | **Domain 2 & 3: Lesson 26 -** Patterns and One-Step Equations | 2 Days | |

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| | graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time. | | | | |
| *Number System / Expressions & Equations*<br><br>17 Days<br><br><u>Critical Area</u> | **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.<br>**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.<br>**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. | • I can apply the properties of operations to make equivalent expressions.<br>• I can write an expression with variables to represent a real-world problem.<br>• I understand that a variable can represent an unknown number or set of numbers.<br>• I can solve real-world problems by writing and solving equations involving non negative rational numbers. | **Domain 2 & 3: Lesson 27 -** Problem Solving with One-Step Equations | 2 Days | |
| *Number System / Expressions & Equations*<br><br>17 Days<br><br><u>Critical Area</u> | **6. NS-6.c** 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. - 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.<br>**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. | • I can locate a rational number on the number line.<br>• I can plot an ordered pair of rational numbers on the coordinate plane.<br>• I can use the coordinate plane to solve real-world problems.<br>• I can find the vertical or horizontal distance between two points on the coordinate plane. | **Domain 2 & 3: Lesson 28 -** Point Pointing in Four Quadrants | 2 Days | |
| *Number* | **6. NS-6.b** Understand a rational number as a point on | • I can explain how the signs of any | **Domain 2 & 3:** | | **Add on 7.G.1 to** |

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| *System / Expressions & Equations*<br><br>17 Days<br><br><u>Critical Area</u> | 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. - 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.<br>**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.<br>**7. G-1**. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. | ordered pair change in each quadrant of the coordinate graph.<br>• I can explain how changing the sign of the numbers in an ordered pair causes it to reflect on one or both axes.<br>• I can draw polygons in the coordinate plane given coordinates for the vertices.<br>• I can find the vertical or horizontal distance of a side of the polygon.<br>• I can apply these strategies to solve real-world problems.<br>• I can solve problems using scale drawings of geometric figures.<br>• I can find missing sides and/or areas from similar geometric figures.<br>• I can create a scale drawing from a given figure | **Lesson 29 -** Four Quadrant Graphs and One-Step Equations | 2 Days | **6.G.3** |
| ***Unit 5: Number System / Expressions & Equations***<br><br>17 Days | **6.NS.5**<br>**6.NS.7.a**<br>**6.NS.7.b**<br>**6.EE.2.a**<br>**6.EE.2.b**<br>**6.EE.2.c**<br>**6.EE.5**<br>**7.EE.4.b**<br>**6.RP.3.b**<br>**6.EE.4**<br>**6.EE.9**<br>**6.EE.3**<br>**6.EE.6**<br>**6.EE.7**<br>**6.NS.6.c**<br>**6.NS.8**<br>**6.NS.6.b** | | **Post-Test & Summative Assessment** | 2 Days | |

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| | **6.G.3**<br>**7.G.1** | | | | |
| ***Unit 6: Statistics & Probability***<br><br>14 Days | **6.SP.1**<br>**6.SP.5.a**<br>**6.SP.5.b**<br>**7.SP.3**<br>**6.SP.5.d**<br>**6.SP.4** | | **Pre-Test** | 1 Day | **7.SP.3 replaces standard 6.SP.2, 6.SP.5.c** |
| *Statistics & Probability*<br><br>14 Days<br><br>Minor Area | **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. | • I can explain what type of questions can be answered using statistics. | **Domain 6: Lesson 30 -** Displays of Categorical Data | 2 Days | |
| *Statistics & Probability*<br><br>14 Days<br><br>Minor Area | **6. SP-5.a.** Summarize numerical data sets in relation to their context. - Reporting the number of observations.<br>**6. SP-5.b.** Summarize numerical data sets in relation to their context. - Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. | • I can report the number of observations from a data set.<br>• I can explain how the statistical investigation was measured and the units of measurement used. | **Domain 6: Lesson 31 -** Displays of Numerical Data | 2 Days | |
| *Statistics & Probability*<br><br>14 Days<br><br>Minor Area | **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. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.<br>**6. SP-5.d.** Summarize numerical data sets in relation to their context. - Relating the choice of measures of | • I can find the variability of a group of data by finding the standard deviation or mean absolute deviation.<br>• I can observe the overlap and differences of two data sets with similar spread (variability).<br>• I can express the difference of the center of the two data sets as a multiple of the standard deviation or mean absolute deviation<br>• I can explain why a particular | **Domain 6: Lesson 32 -** Measures of Central Tendency | 2 Days | **7.SP.3 replaces standard 6.SP.2, 6.SP.5.c** |

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| | center and variability to the shape of the data distribution and the context in which the data were gathered. | measure of center or measure of variability may be used based on the context of the data gathered. | | | |
| *Statistics & Probability*<br><br>14 Days<br><br>Minor Area | **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. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable. | • I can find the variability of a group of data by finding the standard deviation or mean absolute deviation.<br>• I can observe the overlap and differences of two data sets with similar spread (variability).<br>• I can express the difference of the center of the two data sets as a multiple of the standard deviation or mean absolute deviation | **Domain 6: Lesson 33 -** Mean Absolute Deviation | 3 Days | **7.SP.3 replaces standard 6.SP.3** |
| *Statistics & Probability*<br><br>14 Days<br><br>Minor Area | **6. SP-4.** Display numerical data in plots on a number line, including dot plots, histograms, and box plots. | • I can create a dot plot, histogram, and a box plot. | **Domain 6: Lesson 34 -** Box and Whisker Plots | 2 Days | |
| ***Unit 6: Statistics & Probability***<br><br>14 Days | **6.SP.1**<br>**6.SP.5.a**<br>**6.SP.5.b**<br>**7.SP.3**<br>**6.SP.5.d**<br>**6.SP.4** | | **Post-Test & Summative Assessment** | 2 Days | |
| ***Unit 7: Proportional Relationship / Geometry***<br><br>13 Days | **6.RP.1**<br>**6.RP.3.b**<br>**6.RP.3.d**<br>**6.EE.9**<br>**6.G.2**<br>**7.G.6**<br>**6.G.1**<br>**7.G.6**<br>**6.G.2** | | **Pre-Test** | 1 Day | |

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| | **6.G.4**<br>**7.G.3**<br>**7.G.2** | | | | |
| *Proportional Relationship / Geometry*<br><br>13 Days<br><br><u>Critical Area</u> | **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."<br>**6. RP-3.b** 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. - 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?<br>**6. RP-3.d** 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. - Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.<br>**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 | • I can explain how a ratio is comparing two quantities.<br>• I can solve problems involving rates like unit pricing and constant speed.<br>• I can convert units of measurement using ratios.<br>• I can explain the difference between independent and dependent variables.<br>• I can write an expression from a real-world problem that relates independent and dependent quantities.<br>• I can explain the relationship between dependent and independent variables using graphs and tables. | **Domain 1 & 5: Lesson 35 -** One-Step Unit Conversions | 2 Days | |

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| *Proportional Relationship / Geometry*<br><br>13 Days<br><br><u>Minor Area</u> | **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.<br>**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. | • I can find the volume of a right rectangular prism using unit cubes.<br>• I can calculate the volume of the right rectangular prism.<br>• I can explain the relationship between the formula of a right rectangular prism and the number of unit cubes it holds. I can solve real-world problems involving the area of triangles, quadrilaterals, and other polygons.<br>• I can solve real-world problems involving the volume and surface area. | **Domain 1 & 5: Lesson 36 -** Area, Volume, and Surface Area of Prisms & Pyramids | 3 Days | **Add on 7.G.6** |
| *Proportional Relationship / Geometry*<br><br>13 Days<br><br><u>Minor Area</u> | **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.<br>**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. | • I can find the area of any triangle.<br>• I can find the area of other polygons by dividing them into triangles and/or rectangles.<br>• I can use techniques to find areas in real-world problems.<br>• I can solve real-world problems involving the area of triangles, quadrilaterals, and other polygons.<br>• I can solve real-world problems involving the volume and surface area | **Domain 1 & 5: Lesson 37 -** Perimeter and Area of Triangles and Quadrilaterals/Area, Volume, and Surface Area of Prisms & Pyramids | 2 Days | **Add on 7.G.6** |
| *Proportional Relationship / Geometry*<br><br>13 Days<br><br><u>Minor Area</u> | **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. | • I can find the volume of a right rectangular prism using unit cubes.<br>• I can calculate the volume of the right rectangular prism.<br>• I can explain the relationship between the formula of a right rectangular prism and the number | **Domain 1 & 5: Lesson 38 -** Volume and Surface Area of Right Prisms/ Cross Sections of 3D Figures/ Constructing Geometric | | **Add on 7.G.3 & 7.G.2 to 6.G.4** |

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| | **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<br>**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.<br>**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 | of unit cubes it holds.<br>• I can represent 3-dimensional figures with nets.<br>• I can use nets to find the surface areas of 3-dimensional figures.<br>• I can apply these strategies to solve real-world problems.<br>• I can describe the various two-dimensional figures formed when slicing particular three-dimensional figures with a plane.<br>• I can draw geometric figures, especially triangles, freehand (with ruler and protractor).<br>I can draw geometric figures, especially triangles, using software. (i.e. Sketchpad, Cabri, etc.)<br>• I can determine under what conditions a particular drawing would be a unique triangle, many triangles, or no triangle. | Shapes / Triangle Properties | 3 Days | |
| ***Unit 7: Proportional Relationship / Geometry***<br><br>13 Days | **6.RP.1**<br>**6.RP.3.b**<br>**6.RP.3.d**<br>**6.EE.9**<br>**6.G.2**<br>**7.G.6**<br>**6.G.1**<br>**7.G.6**<br>**6.G.2**<br>**6.G.4**<br>**7.G.3**<br>**7.G.2** | | **Post-Test & Summative Assessment** | 2 Days | |
| ***Unit 8: Statistics & Probability*** | **7.SP.1**<br>**7.SP.2**<br>**7.SP.4** | | **Pre-Test** | 1 Day | |

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| 8 Days | | | | | |
| *Statistics & Probability*<br><br>8 Days<br><br><u>Minor Area</u> | **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. | • I can explain how statistics about a sample can be used to describe a population.<br>• I can explain what conditions need to be met for a sample to be a good representation of a population.<br>• I can explain the reasons why a random sample is the most desirable type of sample. | **Domain 2: Lesson 39 -** Samples | 2 Days | |
| *Statistics & Probability*<br><br>8 Days<br><br><u>Minor Area</u> | **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. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might | • I can use a random sample to infer a particular item of interest about the population.<br>• I can use multiple samples from a population to explain the possible variation in predictions about the population. | **Domain 2: Lesson 40 -** Samples 7 Predictions | 1 Day | |
| *Statistics & Probability*<br><br>8 Days<br><br><u>Minor Area</u> | **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. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book. | • I can generate random samples from two different populations and determine whether their mean is significantly different.<br>• I can generate random samples from two different populations and determine whether their variance is significantly different. | **Domain 2: Lesson 41 -** Measure of Central Tendencies / Numerical Data Display Comparisons | 2 Days | |
| ***Unit 8: Statistics & Probability*** | **7.SP.1**<br>**7.SP.2**<br>**7.SP.4** | | **Post-Test & Summative** | 2 Days | |

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| 8 Days | | | **Assessment** | | |
| ***Unit 9: Statistics & Probability***<br><br>13 Days | **7.SP.5**<br>**7.SP.6**<br>**7.SP.7.a**<br>**7.SP.7.b**<br>**7.SP.8.a**<br>**7.SP.8.b**<br>**7.SP.8.c** | | **Pre-Test** | 1 Day | |
| *Statistics & Probability*<br><br>13 Days<br><br><u>Minor Area</u> | **7. SP-5.** Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. | • I can explain that probability is expressed as a number from 0 to 1.<br>• I can explain that numbers nearer to 1 mean the event is more likely to happen.<br>• I can explain that numbers nearer to 0 mean the event is less likely to happen.<br>• I can explain that numbers near 0.5 mean the event is neither more likely nor less likely to happen. | **Domain 2: Lesson 42 -** Single Event Probability | 1 Day | |
| *Statistics & Probability*<br><br>13 Days<br><br><u>Minor Area</u> | **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. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times. | • I can approximate the likelihood of an event by collecting data on the event over numerous trials.<br>• I can explain the difference between the probability observed on many trails and the theoretical probability of the event. | **Domain 2: Lesson 43 -** Compound Events / Theoretical & Experimental Probability | 2 Days | |
| *Statistics & Probability* | **7. SP-7.a.** Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is | • I can describe a model where the outcomes are equally likely and then calculate the probability that | **Domain 2: Lesson 44 -** Modeling | | |

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| 13 Days<br><br>Minor Area | not good, explain possible sources of the discrepancy. - Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected. | event 1 AND event 2 both occurring. | | 2 Days | |
| *Statistics & Probability*<br><br>13 Days<br><br>Minor Area | **7. SP-7.b.** 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. - Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies? | • I can create a probability experiment and compare the results to my predictive model and explain potential differences. | **Domain 2: Lesson 45 -** Tree Diagrams | 1 Day | |
| *Statistics & Probability*<br><br>13 Days<br><br>Minor Area | **7. SP-8.a.** Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. - Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. | • I can explain that the probability of a compound event is the fraction of desirable outcomes over all possible outcomes - just like simple probability. | **Domain 2: Lesson 46 -** Tree Diagrams | 1 Day | |
| *Statistics & Probability*<br><br>13 Days<br><br>Minor Area | **7. SP-8.b.** Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. - Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event occurs. | • I can create and explain the sample spaces for compound events. | **Domain 2: Lesson 47 -** Independent & Dependent Probabilities | 1 Day | |
| *Statistics & Probability* | **7. SP-8.c.** Find probabilities of compound events using organized lists, tables, tree diagrams, and | • I can create a simulation to help explain the probability of a | **Domain 2: Lesson 48 -** | | |

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| 13 Days<br><br><u>Minor Area</u> | simulation. - Design and use a simulation to generate frequencies for compound events. For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A. | compound event. | Simulation | 2 Days | |
| ***Unit 9: Statistics & Probability***<br><br>13 Days | **7.SP.5**<br>**7.SP.6**<br>**7.SP.7.a**<br>**7.SP.7.b**<br>**7.SP.8.a**<br>**7.SP.8.b**<br>**7.SP.8.c** | | **Post-Test & Summative Assessment** | 2 Days | |