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| **Trimester 1** | Grade: 5 | | | | Unit Number: 1 – Number Theory | | |
| Unit Overview:   * To introduce students to the Student Reference Book * To review rectangular arrays and multiplication number models * To review and practice factoring. * To introduce prime, composite, and square numbers, and * To develop exponents and square roots concepts | | | | | | |
| Essential Question: How does an understanding of number theory make one more efficient? | | | | | | |
| Academic Vocabulary: numerical expression, evaluate, powers of 10, exponent, decimal, scaling, factor, *standard notation, exponential notation* | | | | | | |
| Lesson | Standard | Guiding Questions | Additional Resources | | Differentiation | I Can… |
| 1.1 | 5.OA.2  5.NBT.2 | How will the Student Reference Book help you work more efficiently? |  | |  | * Explain patterns in the number of zeros of the product when multiplying a number by powers of 10. 5.NBT.2 * Use a numerical expression to represent a calculation expressed verbally. 5.OA.2 * Interpret expressions without solving them. 5.OA.2 * Compare 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. 5.NF.5a * Explain patterns in the placement of the decimal point when a decimal is multiplied of divided by a power of 10. 5.NBT.2 |
| 1.2 | 5.NBT.2 | How do patterns help you solve problems and explain rules? |  | |  |
| 1.3 | 5.OA.2 | How does representing a mathematical situation with words or through visuals increase your understanding of a problem?  How do mathematical symbols such as +, \*, and = help you represent your problem? |  | |  |
| 1.4 | 5.OA.2  5.NF.5a | Why is it important to explain what you are doing and why it works? |  | |  |
| 1.5 | 5.NBT.2 | How can mathematical rules and shortcuts help you to become a stronger mathematical thinker? |  | |  |
| 1.6 | 5.NBT.2 | What is an example of a strategy you could use every time you play Factor Captor? Can you explain the strategy? |  | |  |
| 1.7 | 5.OA.2 | What are some of the benefits of using precise and accurate language to communicate your thinking? |  | |  |
| 1.8 | 5.OA.2  5.NBT.2 | How do you know if your answer is reasonable?  How can checking whether your solution makes sense help you problem solve? |  | |  |
| 1.9 | 5.NBT.2 | Why is it important to be flexible in the way you solve a problem?  How can solving a problem in more than one way help you find the best strategy for you? |  | |  |
| Assessment: Unit 1 Progress Check | | | | | | |

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| **Trimester 1** | Grade: 5 | | | | Unit Number: 2 – Estimation and Computation | | |
| Unit Overview:   * To devise an estimation strategy to solve a problem, * To subtract multidigit numbers using the trade-first method * To review and apply vocabulary associated with chance events * To make magnitude estimates for products of multidigit numbers * To understand the relative sizes of 1 million, 1 billion, and 1 trillion | | | | | | |
| Essential Question: Why is it important to be accurate when adding, subtracting, and multiplying in everyday life? | | | | | | |
| Academic Vocabulary: powers of 10, exponent, decimal, convert, conversion, line plot, unit fraction, *expanded notation* | | | | | | |
| Lesson | Standard | Guiding Questions | Additional Resources | | Differentiation | I Can… |
| 2.1 | 5.NBT.2  5.MD.1 | What questions need to be answered before the solution can be found?  What necessary information do you need to gather to make sense of a problem? |  | |  | * Use a numerical expression to represent a calculation expressed verbally. 5.OA.2 * Interpret expressions without solving them. 5.0A.2 * Recognize that in a multi-digit number , a digit in the one place represents 10 times as much as it represents in the place to its right. 5.NBT.1 * Recognize that in a multi-digit in one place represents 1/10 of what it represents in the place to the left. 5.NBT.1 * Denote powers of 10 using whole-number exponents. 5.NBT.2 * Explain patterns in the number of zeros of the product when multiplying a number by powers of 10. 5.NBT.2 * Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. 5.NBT.2 * Read and write decimals to the thousandths using base-ten numerals, number-names, and expanded forms. 5.NBT.3 * Compare two decimals to the thousandths using place value and show the comparison using symbols <,>, or =. 5.NBT.3 * Use an understanding of place value to round decimals to any place. 5.NBT.4 * Add, subtract, and multiply decimals to the hundredths. 5.NBT.7 * Use concrete models or drawing and strategies based on place value or properties of operations to explain and illustrate calculations with decimals. 5.NBT.7 * Solve multi-step word problems using measurement conversions. 5.MD.1 * Make a line plot with a given set of unit fraction measurements. 5.MD.2 * Solve problems using data on line plots. 5.MD.2 |
| 2.2 | 5.NBT.1  5.NBT.3  5.NBT.7 | How do place-value patterns help you compare and order numbers?  What patterns can you describe in the base-10 system? |  | |  |
| 2.3 | 5.NBT.1  5.NBT.3a  5.NBT.4  5.NBT.7 | Why is it important to be able to understand and explain how an algorithm works? |  | |  |
| 2.4 | 5.OA.1  5.OA.2  5.NBT.3a  5.NBT.7 | Why is it useful to find multiple solutions to a problem? |  | |  |
| 2.5 | 5.NBT.3  5.NBT.4  5.NBT.7  5.MD.2 | Why is it important to analyze and understand your data before you reach a conclusion?  What words, objects, or displays can you use to make your explanation clearer? |  | |  |
| 2.6 |  | Why is it helpful to use a table to organize and display the results of an experiment?  Why are labels and titles important to use on mathematical models? |  | |  |
| 2.7 | 5.NBT.2  5.NBT.4  5.NBT.7 | How can you use a magnitude estimate to check computation? How can you determine the precision needed to solve a problem? |  | |  |
| 2.8 | 5.NBT.2  5.NBT.3a  5.NBT.4  5.NBT.7 | How does estimation help you check your answer to a multiplication problem? |  | |  |
| 2.9 | 5.NBT.2  5.NBT.7 | Why is it important to use a mathematical tool correctly?  Are there any other mathematical tools that you could use to multiply two numbers? |  | |  |
| 2.10 | 5.NBT.1  5.MD.1 | What information do you need to use in order to solve your problems? What measurement conversions will you need to make?  Why is it important to make a plan before you begin solving a problem? |  | |  |
| Assessment: Unit 2 Checking Progress | | | | | | |

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| **Trimester 1** | Grade: 5 | | | | Unit Number: 3 – Geometry Exploration and American Tour | | |
| Unit Overview:   * To explore data collection, organization, and interpretation, * To review types of angles, geometric figures, and the use of geometry tools, * To explore the geometric properties of polygons, and * To explore side and angle relationships in regular tessellations | | | | | | |
| Essential Question: How does geometric understanding help you solve everyday problems? | | | | | | |
| Academic Vocabulary: expression, numerical expression, powers of 10, exponent, decimal, decimal place | | | | | | |
| Lesson | Standard | Guiding Questions | Additional Resources | | Differentiation | I Can… |
| 3.1 | 5.NBT.3b | Why do you think most census data is represented with percentages? |  | |  | * Use a numerical expression to represent a calculation expressed verbally. 5.OA.2 * Interpret expressions without solving them. 5.OA.2 * Denote powers of 10 using whole-number exponents. 5.NBT.2 * Explain patterns in the number of zeros of the product when multiplying a number by powers of 10. 5.NBT.2 * Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. 5.NBT.2 * Read and write decimals to the thousandths using base-ten numerals, number-names, and expanded forms. 5.NBT.3 * Compare two decimals to the thousandths using place value and show the comparison using symbols <,>, or =. 5.NBT.3 * Use an understanding of place value to round decimals to any place. 5.NBT.4 * Classify two-dimensional figures by their attributes and show how two-dimensional attributes can belong to several two-dimensional figures. 5.G.3 * Identify subcategories using two-dimensional attributes. 5.G.3 * Classify two-dimensional figures in a hierarchy based on those that share a single property, those that share a second property, those that share a third property, etc. 5.G.4 |
| 3.2 | 5.OA.2  5.NBT.2 | How might the level of precision used to report data affect how it is interpreted? |  | |  |
| 3.3 |  | Why is it important to explain both a solution and why the solution works? |  | |  |
| 3.4 | 5.G.3 | How do estimates help you check the answers you get with tools? |  | |  |
| 3.5 | 5.NBT.2  5.NBT.3b | How do finding and analyzing patterns help you solve other mathematics problems? |  | |  |
| 3.6 | 5.NBT.4 | Why might your classmates use different tools than you? |  | |  |
| 3.7 | 5.G.3  5.G.4 | What does it mean to be precise when you talk about math? |  | |  |
| 3.8 | 5.NBT.2  5.NF.5a  5.G.3  5.G.4 | How can patterns help you explain rules in math? |  | |  |
| 3.9 | 5.NBT.2  5.NBT.3a | Why do we make predictions before solving a problem? |  | |  |
| 3.10 |  | Why is it important to practice using a tool correctly?  How can it be helpful to explain what you did to others? |  | |  |
| Assessment: Unit 3 Progress Check | | | | | | |

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| **Trimester 2** | Grade: 5 | | | | Unit Number: 4 - Division | | |
| Unit Overview:   * To review multiplication and division facts and to apply basic facts to division with 1-digit divisors, * To review and practice the partial-quotients division algorithm with whole numbers and * To use the partial0quotients algorithm to divide decimals by whole numbers, and * To practice solving division number stories and interpreting the remainder. | | | | | | |
| Essential Question: When finding a quotient, why is accuracy and understanding of the problem important and how will this affect interpretation of the remainder? | | | | | | |
| Academic Vocabulary: expression, numerical expression, powers of 10, exponent, decimal, rectangular arrays, area model | | | | | | |
| Lesson | Standard | Guiding Questions | Essential Instruction | | Differentiation | I Can… |
| 4.1 | 5.OA.1  5.OA.2  5.NBT.2  5.NBT.6  5.NF.5a  5.G.3  5.G.4 | How are multiplication and division related? | 5.OA.1 Name That Number | |  | * Use a numerical expression to represent a calculation expressed verbally. 5.OA.2 * Interpret expressions without solving them. 5.OA.2 * Compare 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 5.NF.5a * Denote powers of 10 using whole-number exponents. 5.NBT.2 * Explain patterns in the number of zeros of the product when multiplying a number by powers of 10. 5.NBT.2 * Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. 5.NBT.2 * Divide 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. 5.NBT.6 * Illustrate and explain how to find quotients using rectangular arrays, area models, and/or equations. 5.NBT.6 * Add, subtract, multiply, and divide decimals to hundredths. 5.NBT.7 * Use concrete models or drawing and strategies based on place value or properties of operations to explain and illustrate calculations with decimals. 5.NBT.7 |
| 4.2 | 5.NBT.6 | Why is a number model a useful way to represent a division problem? |  | |  |
| 4.3 | 5.OA.1 | Why do maps need scales? | 5.OA.1 Mental Math and Reflexes | |  |
| 4.4 | 5.NBT.6 | Why are some rules called shortcuts? |  | |  |
| 4.5 | 5.NBT.7 | How can situation diagrams help you solve number stories? |  | |  |
| 4.6 | 5.OA.2  5.NBT.6  5.NBT.7 | Why is it important to understand what the remainder means when solving division number stories? |  | |  |
| 4.7 | 5.OA.2  5.NBT.2 | When is it useful to use variables to represent values in problems? | 5.OA.2 Math Message  5.NBT.2 Writing/Reasoning | |  |
| 4.8 | 5.NBT.2 | How are multiplication and division related? | 5.NBT.2 Math Box 4 | |  |
| Assessment: Unit 4 Progress Check | | | | | | |

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| **Trimester 2** | Grade: 5 | | | | Unit Number: 5 – Fractions, Decimals, and Percents | | |
| Unit Overview:   * To review fraction concepts, such as exploring mixed numbers, comparing and ordering fractions, and finding equivalent fractions * To practice turning fractions into decimals and percents, and * To review the properties and construction of bar and circle graphs | | | | | | |
| Essential Question: Where are fractions found and used in everyday life? | | | | | | |
| Academic Vocabulary: mixed numbers, equivalent fractions, benchmark fractions, decimal place | | | | | | |
| Lesson | Standard | Guiding Questions | Additional Resources | | Differentiation | I Can… |
| 5.1 | 5.NF.3 | Why are fractions important numbers to have? |  | |  | * Determine common multiples of unlike denominators. 5.NF.1 * Create equivalent fractions using common multiples. 5.NF.1 * Add and subtract fractions with unlike denominators using equivalent fractions. 5.NF.1 * Use visual models or equations to solve addition and subtraction word problems involving fractions that refer to the same whole, even those with unlike denominators. 5.NF.2 * Use benchmark fractions, and number sense to the reasonableness of calculations with fractions. 5.NF.2 * Interpret a fraction as division of the numerator by the denominator. 5.NF.3 * Solve word problems involving division of whole numbers in which the quotient is a whole number, mixed number, or fraction. 5.NF.3 * Explain a solution involving fractions in the context of the problem. 5.NF.3 * Read and write decimals to the thousandths using base-ten numerals, number-names, and expanded form. 5.NBT.3 * Compare two decimals to the thousandths using place value and show the comparison using symbols <,>, or =. 5.NBT.3 * Use an understanding of place value to round decimals to any place. 5.NBT.4 |
| 5.2 |  | Why is it important to know the ONE when working with fractions? |  | |  |
| 5.3 | 5.NF.1  5.NF.2 | What other tools can help you find equivalent fractions? |  | |  |
| 5.4 |  | Why do we look for patterns in math? |  | |  |
| 5.5 | 5.NBT.3a  5.NBT.4 | What rules do you know that always work when you want to convert fractions into decimals? |  | |  |
| 5.6 | 5.NBT.3a  5.NBT.4  5.NF.3 | Why do we use tools like the fraction-stick chart when we do mathematics? |  | |  |
| 5.7 | 5.NBT.3a | Why is it important to make predictions before using a calculator? |  | |  |
| 5.8 | 5.NBT.3a  5.NBT.4 | What do you find confusing when talking about percents, decimals, and fractions? How can using precise language help? |  | |  |
| 5.9 | 5.NBT.3a | How might you choose which type of graph to use for a certain situation? |  | |  |
| 5.10 |  | Why is it important to estimate before using tools? |  | |  |
| 5.11 | 5.NBT.7 | Why is it important to be accurate when creating graphs? |  | |  |
| 5.12 | 5.OA.1 | How can you get better at using a calculator? |  | |  |
| Assessment: Unit 5 Checking Progress | | | | | | |

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| **Trimester 2** | Grade: 5 | | | | Unit Number: 6 – Using Data; Addition and Subtraction of Fractions | | |
| Unit Overview:   * To use data from, surveys, investigate the effect of sample size, and use stem-and-leaf plots and other data displays, * To read and use contour maps that show climate and growing-season data, and * To revisit addition and subtraction of fractions. | | | | | | |
| Essential Question: How does the organization of data help one to interpret its significance? | | | | | | |
| Academic Vocabulary: scaling, factor, mixed number, benchmark fractions, equivalent fractions, line plot, unit fraction | | | | | | |
| Lesson | Standard | Guiding Questions | Additional Resources | | Differentiation | I Can… |
| 6.1 | 5.NBT.4  5.MD.2 | How is it helpful to represent data with line plots? |  | |  | * Determine common multiples of unlike denominators and use them to create equivalent fractions using common multiples. 5.NF.1 * Add and subtract fractions with unlike denominators using equivalent fractions. 5.NF.1 * Use visual models or equations to solve addition and subtraction word problems involving fractions that refer to the same whole, even those with unlike denominators. 5.NF.2 * Use benchmark fractions, and number sense to the reasonableness of calculations with fractions. 5.NF.2 * Interpret a fraction as division of the numerator by the denominator. 5.NF.3 * Solve word problems involving division of whole numbers in which the quotient is a whole number, mixed number, or fraction. 5.NF.3 * Explain a solution involving fractions in the context of the problem. 5.NF.3 * Make a line plot with a given set of unit fraction measurements. 5.MD.2 * Solve problems using data on line plots. 5.MD.2 |
| 6.2 | 5.NBT.3a  5.MD.1 | How do you decide the level of precision you need to measure different objects? |  | |  |
| 6.3 | 5.NBT.3 | Why did you choose the measurement tool you used in this activity? |  | |  |
| 6.4 | 5.NBT.4 | When you disagree with a partner, how do you explain your thinking? |  | |  |
| 6.5 | 5.NBT.7 | Do you ever change your plans after listening to the thinking of others? Why or why not? |  | |  |
| 6.6 |  | How do graphs help you solve problems? |  | |  |
| 6.7 | 5.NBT.7 | Why is it important to understand the features of a map? |  | |  |
| 6.8 | 5.NF.1  5.NF.2  5.NF.3 | How do tools help you solve mathematics problems? |  | |  |
| 6.9 | 5.NF.1  5.NF.2 | How do rules make solving problems easier? |  | |  |
| 6.10 | 5.NF.1  5.NF.2 | What could help you remember and use new math vocabulary? |  | |  |
| Assessment: Unit 6 Checking Progress | | | | | | |

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| **Trimester 2** | Grade: 5 | | | | Unit Number: 7 – Exponents and Negative Numbers | | |
| Unit Overview:   * To understand the conventions associated with exponents, * To avoid ambiguities in the interpretation of number sentences, * To recognize the need to use negative numbers in certain situations, and * To organize and analyze data using line graphs and line plots. | | | | | | |
| Essential Question: How does understanding of number value impact daily transactions? | | | | | | |
| Academic Vocabulary: numerical expression, line plot, powers of 10, decimal, standard algorithm, evaluate, unit fraction, exponent, decimal, rectangular array, area model | | | | | | |
| Lesson | Standard | Guiding Questions | Additional Resources | | Differentiation | I Can… |
| 7.1 | 5.NBT.2 | How can noticing and correcting other people’s mistakes help you learn? |  | |  | * Use parentheses, brackets, or braces in numerical expressions. * Evaluate numerical expressions with parentheses, brackets, or braces. 5.OA.1 * Use a numerical expressions to represent a calculation expressed verbally. * Interpret expressions without solving them. 5.OA.2 * Make a line plot with a given set of unit fraction measurements. * Solve problems using data on line plots. 5.MD.2 * Determine common multiples of unlike denominators and use them to create equivalent fractions * Add and subtract fractions with unlike denominators (including mixed numbers) using equivalent fractions. 5.NF.1 * Use visual models or equations to solve addition and subtraction word problems involving fractions that refer to the same whole, even those with unlike denominators. * Use benchmark fractions, and number sense to the reasonableness of calculations with fractions. 5.NF.2 * Interpret a fraction as division of the numerator by the denominator. * Solve word problems involving division of whole numbers in which the quotient is a whole number, mixed number or fraction. * Explain a solution involving fractions in the context of the problem. 5.NF.3 * Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right. * Recognize that in a multi-digit number, a digit in one place represents 1/10 of what it represents in the place to the left. 5.NB.1 * Denotes powers of 10 using whole-number exponents. * Explain patterns in the number of zeros of the product when multiplying a number by powers of 10. * Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. 5.NBT.2 * Read and write decimals to the thousandths using base-ten numerals, number-names, and expanded form. * Compare two decimals to the thousandths using place value and show the comparison using symbols <,>, or=. 5.NBT.3 * Quickly multiply multi-digit whole numbers using the standard algorithm. 5.NBT.5 * Divide whole numbers with up to four-digit dividend 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 how to find quotients using rectangular arrays, area model, and/or equations. 5.NBT.6 * Add, subtract, multiply, and divide decimals to the hundredths. * Use concrete models or drawing and strategies based on place value or properties of operations to explain and illustrate calculations with decimals. 5.NBT.7 |
| 7.2 | 5.NBT.1  5.NBT.2 | Why do we represent numbers with multiple names? |  | |  |
| 7.3 | 5.NBT.2 | Can a chart be a tool for doing mathematics? Explain your thinking. |  | |  |
| 7.4 | 5.OA.1  5.OA.2  5.NBT.2 | Why is it important for mathematical symbols to have the same meaning for everyone? |  | |  |
| 7.5 | 5.OA.1  5.OA.2 | What other rules do you use to solve problems in math? |  | |  |
| 7.6 | 5.NF.1 | How do graphs help you solve problems? |  | |  |
| 7.7 | 5.OA.1  5.NBT.2 | Why is it important to understand what a number means in the context of a real-world situation? |  | |  |
| 7.8 |  | What other tools help you solve problems with positive and negative numbers? |  | |  |
| 7.9 | 5.NBT.3b | When might you use rules for adding and subtracting positive and negative numbers in your life? |  | |  |
| 7.10 | 5.NBT.5  5.NBT.6  5.NBT.7  5.NF.1  5.NF.2  5.MD.2 | Why do we represent data in graphs? |  | |  |
| 7.11 | 5.NF.3 | Why is it important to know how to use a calculator to solve mathematical problems? |  | |  |
| Assessment: Unit 7 Checking Progress | | | | | | |

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| **Trimester 2** | Grade: 5 | | | | Unit Number: 8 – Fractions and Ratios | | |
| Unit Overview:   * To rename fractions as equivalent fractions, * To use equivalent names for fractions and mixed numbers to perform operations, * To introduce algorithms for the multiplication of fractions and mixed numbers, * To practice estimating and calculating a percent of a number, and * To introduce division of fractions with visual models. | | | | | | |
| Essential Question: Why is it important to be accurate when performing computations involving fractions? | | | | | | |
| Academic Vocabulary: mixed numbers, equivalent fractions, benchmark fractions, scaling, factor, unit fraction | | | | | | |
| Lesson | Standard | Guiding Questions | Additional Resources | | Differentiation | I Can… |
| 8.1 | 5.NF.1  5.NF.2  5.NF.5b | Why is it important to have more than one method for finding equivalent fractions? |  | |  | * Determine common multiples of unlike denominators and use them to create equivalent fractions * Add and subtract fractions with unlike denominators (including mixed numbers) using equivalent fractions. 5.NF.1 * Use visual models or equations to solve addition and subtraction word problems involving fractions that refer to the same whole, even those with unlike denominators. * Use benchmark fractions, and number sense to the reasonableness of calculations with fractions. 5.NF.2 * Interpret the product as parts of a partition of q into b equal parts; or, as a result of a sequence of operations. * Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. * Multiply fractional side lengths to find areas of rectangles. * Represent fraction products as rectangular areas. 5.NF.4 * Compare 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. * Explain why multiplying a given number by a number or fraction greater than 1 results in a product greater than the given number. * Explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number. * Multiply a given fraction 1 to find an equivalent fraction. 5.NF.5 * Solve real world problems involving multiplication of fractions and mixed numbers. 5.NF.6 * Create a real world story context for division of a unit fraction by non-zero whole number and compute such quotients. * Create a real world story context for division of a whole number by a unit fraction, and compute such quotients. 5. NF.7 |
| 8.2 | 5.NF.1  5.NF.2 | Why is it important to check whether your answers make sense? |  | |  |
| 8.3 | 5.NF.1  5.NF.2  5.G.3  5.G.4 | Why do you use estimation to check your answers? |  | |  |
| 8.4 | 5.NF.1  5.NF.2 |  |  | |  |
| 8.5 | 5.NF.4a  5.NF.5a  5.NF.6 | Why is it important to understand the meanings of pictures and other representations? |  | |  |
| 8.6 | 5.NF.4a  5.NF.5  5.NF.6 | Which representation of fraction multiplication helps you most? Why? |  | |  |
| 8.7 | 5.NF.4a  5.NF.5b  5.NF.6  5.OA.1 | Why do we use number models to represent problems? |  | |  |
| 8.8 | 5.NF.4  5.NF.5  5.NF.6 | How could it help you to know different methods for solving the same problems? |  | |  |
| 8.9 |  | Why do we talk about how math is important in your life? |  | |  |
| 8.10 |  | What resources can help you communicate clearly about math? |  | |  |
| 8.11 | 5.NF.2 |  |  | |  |
| 8.12 | 5.NF.7 | How do visual models help you in math? |  | |  |
| Assessment: Unit 8 Checking Progress | | | | | | |

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| **Trimester 3** | Grade: 5 | | | | Unit Number: 9 – Coordinates, Area, Volume, and Capacity | | |
| Unit Overview:   * To work with coordinate graphs, * To extend area concepts, and * To develop a formula for volume and consider capacity relationships | | | | | | |
| Essential Question: How does an understanding of geometric formulas help solve everyday problems? | | | | | | |
| Academic Vocabulary: mixed numbers, scaling, factor, unit fraction, powers of 10, volume, perpendicular, coordinate systems, y-axis, ordered pair, exponent, scaling, convert, unit cube, right rectangular prism, axis/axes, origin coordinates, x-coordinate, quadrant, decimal, conversion, cubic unit, additive, intersect, x-axis, y-coordinate, coordinate plane | | | | | | |
| Lesson | Standard | Guiding Questions | Additional Resources | | Differentiation | I Can… |
| 9.1 | 5.NBT.2  5.NF.4a  5.G.1  5.G.2 | How can it help you to make a plan before you solve a problem? |  | |  | * Use visual models or equations to solve addition and subtraction word problems involving fractions that refer to the same whole, even those with unlike denominators. * Use benchmark fractions, and number sense to the reasonableness of calculations with fractions. 5.NF.2 * Create a real world story context for division of a unit fraction by non-zero whole number and compute such quotients. * Create a real world story context for division of a whole number by a unit fraction, and compute such quotients. 5. NF.7 * Denotes powers of 10 using whole-number exponents. * Explain patterns in the number of zeros of the product when multiplying a number by powers of 10. * Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. 5.NBT.2 * Convert measurement units within the same measurement system. * Solve multi-step word problems using measurement conversions. 5.MD.1 * Explain that volume is an attribute of a solid figure. * Recognize that a cube with 1 unit side length is “one cubic unit’ of volume. * Explain that a solid figure which is packed without gaps or overlaps using *n* unit cubes is said to have volume of *n* cubic units. 5.MD.3 * Measures volumes by counting unit cubes, cubic cm, cubic in, cubic ft, and improvised units. 5.MD.4 * Use unit cubes to determine the volume of a rectangular prism. Show that multiplication of the area of the base by the height will result in the volume. * Relate finding the product of three numbers to finding volume and relate both ot the associative property of multiplication. * Use the formulas V= l x w x h and V = b x h to determine the volume of rectangular prisms. Solve real world problems involving volume. 5.MD.5 |
| 9.2 | 5.NBT.5  5.G.1  5.G.2 |  |  | |  |
| 9.3 | 5.MD.3a  5.MD.4  5.MD.5b  5.G.1  5.G.2 | What strategies do you use to remember math vocabulary? |  | |  |
| 9.4 | 5.NF.4b  5.NF.7  5.MD.3a  5.MD.4  5.MD.5a | Why are some rules called formulas? |  | |  |
| 9.5 | 5.NBT.2 | What does it mean to make *reasonable* estimates? |  | |  |
| 9.6 | 5.NF.2 | Why are rules in math based on many examples instead of just one? |  | |  |
| 9.7 | 5.NF.6 | Why are some estimation strategies more accurate than others? |  | |  |
| 9.8 | 5.NBT.4  5.NBT.7  5.MD.3  5.MD.4  5.MD.5a  5.MD.5b | How are area and volume related? |  | |  |
| 9.9 | 5.MD.3a  5.MD.5b  5.MD.5c | Why would mathematicians want to verify a formula? |  | |  |
| 9.10 | 5.NBT.7  5.NF.4b  5.MD.1  5.MD.3  5.MD.4  5.MD.5a  5.MD.5b | Why is it important to be able to model mathematical problems? |  | |  |
| Assessment: Unit 9 Checking Progress | | | | | | |

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| **Trimester 3** | Grade: 5 | | | | Unit Number: 10 – Using Data; Algebra Concepts and Skills | | |
| Unit Overview:   * To solve equations using a pan-balance model, * To represent relationships as algebraic expressions, * To generate input-output tables and * To link data in tables to corresponding points on coordinate grids. | | | | | | |
| Essential Question: How does an understanding of number patterns help one solve for unknowns in a problem? | | | | | | |
| Academic Vocabulary: powers of 10, volume, perpendicular, coordinate systems, y-axis, ordered pair, exponent, convert, unit cube, axis/axes, origin, x-coordinate, quadrant, decimal, conversion, cubic unit, intersect, x-axis, y-coordinate, coordinate plane, coordinates, decimal place, expression, numerical expression, numerical pattern, corresponding terms | | | | | | |
| Lesson | Standard | Guiding Questions | Additional Resources | | Differentiation | I Can… |
| 10.1 | 5.NBT.2  5.NBT.5  5.MD.3a  5.MD.3b  5.MD.4  5.MD.5b | When should you check whether your answers make sense? Why? |  | |  | * Draw a coordinate system with two intersecting perpendicular lines, recognizing that the intersection is called the origin and is the point where 0 lies on each of the lines. * Explain that the horizontal axis is usually labeled the x-axis, and the vertical axis is the y-axis. * Identify in an ordered pair the names of the two axes and the coordinates correspond. * Explain the relationship between the ordered pair and the location on the coordinate plane. 5.G.1 * Graph point in the first quadrant of a coordinate plane using a set of ordered pairs. * Relate the coordinate values of any graphed point to the context of the problem. 5.G.2 * Use a numerical expression to represent a calculation expressed verbally. * Interpret expressions without solving them. 5.OA.2 * Generate two numerical patterns using two given rules. * Explain the relationship between the two numerical patterns by comparing how each pattern grow or by comparing the relationship between each of the corresponding terms from each pattern. * Form ordered pairs consisting of corresponding terms from each pattern and graph them on a coordinate plane. 5.OA.3 * Convert measurement units within the same measurement system. * Solve multi-step word problems using measurement conversions. 5.MD.1 * Explain that volume is an attribute of a solid figure. * Recognize that a cube with 1 unit side length is “one cubic unit’ of volume. * Explain that a solid figure which is packed without gaps or overlaps using *n* unit cubes is said to have volume of *n* cubic units. 5.MD.3 * Denotes powers of 10 using whole-number exponents. * Explain patterns in the number of zeros of the product when multiplying a number by powers of 10. * Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. 5.NBT.2 * Use an understanding of place value to round decimals to any place. 5.NBT.4 |
| 10.2 | 5.NF.5a  5.MD.2 | How can models help you make sense of ideas in mathematics? |  | |  |
| 10.3 | 5.OA.1  5.OA.2  5.OA.3  5.NBT.2  5.NBT.5  5.MD.5a  5.MD.5b | What could you do if you don’t understand a problem the first time you read it? |  | |  |
| 10.4 | 5.OA.3  5.G.1  5.G.2 | How do graphs help you solve problems? |  | |  |
| 10.5 | 5.MD.1 | How can mathematics help you make decisions in the real world? |  | |  |
| 10.6 | 5.OA.3  5.NBT.7  5.NF.2  5.G.1  5.G.2 | Why do patterns in math often lead to rules? |  | |  |
| 10.7 | 5.NBT.4  5.G.1 | What other situations could you represent with graphs like this, where time is represented on the horizontal axis? |  | |  |
| 10.8 | 5.NBT.4 | What can you learn from explaining other’s mistakes? |  | |  |
| 10.9 | 5.MD.1 | Do you think formulas are always more accurate than other methods? Why or why not? |  | |  |
| Assessment: Unit 10 Checking Progress | | | | | | |

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| **Trimester 3** | Grade: 5 | | | | Unit Number: 11 - Volume | | |
| Unit Overview:   * To review properties of common 3-dimensional shapes, * To develop volume formulas for these solids, * To find volume by displacement, and * To find surface area of 3-dimensional shapes | | | | | | |
| Essential Question: How does an understanding of geometric formulas help solve everyday problems? | | | | | | |
| Academic Vocabulary: powers of 10, exponent, decimal, decimal place, line plot, unit fraction, volume, unit cube, right rectangular prism | | | | | | |
| Lesson | Standard | Guiding Questions | Additional Resources | | Differentiation | I Can… |
| 11.1 | 5.MD.3  5.MD.4  5.MD.5a  5.MD.5b | What vocabulary helps you communicate clearly about geometric solids? |  | |  | * Denote powers of 10 using whole-number exponents * Explain patterns in the number of zeros of the product when multiplying a number by powers of 10 * Explain patterns in the placement of the decimal point when a decimal is multiplies or divided by a power of 10. 5.NBT.2 * Use an understanding of place value to round decimals to any place. 5.NBT.4 * Make a line plot with a given set of unit fraction measurements. * Solve problems using data on line plots. 5.MD.2 * Explain that volume is an attribute of a solid figure. * Recognize that a cube with 1 unit side length is “one cubic unit” of volume. * Explain that a solid figure which is packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units. 5.MD.3 * Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft and improvised units. 5.MD.4 * Use unit cubes to determine the volume of a rectangular prism. * Show that multiplication of area of base (l x w=b) by the height (b x h = V) will result in the volume. Relate finding the product of three numbers to finding volume and relate both to the associative property of multiplication. * Use the formulas V=l x w x h and V = b x h to determine the volume of rectangular prisms. * Solve real world problems involving volume. 5.MD.5 * Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. * Multiply fractional side lengths to find areas of rectangles. * Represent fraction products as rectangular areas. 5.NF.4b * Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, and interpret the quotients in the context of the problem. 5.NF.7b |
| 11.2 |  | What helps you remember properties of geometric objects? |  | |  |
| 11.3 | 5.NBT.4  5.MD.1  5.MD.3  5.MD.4  5.MD.5a  5.MD.5b | What could you do if you don’t understand what a problem is asking you to do? |  | |  |
| 11.4 | 5.NF.7a  5.NF.7b | How is it helpful to explain *why* your strategy works? |  | |  |
| 11.5 | 5.MD.1  5.MD.5c | Why is it important to know that any measuring tool is correctly calibrated? |  | |  |
| 11.6 | 5.OA.1  5.NBT.2  5.MD.1 | When have you needed to know information about weight or volume in your life? |  | |  |
| 11.7 | 5.NF.1  5.NF.2  5.NF.4b  5.NF.7c  5.MD.2  5.MD.5a  5.MD.5b | Why is it helpful to make a plan before you solve a problem? |  | |  |
| Assessment: Unit 11 Checking Progress | | | | | | |