OAS-M/Open Up Alignment
6th Grade

Standard	Objective	Alignment to Curriculum
6.N.1 Read, write, and represent integers and rational numbers expressed as fractions, decimals, percents, and ratios; write positive integers as products of factors; use these representations in real-world and mathematical situations.	**6.N.1.1** Represent integers with counters and on a number line and rational numbers on a number line, recognizing the concepts of opposites, direction, and magnitude; use integers and rational numbers in real-world and mathematical situations, explaining the meaning of 0 in each situation.	**6.7.1 - 6.7.3, 6.7.5 7.5.1, 7.5.2**
	6.N.1.2 Compare and order positive rational numbers, represented in various forms, or integers using the symbols <, >, and =.	**6.7.3, 6.7.4**
	6.N.1.3 Explain that a percent represents parts "out of 100" and ratios "to 100."	**6.3.10 - 6.3.16**
	6.N.1.4 Determine equivalencies among fractions, decimals, and percents. Select among these representations to solve problems.	**6.6.7, 6.9.2**
	6.N.1.5 Factor whole numbers and express prime and composite numbers as a product of prime factors with exponents.	**6.6.12, 6.6.13**
	6.N.1.6 Determine the greatest common factors and least common multiples. Use common factors and multiples to calculate with fractions, find equivalent fractions, and express the sum of two-digit numbers with a common factor using the distributive property.	**6.7.16 - 6.7.18, 6.9.3**
6.N.2 Add and subtract integers in order to solve real-world and mathematical problems.	**6.N.2.1** Estimate solutions to addition and subtraction of integers problems in order to assess the reasonableness of results.	**7.5.1 - 7.5.7**
	6.N.2.2 Illustrate addition and subtraction of integers using a variety of representations.	**7.5.2 - 7.5.7**
	6.N.2.3 Add and subtract integers; use efficient and generalizable procedures including but not limited to standard algorithms.	**7.5.2 - 7.5.7**
6.N.3 Understand the concept of ratio and its relationship to fractions and percents and to the multiplication and division of whole numbers. Use ratios to solve real-world and mathematical problems.	**6.N.3.1** Identify and use ratios to compare quantities. Recognize that multiplicative comparison and additive comparison are different.	**6.2.1, 6.2.2, 6.2.5, 6.2.7, 6.2.10 - 6.2.12, 6.2.14, 6.2.17, 6.3.6, 6.3.8, 6.3.17**
	6.N.3.2 Determine the unit rate for ratios.	**6.2.5, 6.2.8, 6.2.9, 6.3.6 - 6.3.9**
	6.N.3.3 Apply the relationship between ratios, equivalent fractions and percents to solve problems in various contexts, including those involving mixture and concentrations.	**6.2.3 - 6.2.7, 6.2.10, 6.2.12 - 6.2.17, 6.3.1, 6.3.11, 6.3.17, 6.9.4 - 6.9.6, 7.4.1**
	6.N.3.4 Use multiplicative reasoning and representations to solve ratio and unit rate problems.	**6.3.17, 6.9.4**
6.N.4 Multiply and divide decimals,	**6.N.4.1** Estimate solutions to problems with whole numbers, decimals, fractions, and mixed numbers and use the estimates to assess the reasonableness of results in the context of the problem.	**6.5.1**

fractions, and mixed numbers; solve real-world and mathematical problems with rational numbers.	**6.N.4.2** Illustrate multiplication and division of fractions and decimals to show connections to fractions, whole number multiplication, and inverse relationships.	**6.4.1 - 6.4.11, 6.4.16, 6.5.2, 6.5.5 - 6.5.14**
	6.N.4.3 Multiply and divide fractions and decimals using efficient and generalizable procedures.	**6.4.1 - 6.4.11, 6.4.16, 6.5.2, 6.5.5 - 6.5.14**
	6.N.4.4 Solve and interpret real-world and mathematical problems including those involving money, measurement, geometry, and data requiring arithmetic with decimals, fractions and mixed numbers.	**6.4.12 - 6.4.14, 6.9.3**
6.A.1 Recognize and represent relationships between varying quantities; translate from one representation to another; use patterns, tables, graphs and rules to solve real-world and mathematical problems.	**6.A.1.1** Plot integer- and rational-valued (limited to halves and fourths) ordered-pairs as coordinates in all four quadrants and recognize the reflective relationships among coordinates that differ only by their signs.	**6.7.11 - 6.7.15**
	6.A.1.2 Represent relationships between two varying quantities involving no more than two operations with rules, graphs, and tables; translate between any two of these representations.	**6.6.16 - 6.6.18**
	6.A.1.3 Use and evaluate variables in expressions, equations, and inequalities that arise from various contexts, including determining when or if, for a given value of the variable, an equation or inequality involving a variable is true or false.	**6.6.2, 6.6.14, 6.6.15, 6.7.9**
6.A.2 Use properties of arithmetic to generate equivalent numerical expressions and evaluate expressions involving positive rational numbers	**6.A.2.1** Generate equivalent expressions and evaluate expressions involving positive rational numbers by applying the commutative, associative, and distributive properties and order of operations to solve real-world and mathematical problems.	**6.6.3, 6.6.8 - 6.6.11, 6.6.13 - 6.6.15,**
6.A.3 Use equations and inequalities to represent real-world and mathematical problems and use the idea of maintaining equality to solve equations. Interpret solutions in the original context.	**6.A.3.1** Represent real-world or mathematical situations using expressions, equations and inequalities involving variables and rational numbers.	**6.6.1 - 6.6.8, 6.7.9, 6.7.10**
	6.A.3.2 Use number sense & properties of operations & equality to solve real-world and mathematical problems involving equations in the form $□ + □ = □$ and $□□ = □$, where $□$, $□$, and $□$ are nonnegative rational numbers. Graph the solution on a number line, interpret the solution in the original context, and assess the reasonableness of the solution.	**6.6.1 - 6.6.7**
6.GM.1 Calculate area of squares, parallelograms, and triangles to solve real-world and mathematical problems.	**6.GM.1.1** Develop and use formulas for the area of squares and parallelograms using a variety of methods including but not limited to the standard algorithm.	**6.1.1 - 6.1.7, 6.3.17, 6.6.18, 6.9.3**
	6.GM.1.2 Develop and use formulas to determine the area of triangles. ..	**6.1.1 - 6.1.4, 6.1.7 - 6.1.11**
	6.GM.1.3 Find the area of right triangles, other triangles, special quadrilaterals, and polygons that can be decomposed into triangles and other shapes to solve real-world and mathematical problems.	**6.1.1 - 6.1.11**

6.GM.2 Understand and use relationships between angles in geometric figures.	**6.GM.2.1** Solve problems using the relationships between the angles (vertical, complementary, and supplementary) formed by intersecting lines.	**7.7.1 - 7.7.5**
	6.GM.2.2 Develop and use the fact that the sum of the interior angles of a triangle is 180˚ to determine missing angle measures in a triangle.	**8.1.15, 8.1.16, 8.2.8**
6.GM.3 Choose appropriate units of measurement and use ratios to convert within measurement systems to solve real-world and mathematical problems.	**6.GM.3.1** Estimate weights, capacities and geometric measurements using benchmarks in customary and metric measurement systems with appropriate units.	
	6.GM.3.2 Solve problems in various real-world and mathematical contexts that require the conversion of weights, capacities, geometric measurements, and time within the same measurement systems using appropriate units.	**6.3.2 - 6.3.5**
6.GM.4 Use translations, reflections, and rotations to establish congruency and understand symmetries.	**6.GM.4.1** Predict, describe, and apply translations (slides), reflections (flips), and rotations (turns) to a two-dimensional figure.	**8.1.1 - 8.1.4, 8.1.7, 8.1.8, 8.1.17, 8.9.2**
	6.GM.4.2 Recognize that translations, reflections, and rotations preserve congruency and use them to show that two figures are congruent.	**8.1.7, 8.1.8, 8.1.10 - 8.1.12, 8.2.6**
	6.GM.4.3 Use distances between two points that are either vertical or horizontal to each other (not requiring the distance formula) to solve real-world and mathematical problems about congruent two-dimensional figures.	**6.7.14, 6.7.15, 6.7.1**
	6.GM.4.4 Identify and describe the line(s) of symmetry in two-dimensional shapes.	
6.D.1 Display and analyze data.	**6.D.1.1** Calculate the mean, median, and mode for a set of real-world data.	**6.8.9, 6.8.10, 6.8.13, 6.8.14, 6.8.18,**
	6.D.1.2 Explain and justify which measure of central tendency (mean, median, or mode) would provide the most descriptive information for a given set of data.	**6.8.14, 6.8.18**
	6.D.1.3 Create and analyze box and whisker plots observing how each segment contains one quarter of the data.	**6.8.15 - 6.8.18**
6.D.2 Use probability to solve real-world and mathematical problems; represent probabilities using fractions and decimals	**6.D.2.1** Represent possible outcomes using a probability continuum from impossible to certain.	**7.8.2, 7.8.3**
	6.D.2.2 Determine the sample space for a given experiment and determine which members of the sample space are related to certain events. Sample space may be determined by the use of tree diagrams, tables or pictorial representations.	**7.8.3, 7.8.4, 7.8.8, 7.8.9**
	6.D.2.3 Demonstrate simple experiments in which the probabilities are known and compare the resulting relative frequencies with the known probabilities, recognizing that there may be differences between the two results.	**7.8.4 - 7.8.6**