Focus Topic: OA – Operations and Algebraic Thinking

TSW = The Student Will

Objective(s)	Common Core Alignment	Essential Questions	Understandings	Suggested Assessments
• TSW use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols	5.OA.1			Ongoing observation & questioning during class discussions
• TSW write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. (*For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product)*	5.OA.2			Performance tasks
• TSW generate two numerical patterns using two given rules	5.OA.3			Self-Assessment
• TSW identify apparent relationships between corresponding terms	5.OA.3			Literature Connections
• TSW form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. (*For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so)*	5.OA.3			Projects

Focus Topic: NBT– Number & Operations in Base Ten

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Objective(s)	Common Core Alignment	Essential Questions	Understandings	Suggested Assessments
• TSW 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 and 1/10 of what it represents in the place to its left	5.NBT.1	How can you compare and order numbers?	Our number system is based on groups of ten.	Ongoing observation & questioning during class discussions
• TSW explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10	5.NBT.2	How can you compare and order numbers?	Whenever we get 10 in one place value, we move to the next greater place value.	Performance tasks
• TSW use whole-number exponents to denote powers of 10	5.NBT.2	How can estimation skills and algorithms reinforce one another?	Place value can be used to write numbers in different but equivalent forms.	Short Constructed Response
• TSW read, write, and compare decimals to thousandths	5.NBT.3	How can you evaluate an algebraic expression?		Self- Assessment
• TSW read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000)	5.NBT.3			Extended Constructed Response
• TSW compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons	5.NBT.3			Literature Connections
• TSW use place value understanding to round decimals to any place	5.NBT.4			
• TSW fluently multiply multi-digit whole numbers using the standard algorithm	5.NBT.5			
• TSW find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division	5.NBT.6			

• TSW illustrate and explain the calculation by using equations, rectangular arrays, and/or area models	5.NBT.6			
• TSW add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used	5.NBT.7			

Focus Topic: MD – Measurement and Data

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Objective(s)	Common Core Alignment	Essential Questions	Understandings	Suggested Assessments
• TSW convert among different-sized standard measurement units within a given measurement system (For example: convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems	5.MD.1	How is measurement used in everyday life?	Relationships exist that allow you to change between customary units or metric units by multiplying or dividing.	Ongoing observation & questioning during class discussions
• TSW make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8)	5.MD.2	How are the measurements of a circle related to one another?	Geometric relationships exist between two-dimensional and three-dimensional figures.	Performance tasks
• TSW use operations on fractions for this grade to solve problems involving information presented in line plots. (*For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally)*	5.MD.2	When do you need to measure and when is an estimate enough?	Relationships exist that allow you to change between customary units or metric units by multiplying or dividing.	Short Constructed Response
• TSW recognize volume as an attribute of solid figures and understand concepts of volume measurement - A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume - A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units	5.MD.3	How are two-dimensional and three-dimensional figures related?	Formulas can be used to determine surface area, volume, or capacity of a shape.	Self-Assessment

• TSW measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units	5.MD.4			Literature Connections
• TSW relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume	5.MD.5			Multiple Choice
• TSW find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base.	5.MD.5			
• TSW represent threefold whole-number products as volumes, *(For example: to represent the associative property of multiplication)*	5.MD.5			
• TSW apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems	5.MD.5			
• TSW recognize volume as additive	5.MD.5			
• TSW find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems	5.MD.5			

Focus Topic: G –Geometry

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Objective(s)	Common Core Alignment	Essential Questions	Understandings	Suggested Assessments
• TSW use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates.	5.G.1	How are properties used to classify geometric figures?	Points, lines, and planes are the foundations of geometry.	Ongoing observation & questioning during class discussions
• TSW understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond *(For example: x-axis and x-coordinate, y-axis and y-coordinate)*	5.G.1	How are angles measured?	Figures can be similar (same shape different size) or congruent (same shape same size).	Performance tasks
• TSW represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation	5.G.2	How are the basic skills of geometry applied in everyday life?	Figures can be moved in different ways: translation (slide), reflection (flip), or rotation (turn).	Self-Assessment
• TSW understand that attributes belonging to a category of two- dimensional figures also belong to all subcategories of that category. *(For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles)*	5.G.3	How will geometry help me understand how the world is constructed?		
• TSW classify two-dimensional figures in a hierarchy based on properties	5.G.4			

Focus Topic: NF –Numbers & Operations - Fractions

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Objective(s)	Common Core Alignment	Essential Questions	Understandings	Suggested Assessments
• TSW add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. (*For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)*	5.NF.1	How does the knowledge of greatest common factor and least common multiple help in comparing fractions?	Equivalent fractions name the same part of a whole, and can be found by multiplying or dividing the numerator and denominator by the same non-zero number.	Ongoing observation & questioning during class discussions
• TSW solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, (For example: by using visual fraction models or equations to represent the problem)	5.NF.2	How can I compare and order fractions?	Fractions and decimals can be converted and compared.	Performance tasks
• TSW use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. (*For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < ½)*	5.NF.2	What is meant by a fractional part of something?	Determining a common denominator is crucial when adding or subtracting fractions, and helpful when comparing fractions.	Self-Assessment
• TSW interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$)	5.NF.3	How are fractions and decimals similar?		
• TSW solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, (*For example: by using visual fraction models or equations to represent the problem…interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*)	5.NF.3	How do operations with fractions compare to those with whole numbers?		
• TSW apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction	5.NF.4			

• TSW interpret the product (*a*/*b*) × *q* as a parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations *a* × *q* ÷ *b*. (*For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)*	5.NF.4			
• TSW 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	5.NF.4			
• TSW multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas	5.NF.4			
• TSW interpret multiplication as scaling (resizing), by: - Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication - Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence *a*/*b* = (*n* × *a*)/(*n* × *b*) to the effect of multiplying *a*/*b* by 1	5.NF.5			
• TSW solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem	5.NF.6			
• TSW apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions	5.NF.7			

• TSW interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3*	5.NF.7			
• TSW interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4*	5.NF.7			
• TSW solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*	5.NF.7			

Focus Topic: Mathematical Practices

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Objective(s)
• TSW make sense of problems and persevere in solving them.
• TSW reason abstractly and quantitatively.
• TSW construct viable arguments and critique the reasoning of others.
• TSW model with mathematics.
• TSW use appropriate tools strategically.
• TSW attend to precision.
• TSW look for and make use of structure
• TSW look for and express regularity in repeated reasoning.