

Core Content (Topics, Materials, Resources)	Performance Indicator	Enabling and Process/Thinking Skills	Technology/Integration	Products/Assessments
<i>August/ September</i> NUMBER RELATIONSHIPS (4-5 weeks)				
<p><u>Chapter 1 and 6</u></p> <ul style="list-style-type: none"> • Order of Operations • Number Properties • Powers/ Exponents • Scientific Notation (positive exp) • Divisibility • Prime and Composite • Prime Factorization • GCF • LCM • Simplest Form/ Equivalent • Ordering Rationals • Rationals and Irrationals 	<p>I B 29 Use order of operations and properties to analyze and simplify numerical expressions involving integers, fractions and decimals. Explain how the order of operations can impact the result in a problem e.g., $3(8.2 + (1 - 1.5)); 1 \cdot \frac{3}{4} + 3^2 \cdot ^{-}4 + 2(3 \cdot 1 + 4) + 0;$</p> <p>[NS.7.1.4; NS Benchmarks: E, F, H; Math Processes: A, E] {HSGQE #2, #15, #16}</p> <p>I A 29 Write large numbers from real-life situations (e.g., newspaper, science articles, etc.) in scientific notation and explain the procedure. [NS.7.1.1; NS Benchmark: E; Math Processes: E, F] {HSGQE #2, #15, #16}</p> <p>I A 14 Explain the meaning of exponents that are negative or 0 in problem scenarios (e.g., flea weight (4.9×10^{-3}g), hair width (3×10^{-7}in., etc.) [NS.7.1.2; NS Benchmarks : none; Math Processes: E, F] {HSGQE #2, #15, #16}</p> <p>I C 19 Represent and solve problems using the concepts of absolute value, exponents, and square roots (for perfect squares) [examples: on number line, thermometer, distance a ball moved on football field, baseball . . . , etc.] [NS.7.1.9; NS Benchmark: none; Math Process: H] {HSGQE #1, #2, #3, #15, #16}</p> <p>[Assess in 2nd and 3rd grading periods]</p> <p>I A 16 Identify, by using a calculator and describe in writing, the differences between rational and irrational numbers (e.g., knowing how to work with repeating, non-repeating, terminating, non-terminating decimals in solving problems; using π to find circumference [NS.7.1.3; NS Benchmarks: B, I; Math Process: D] {HSGQE #1, #2, #3, #15, #16}</p> <p>I C 17 Choose the appropriate form of a rational number (fraction, decimal or percent) to solve problem(s) (e.g., in cooking: doubling or decreasing recipes; with money: figuring wages; calculating grades/test scores, etc.) and justify the choice made [NS.7.1.7; NS Benchmark: I; Math Processes: E, J, K, I] {HSGQE #1, #2, #3, #15, #16}</p> <p>[Assess in 2nd grading period]</p>	<p>[Enabling Skills)</p> <ul style="list-style-type: none"> • decimal place value • basic operations with fractions and decimals • order of operations • estimating/ rounding • prime and composite numbers • divisibility rules • factors • greatest common factor • properties- Associative, Commutative, Distributive • reduced fractions/ equivalent fractions • rationals/ irrationals • number line • powers/ exponents/ scientific notation <p>[Process Skills]</p> <ul style="list-style-type: none"> - Use and explain order of operations - Explain correct use of exponents - Use knowledge of number relationship to decompose numbers in prime factors - Relate prime factorization to GCF - Explain and use scientific notation for large numbers - Distinguish between rational/ irrational numbers 	<p>Technology:</p> <p>Integration:</p>	

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October FRACTION OPERATIONS (3-4 weeks)				
<u>Chapter 7</u> <ul style="list-style-type: none"> • Mixed Numbers Improper • Fractions add/ subtract multiply/ divide 	I C 17 Choose the appropriate form of a rational number (fraction, decimal or percent) to solve problem(s) (e.g., in cooking: doubling or decreasing recipes; with money: figuring wages; calculating grades/test scores, etc.) and justify the choice made [NS.7.1.7; NS Benchmark: I; Math Processes: E, J, K, I] {HSGQE #1, #2, #3, #15, #16} (Complete Assessment Later)	[Enabling Skills] <ul style="list-style-type: none"> • LCM • mixed numbers • improper fractions • modeling fractions • GCF • equivalent fractions • reduced/ simplest form • estimating strategies [Process Skills] <ul style="list-style-type: none"> - Use and explain the basic operations with fractions, mixed numbers, and improper fractions 	Technology: Integration:	
November INTEGERS AND INTEGER OPERATIONS (4 weeks)				
<u>Chapter 2</u> <ul style="list-style-type: none"> • Integers and Number Line • Absolute Value • Operations Add Subtract Multiply Divide • Solving Equations Involving Integers • Inverse Operations 	IV B 16 Represent inequalities on a number line (e.g., if a stock opens at a negative 2 and declines daily, graph as an inequality: [A.7.4.6; A Benchmarks: A, B, C, E, F, H, K; Math Processes: B, G] {HSGQE #4, #5, #6, #7, #15, #16} See performance indicators for examples I C 19 Represent and solve problems using the concepts of absolute value, exponents, and square roots (for perfect squares) [examples: on number line, thermometer, distance a ball moved on football field, baseball . . . , etc.] [NS.7.1.9; NS Benchmark: none; Math Process: H] {HSGQE #1, #2, #3, #15, #16} I B 20 Model/illustrate the effect of using the four operations with integers (e.g., colored tiles, number line, etc.); explain how computation of integers results in a particular answer (e.g., temperature above/below zero, above/below sea level, bank accounts, etc.); use the models to solve problems with integers simplifying numerical expressions such as $(-6 \div 2) = -3$ [NS.7.1.5, NS.7.1.6; NS Benchmarks: A, I; Math Processes: A, C, H, J, K] {HSGQE #1, #2, #15, #16} IV B 15 Create visual representations of equation-solving processes that model the use of inverse operations [A.7.4.4; A Benchmarks: D, G, I; Math Process: H] {HSGQE #4, #5, #6, #7, #15, #16} See performance indicators for examples IV B 19 Devise two forms of an algebraic expression (simplified and expanded) to represent something familiar (e.g., number of people and pets living in the home) that contain 1 or more terms and at least 1 variable): prepare an explanatory diagram that labels the two expressions, substitutes a value for the variable(s), and explains how/why the expressions are equal (e.g., $4m = m + m + m + m$ with $m = 2$; or $a \cdot 5 + 4 = 5a + 4$ with $a = -3$) [A.7.4.4, A.7.4.7; A Benchmarks: D, E, G; Math Processes: A, C, E, J, K] {HSGQE #4, #6, #15, #16}	[Enabling Skills] <ul style="list-style-type: none"> • creating a number line • comparing/ordering integers • inequalities • absolute value • basic operations with integers • variable expressions • inverse operations • distributive property • basic facts [Process Skills] <ul style="list-style-type: none"> - Model 4 basic operations with integers - Evaluate variable expressions - Model the equation solving process - Represent an inequality - Represent a situation with two forms of an algebraic expression (simplified and expanded) 	Technology: Integration:	

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December RATIO AND PROPORTION (3-4 weeks)				
<u>Chapters 3 and 8</u> <ul style="list-style-type: none"> • Ratio • Rate/ Unit Rates • Proportion • Solving Proportions • Writing Proportions • Similar Figures 	II A 18 Select the appropriate unit for derived measures as per context in advertisements and on maps (e.g., <u>rate</u> : gallons per mile, miles per hour, pages read per day; and <u>unit cost</u> : price per gallon, cost per pound); justify the use of specific measures [M.7.2.1; M Benchmark: A; Math Processes: A, E, J, K] {HSGQE #15, #16} II B 39 Solve problems involving proportional relationships and scale factors (e.g., scale models) that require unit conversions within the same measurement system (e.g., classroom, maps, blueprints, structures, etc.) using a graphic organizer [M.7.2.4; M Benchmarks: B, D, E; Math Processes: I, J, K] {HSGQE #11} III D 6 Determine and use scale factors for similar figures to solve problems using proportional reasoning (e.g., increase/decrease statues, blueprints, model cars, maps, etc.) [G.7.3.6; G Benchmarks: E, F, J; Math Process: A] {HSGQE #7, #9, #10, #15, #16} III D 7 Apply properties of similar or congruent triangles to solve problems involving missing lengths and angle sizes (e.g., indirect measurements such as shadows, flagpoles, determining distance across a river) [G.7.3.4, G.7.3.5; G Benchmarks: A, E, F, J; Math Process: B] {HSGQE #7, #9, #10, #15, #16}	[Enabling Skills] <ul style="list-style-type: none"> • ratios (3 forms) • rates • equivalent fractions • cross products • verbal to algebraic model • similar figures/ congruent triangles • corresponding parts • scale drawings • proportional relationships [Process Skills] <ul style="list-style-type: none"> - Solve problems using proportional relationships/ reasoning - Determine the appropriate label for rates and unit rates in real life situations 	Technology: Integration:	
January PERCENTS AND DECIMALS				
<u>Chapters 3 and 8</u> <ul style="list-style-type: none"> • Percents, Fractions, Decimals (conversion) • Finding Percent of a Number • Percent Equation • Simple Interest • Percent Increase and Decrease • Circle Graphs 	I A 16 Identify, by using a calculator and describe in writing, the differences between rational and irrational numbers (e.g., knowing how to work with repeating, non-repeating, terminating, non-terminating decimals in solving problems; using π to find circumference [NS.7.1.3; NS Benchmarks: B, I; Math Process: D] {HSGQE #1, #2, #3, #15, #16} I C 17 Choose the appropriate form of a rational number (fraction, decimal or percent) to solve problem(s) (e.g., in cooking: doubling or decreasing recipes; with money: figuring wages; calculating grades/test scores, etc.) and justify the choice made [NS.7.1.7; NS Benchmark: I; Math Processes: E, J, K, I] {HSGQE #1, #2, #3, #15, #16} I C 18 Analyze problems that involve the computation of percents and integers developing the algorithms; explain the procedures and processes (e.g., shopping at sales, bank accounts, etc.) [NS 7.1.8; NS Benchmark: H; Math Processes: A, J, K, H] {HSGQE #2, #3, #15, #16}	[Enabling Skills] <ul style="list-style-type: none"> • basic facts • conversions (percents, fractions, decimals) • model percent of a number • percent as a proportion • simple interest • percent increase and decrease • terminating, repeating, and non-repeating decimals • computation of percents and integers [Process Skills] <ul style="list-style-type: none"> - Determine the appropriate form of a rational number to solve problems - Analyze problems that involve computation of percent of integers - Explain the differences between rational and irrational numbers 	Technology: Integration:	