

Core Content (Topics, Materials, Resources)	Performance Indicator	Enabling and Process/Thinking Skills	Technology/Integration	Products/Assessments
August/September Unit 1: INTEGERS AND EXPRESSIONS (3 Weeks)				
Chapter 1 <ul style="list-style-type: none"> Order of Operations Properties Chapter 2 <ul style="list-style-type: none"> Integers Integer Concepts/Absolute Value Patterns (Number Line) Basic Operations (+, -, x, ÷) Expressions: Recognize/Evaluate <ul style="list-style-type: none"> Numerical Variable 	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} I B 30 Write expressions from verbal phrases and apply order of operations to simplify and perform computations involving integers, exponents, and radicals (e.g., interpreted from a given phrase, the expression might be $3x^2 + 2$ when $x = 2$) [NS.8.1.3; NS Benchmarks: F, I; Math Processes: B, F, G] [A.8.4.8; A Benchmarks: C, D; Math Processes: B, F, G] [7.1.4, 7.1.6] {HSGQE #2, #15, #16}	[Enabling Skills] <ul style="list-style-type: none"> order of operations finding opposites finding absolute value using number lines comparing integers addition, subtraction, multiplication, and division finding patterns simplifying expressions evaluating expressions [Process Skills] <ul style="list-style-type: none"> Compute integer problems using the basic operations of mathematics Determine the solution using the order of operations Write numerical expressions to represent verbal/written problems 	Technology: - Integration: -	- I B 20 Using problems created by a text series or teacher, model the effect of using the four operations of mathematics with integers - I B 30 Using problems created by a text series or teacher, demonstrate fluency with the order of operations
September/October Unit 2: EQUATIONS AND INEQUALITIES (ONE-STEP) (2-3 Weeks)				
Chapter 3 <ul style="list-style-type: none"> Basic Math Properties Decimal Review One-Step Equations With Integers and Decimals Write Equations From Verbal Phrases Solve Word Problems 	I B 26 Use the inverse and identity properties and inverse relationships in problem solving situations; explain their impact on operations, (e.g., numerical listing) [NS.8.1.4; NS Benchmarks: C, D, E, G, H, I; Math Processes: C, F, G, H] [7.1.7] {HSGQE #1, #2, #3, #15, #16} I C 20 Determine when an estimate is sufficient and when an exact answer is needed in real-life situations, and evaluate the estimates in relation to actual answers (e.g., very close, less than, greater than, re: number of students in buses, number of gallons of gas for the trip, etc.) [NS.8.1.5; NS Benchmarks: E, F, G; Math Processes: A, B, G, H] {HSGQE #2, #3, #15, #16} IV B 21 Use distributive property, algebra tiles, combining like terms, etc. to add and subtract monomials and polynomials and to multiply a polynomial by a monomial (e.g., <i>Team: We need examples here</i>) [A.8.4.5; A Benchmarks: C, D; Math Processes: A, D, F, H] [7.4.7] {HSGQE #4, #6, #15, #16}	[Enabling Skills] <ul style="list-style-type: none"> recognition of properties - - identity and inverse, distributive simplifying expressions solving equations writing equations comparing decimals rounding decimals using formulas monomials and polynomials [Process Skills] <ul style="list-style-type: none"> Compute solutions for equations using decimals or whole numbers Apply formulas where appropriate to solve equations Add and subtract monomials and polynomials Multiply monomials 	Technology: - Integration: -	- I C 20 Have students solve real-life problems. Estimate if calculations are reasonable - I B 26 Select the correct process, and solve one-step equations - IV B 21 Analyze a set of equations in small groups and write an explanation of the processes used to simplify

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October Unit 3: EXPLORE FACTORS AND FRACTIONS (2-3 Weeks)				
Chapter 4 Number Theory <ul style="list-style-type: none"> • Exponents • Scientific Notation • Factor and Multiples • Prime Factorization • GCF/LCM 	I A 30 Apply the use of scientific notation to express large and small numbers; use the 4 basic operations and comparisons in real life situations (e.g., number of particular element in Kg, distance between planets and stars, comparison tables or charts, etc.) [NS.8.1.1, NS.8.1.8; NS Benchmarks: A, C, F, I; Math Processes: A, E, F, G] [7.1.1, 7.1.8] {HSGQE #2, #15, #16} 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}	[Enabling Skills] <ul style="list-style-type: none"> • exponents • scientific notation • patterns, primes, and composites • multiplying and dividing powers of the same base • factors and multiples • GCF and LCM • divisibility rules [Process Skills] <ul style="list-style-type: none"> - Explain what exponents are and how they are used - Explain the use of scientific notation with large and small numbers - Illustrate the connection between factors and multiples using divisibility, prime factorization, GCF, and LCM 	Technology: - Integration: -	<ul style="list-style-type: none"> - IA 14 Reproduce numbers in standard form that are written with zero and negative exponents - IA 30 Illustrate, in scientific notation, a real-life situation using the 4-basic operations. Compare to other illustrations found in published materials
November Unit 4: RATIONAL NUMBERS (2-3 Weeks)				
Chapter 5 and 6.1-6.5 <ul style="list-style-type: none"> • Fraction Concepts • Rational/Irrational • Basic Operations • Exponents • Pattern (Arithmetic/Fibonacci) • Equations 	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} IV A 20 Use the sequence of patterns to determine the n^{th} term (e.g., pattern for total angle measure related to the number of sides, Fibonacci's Number Pattern, Pascal's Triangle, consecutive numbers); cite real life situations (e.g., combinations of: clothing - - pants, shirts, shoes, socks; average age of males over "x" number of years, predict what it will be over next 10 years; cost of car, CD, etc. in 2002 and look at pattern over 5 years, what will it be in 15 years). [A.8.4.2; A Benchmark: A; Math Processes: A, D, E] [7.4.1, 7.4.2] {HSGQE #16}	[Enabling Skills] <ul style="list-style-type: none"> • Fibonacci's Number Pattern • Pascal's Triangle • rational vs irrational numbers • equivalent fractions • lowest terms • fraction to decimal (terminating /repeating decimals) • changing fractions to decimals • comparison • addition, subtraction, multiplication, and division • negative exponents/zero exponents • equations/writing and solving • patterns [Process Skills] <ul style="list-style-type: none"> - Determine the solutions to problems using rational numbers - Compare one rational number to another - Determine the n^{th} term in a numerical pattern when it is too complex to calculate each element 	Technology: - Integration: -	<ul style="list-style-type: none"> - IA 16 Complete a table identifying the numbers as rational/irrational - IVA 20 Create and/or apply a pattern to illustrate a real-life situation and determine the n^{th} term

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<i>November/December</i> Unit 5: RATIO, PROPORTION, PERCENT (2-3 Weeks)				
Chapter 9 <ul style="list-style-type: none"> • Ratio/Proportion/Percent • Solve Proportions • Use Percent and Proportion • Use Proportions to Solve Problems • Direct/Inverse Variation 	I C 21 Estimate, compute, and solve a given set of problems with rational numbers including ratio, proportions, and percent; analyze the reasonableness of the solutions in relation to the situation through a written explanation [NS.8.1.6; NS Benchmarks: C, D, G, I; Math Processes: A, B, C, D, G, H] [7.1.7, 7.1.8] {HSGQE #2, #3, #15, #16} II B 40 Apply proportional reasoning to solve problems involving indirect measurements or rates (e.g., modeling similar figures to find missing lengths: right triangles to find distances, shadows to determine heights; use models, charts, graphs to show results) [M.8.2.7; M Benchmarks: C, D, E; Math Processes: A, B, C, D, F, G] [7.2.5] {HSGQE #11, #15, #16} IV B 20 Use symbolic algebra (equations and inequalities), graphs, and tables to represent situations and solve problems; extend the uses of variables to include covariants where y depends on x (sample problems would be like: 2 out of 5 students wear glasses, how many students wear glasses in a group of 600? or Mom and Dad drive 10 hours on a trip, how much does each drive if Mom drives $\frac{1}{2}$ as much as Dad?) [A.8.4.4, A.8.4.7; A Benchmarks: C, D, F; Math Processes: A, C, F] [7.4.9] {HSGQE #4, #5, #6, #15, #16} (is addressed here – will be assessed later) III D 8 Use proportions in several forms to solve problems involving similar figures (part-to-part, part-to-whole, corresponding sides between figures) [See Examples in Performance Indicators] [G.8.3.3; G Benchmarks: B, C, E, H; Math Processes: A, B, C, D, F] [7.3.1, 7.3.5, 7.3.6] {HSGQE #7, #9, #10, #15, #16} (is addressed here – will be assessed later)	[Enabling Skills] <ul style="list-style-type: none"> • rates and ratios • compare • solve proportions • decimals and fractions as percents • estimate • percent of increase or decrease [Process Skills] <ul style="list-style-type: none"> - Explain the relationship among ratio, rate, proportion, and percent - Apply percent concepts to problem-solving situations 	Technology: - Integration: -	<ul style="list-style-type: none"> - I C 21 Using a set of problems containing, ratios, proportions, and percents, the students will compute and determine the reasonableness of their answers - II B 40 Model a situation using proportional reasoning and indirect measurement. Use real-life situations if possible

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December/January Unit 6: EQUATIONS AND INEQUALITIES (3 Weeks)				
Chapter 7 <ul style="list-style-type: none"> • Two-Step Equations • Multi-Step Equations • Multi-Step Inequalities • Problem Solving <ul style="list-style-type: none"> • Writing Equations • Writing Inequalities • Metric and Customary Units • $F^{\circ} \rightarrow C^{\circ}$ 	IV B 20 Use symbolic algebra (equations and inequalities), graphs, and tables to represent situations and solve problems; extend the uses of variables to include covariants where y depends on x (sample problems would be like: 2 out of 5 students wear glasses, how many students wear glasses in a group of 600? or Mom and Dad drive 10 hours on a trip, how much does each drive if Mom drives $\frac{1}{2}$ as much as Dad?) [A.8.4.4, A.8.4.7; A Benchmarks: C, D, F; Math Processes: A, C, F] [7.4.9] {HSGQE #4, #5, #6, #15, #16} V A 24 Differentiate between discrete and continuous data and determine appropriate ways to represent each for a problem scenario (e.g., <u>discrete</u> : to calculate the number of buses needed to transport 70 students when a bus holds 40 people (you cannot use a half of a bus) so it will take 2 buses for the trip; <u>continuous</u> : the range of scores on a classroom test, the height of students in 8 th grade, etc.) [DP.8.5.3; DP Benchmarks: E, F, G; Math Processes: A, B, F, G, H, E] {HSGQE #12, #13, #15, #16} II A 19 Create a graphic (e.g., chart, table, Venn Diagram, etc.) which shows order and comparison of common U.S. customary units and/or metric units (e.g., meters to kilometers; feet to miles; liter to kiloliter; cups to quarts or gallons; grams to kilograms; ounces to pounds.) [M.8.2.1; M Benchmarks: A, E; Math Processes: A, B, E, F, H] {HSGQE #11, #15, #16} II B 36 Convert units from one measurement system to another using proportional relationships and formula for $^{\circ}F$ to $^{\circ}C$. [M.8.2.2; M Benchmarks: A, B, D, E, F; Math Processes: B, C, D, F, H] {HSGQE #11, #15, #16} II B 37 Estimate the measure of an object such as paper clips, pencils, coins, etc. to a more precise measure than the tool provides (e.g., the ruler measures to the nearest $\frac{1}{8}$ inch, and you estimate to the nearest $\frac{1}{16}$ inch. [M.7.2.3; M Benchmark: D; Math Process: D] {HSGQE #11} II B 38 Compare and contrast units within one measurement system using proportional relationships and formulas to the appropriate level of precision for a given problem dealing with units of measurement (e.g., construct a map from your house to school, giving distance in miles and/or kilometers, convert Fahrenheit temperatures to Celsius temperatures) [M.8.2.2, M.8.2.3; M Benchmarks: A, B, D, E, F; Math Processes: E, C, B, F, H] {HSGQE #11, #15} 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}	[Enabling Skills] <ul style="list-style-type: none"> • two-step equation • simplifying • writing equations and inequalities • variables on both sides • inequalities (one-step) • graphing on a number line • growth and decay • compare and contrast metrics and/or customary units • inverse operations • discrete and continuous data • scale • proportional relationships [Process Skills] <ul style="list-style-type: none"> - Isolate the variable by using a variety of equation solving skills - Recognize whether a situation is an example of measurement - Determine most appropriate unit of measurement - Compare temperature in degrees Centigrade to degrees Fahrenheit - Use proportional relationships to solve problems, making conversions within the same measurement system 	Technology: - Integration: -	<ul style="list-style-type: none"> - IV B 20 Given a set of data, create a table of values and graph the solutions - V A 24 Analyze a set of data (real-life if possible) and determine whether the information is discrete or continuous - II a 19, II B 36, 37, 38, 39 Students will collect labels and samples of metric and customary units. They will analyze their information and represent that information in chart/graph form. They will compare units of measure within and between systems to select appropriate unit for sample items
February				
		[Enabling Skills] <ul style="list-style-type: none"> • [Process Skills] <ul style="list-style-type: none"> - 	Technology: - Integration: -	
March				
<ul style="list-style-type: none"> • 		[Enabling Skills] <ul style="list-style-type: none"> • [Process Skills] <ul style="list-style-type: none"> - 		

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<i>April</i>				
			Technology: - Integration: -	
<i>May</i>				
		<i>[Enabling Skills]</i> • <i>[Process Skills]</i> -	Technology: - Integration: -	
<i>June</i>				
		<i>[Enabling Skills]</i> • <i>[Process Skills]</i> -	Technology: - Integration: -	