

Shrewsbury Borough School Mathematics Curriculum 2013
Grade 7

Marking Period 1	Marking Period 2	Marking Period 3	Marking Period 4
<p>Topic: Order of Operations and Mathematical Properties of Numbers</p> <p>Objectives: Use the order of operations to simplify numerical expressions. (<i>CC.7.NS.1d, CC.7.NS.3</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 3: Construct viable arguments and critique the reasoning of others. MP 5: Use appropriate tools strategically. MP 7: Look for and make sense of structure</p> <p>Identify properties of rational numbers and use them to simplify numerical expressions (<i>CC.7.NS.1, CC.7.NS.1d, CC.7.EE.3</i>)</p> <p><u>Mathematical Practices:</u> MP 3: Construct viable arguments and critique the reasoning of others. MP 6: Attend to precision</p>	<p>Topic: Using Proportionality to Solve Problems</p> <p>Objectives: Find and compare unit rates (<i>CC.7.RP.2, CC.7.NS.3, CC.7.RP.2b</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 4: Model with mathematics. MP 6: Attend to precision. MP 8: Look for and express regularity in repeated reasoning.</p> <p>Find equivalent ratios and identify/solve proportions (<i>CC.7.RP.1, CC.7.RP.2, CC.7.NS.3, CC.7.RP.2a, CC.7.RP.2c</i>)</p> <p><u>Mathematical Practices:</u> MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics. MP 5: Use appropriate tools strategically.</p>	<p>Topic: Collecting, Displaying and Analyzing Data</p> <p>Objectives: Find the mean, median, mode and range of a data set</p> <p><u>Mathematical Practices:</u> MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics. MP 6: Attend to precision. MP 8: Look for and express regularity in repeated reasoning.</p> <p>Display and analyze data in box and whisker plots (<i>CC.7.SP.4, CC.7.SP.2</i>)</p> <p><u>Mathematical Practices:</u> MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics. MP 8: Look for and express regularity in repeated reasoning.</p>	<p>Topic: Probability</p> <p>Objectives: Use informal measures of probability (<i>CC.7.SP.5</i>)</p> <p><u>Mathematical Practices:</u> MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 6: Attend to precision. MP 8: Look for and express regularity in repeated reasoning.</p> <p>Find experimental probability (<i>CC.7.SP.6, CC.7.SP.7b</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 5: Use appropriate tools strategically.</p>

<p>MP 7: Look for and make sense of structure.</p> <p>Evaluate algebraic expressions (<i>CC.7.EE.1, CC.7.EE.2, CC.7.EE.4</i>)</p> <p><u>Mathematical Practices:</u> MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 6: Attend to precision</p> <p>Topic: Compare and Order Integers and Rational Numbers; Convert Between Fractions and Decimals.</p> <p>Objectives: Compare and order integers and determine absolute value (<i>CC.7.NS.1, CC.7.NS.3</i>).</p> <p><u>Mathematical Practices:</u> MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics. MP 5: Use appropriate tools strategically. MP 6: Attend to precision.</p>	<p>MP 6: Attend to precision. MP 7: Look for and make sense of structure.</p> <p>Use ratios to determine if figures are similar; use similar figures to find unknown measures (<i>CC.7.RP.2, CC.7.NS.3, CC.7.RP.2c, CC.7.G.1, CC.7.EE.2</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 3: Construct viable arguments and critique the reasoning of others. MP 5: Use appropriate tools strategically. MP 7: Look for and make sense of structure.</p> <p>Use ratios and proportions with scale drawings (<i>CC.7.G.1, CC.7.NS.3</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics.</p>	<p>Compare and analyze sampling methods (<i>CC.7.SP.1</i>)</p> <p><u>Mathematical Practices:</u> MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics. MP 6: Attend to precision. MP 7: Look for and make sense of structure.</p> <p>Topic: Geometric Figures</p> <p>Objectives: Identify and describe geometric figures</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 4: Model with mathematics. MP 8: Look for and express regularity in repeated reasoning.</p> <p>Identify angle and angle pairs (<i>CC.7.G.5</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them.</p>	<p>Use counting methods to determine possible outcomes (<i>CC.7.SP.7, CC.7.SP.8b</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 3: Construct viable arguments and critique the reasoning of others. MP 5: Use appropriate tools strategically. MP 8: Look for and express regularity in repeated reasoning.</p> <p>Find the theoretical probability of an event (<i>CC.7.SP.8, CC.7.SP.6</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 5: Use appropriate tools strategically.</p>
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<p>Perform operations with integers (<i>CC.7.NS.1, CC.7.NS.1a, CC.7.NS.1b, CC.7.NS.1c, CC.7.NS.2a, CC.7.NS.2b, CC.7.NS.2c, CC.7.NS.3</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 8: Look for and express regularity in repeated reasoning.</p> <p>Write fractions as decimals and vice-versa; compare and order fractions and decimals (<i>CC.7.NS.2c, CC.7.NS.3</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 3: Construct viable arguments and critique the reasoning of others. MP 6: Attend to precision. MP 8: Look for and express regularity in repeated reasoning.</p>	<p>Topic: Graphs</p> <p>Objectives: Plot and identify ordered pairs of integers on a coordinate plane; relate graphs to situations (<i>CC.7.RR.2a</i>)</p> <p><u>Mathematical Practices:</u> MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics. MP 5: Use appropriate tools strategically. MP 7: Look for and make sense of structure.</p> <p>Determine slope of a line and recognize constant and variable rates of change (<i>CC.7.RP.1, CC.7.RP.2d</i>)</p> <p><u>Mathematical Practices:</u> MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics. MP 5: Use appropriate tools strategically.</p>	<p>MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 6: Attend to precision.</p> <p>Identify parallel, perpendicular and skew lines, and angles formed by a transversal (<i>CC.7.G.5</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 5: Use appropriate tools strategically.</p> <p>Find the measure of angles in polygons (<i>CC.7.G.5, CC.7.RP.2c</i>)</p> <p><u>Mathematical Practices:</u> MP 5: Use appropriate tools strategically. MP 6: Attend to precision. MP 8: Look for and express regularity in repeated reasoning.</p>	<p>Use probability to predict events (<i>CC.7.SP.8, CC.7.SP.7</i>)</p> <p><u>Mathematical Practices:</u> MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 6: Attend to precision. MP 8: Look for and express regularity in repeated reasoning.</p> <p>Find probability of dependent and independent events (<i>CC.7.SP.8, CC.7.SP.8a, CC.7.SP.8b</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 4: Model with mathematics. MP 5: Use appropriate tools strategically. MP 7: Look for and make sense of structure.</p>
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<p>Topic: Applying Rational Numbers</p> <p>Objectives: Perform operations with decimals <i>(CC.7.NS.1, CC.7.NS.2, CC.7.NS.2a, CC.7.NS.2b, CC.7.NS.3, CC.7.EE.4)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 6: Attend to precision. MP 7: Look for and make sense of structure. MP 8: Look for and express regularity in repeated reasoning.</p> <p>Perform operations with fractions and mixed numbers <i>(CC.7.NS.1, CC.7.NS.2a, CC.7.NS.2b, CC.7.NS.3, CC.7.EE.4)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments</p>	<p>Identify, write and graph an equation of direct variation <i>(CC.7.RP.2, CC.7.NS.1, CC.7.RP.2a)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics.</p> <p>Topic: Percents</p> <p>Objectives: Write decimals and fractions as percents <i>(CC.7.EE.3)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 3: Construct viable arguments and critique the reasoning of others. MP 6: Attend to precision. MP 7: Look for and make sense of structure.</p>	<p>Identify congruent figures and use congruence to solve problems <i>(CC.7.G.2)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics.</p> <p>Topic: Measurement and Geometry</p> <p>Objectives: Find the perimeter of a polygon and the circumference of a circle <i>(CC.7.G.4, CC.7.RP.3)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 3: Construct viable arguments and critique the reasoning of others. MP 6: Attend to precision. MP 8: Look for and express regularity in repeated reasoning.</p>	<p>Find the number of possible combinations <i>(CC.7.SP.8)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 4: Model with mathematics. MP 7: Look for and make sense of structure.</p> <p>Find the number of possible permutations <i>(CC.7.SP.8)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 8: Look for and express regularity in repeated reasoning.</p> <p>Find probability of compound events <i>(CC.7.SP.8, CC.7.SP.8a)</i></p> <p><u>Mathematical Practices:</u> MP 5: Use appropriate tools strategically. MP 7: Look for and make sense</p>
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<p>and critique the reasoning of others. MP 4: Model with mathematics. MP 6: Attend to precision. MP 7: Look for and make sense of structure.</p>	<p>Use properties of rational numbers to write equivalent expressions and equations <i>(CC.7.EE.2, CC.7.NS.1d)</i></p> <p><u>Mathematical Practices:</u> MP 2: Reason abstractly and quantitatively. MP 4: Model with mathematics. MP 5: Use appropriate tools strategically. MP 7: Look for and make sense of structure.</p> <p>Use percent of change to solve problems <i>(CC.7.RP.3, CC.7.EE.2)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 5: Use appropriate tools strategically. MP 6: Attend to precision. MP 7: Look for and make sense of structure.</p> <p>Find commission, sales tax and percent of earnings <i>(CC.7.RP.3)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively.</p>	<p>Find the area of circles <i>(CC.7.G.4)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics. MP 7: Look for and make sense of structure. MP 8: Look for and express regularity in repeated reasoning.</p> <p>Find the area of irregular figures <i>(CC.7.G.6)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 4: Model with mathematics. MP 5: Use appropriate tools strategically.</p> <p>Identify various 3-dimensional figures</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively.</p>	<p>of structure. MP 8: Look for and express regularity in repeated reasoning.</p> <p>Topic: Multi Step Equations and Inequalities</p> <p>Objectives: Solve two-step equations <i>(CC.7.EE.1, CC.7.EE.4)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 4: Model with mathematics. MP 7: Look for and make sense of structure.</p> <p>Solve multi-step equations <i>(CC.7.EE.4, CC.7.EE.4a)</i></p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 8: Look for and express regularity in repeated reasoning.</p>
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	<p>MP 5: Use appropriate tools strategically.</p> <p>Compute simple interest (<i>CC.7.RP.3</i>)</p> <p><u>Mathematical Practices:</u> MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics. MP 5: Use appropriate tools strategically. MP 7: Look for and make sense of structure.</p>	<p>MP 7: Look for and make sense of structure.</p> <p>Find the volume of prisms and cylinders (<i>CC.7.G.6</i>)</p> <p><u>Mathematical Practices:</u> MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics. MP 5: Use appropriate tools strategically. MP 6: Attend to precision.</p> <p>Find the surface area of prisms and cylinders (<i>CC.7.G.6</i>)</p> <p><u>Mathematical Practices:</u> MP 4: Model with mathematics. MP 5: Use appropriate tools strategically. MP 6: Attend to precision. MP 8: Look for and express regularity in repeated reasoning.</p>	<p>Solve equations that have variables on both sides (<i>CC.7.EE.4, CC.7.EE.4a</i>)</p> <p><u>Mathematical Practices:</u> MP 2: Reason abstractly and quantitatively. MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics. MP 6: Attend to precision.</p> <p>Read, write and graph inequalities</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 3: Construct viable arguments and critique the reasoning of others. MP 4: Model with mathematics. MP 5: Use appropriate tools strategically.</p> <p>Solve 1-step inequalities by adding or subtracting (<i>CC.7.EE.4</i>)</p> <p><u>Mathematical Practices:</u> MP 1: Make sense of problems and persevere in solving them. MP 4: Model with mathematics. MP 5: Use appropriate tools strategically.</p>
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MP 7: Look for and make sense of structure.

Solve 1-step inequalities by multiplying or dividing
(*CC.7.EE.4*)

Mathematical Practices:

MP 1: Make sense of problems and persevere in solving them.

MP 2: Reason abstractly and quantitatively.

MP 3: Construct viable arguments and critique the reasoning of others.

MP 4: Model with mathematics.

Solve simple 2-step inequalities
(*CC.7.EE.4, CC.7.EE.4b*)

Mathematical Practices:

MP 4: Model with mathematics.

MP 5: Use appropriate tools strategically.

MP 6: Attend to precision.

Lessons, Activities & Student Products:	Lessons, Activities & Student Products:	Lessons, Activities & Student Products:	Lessons, Activities & Student Products:
Do-now/daily homework check	Do-now/daily homework check	Do-now/daily homework check	Do-now/daily homework check
Video displayed on Smart Board (optional depending on availability/usefulness)	Video displayed on Smart Board (optional depending on availability/usefulness)	Video displayed on Smart Board (optional depending on availability/usefulness)	Video displayed on Smart Board (optional depending on availability/usefulness)
Discussion of real-life applications to reinforce relevance & motivate	Discussion of real-life applications to reinforce relevance & motivate	Discussion of real-life applications to reinforce relevance & motivate	Discussion of real-life applications to reinforce relevance & motivate
Notes of vocabulary, concepts and procedures via PP or on white board	Notes of vocabulary, concepts and procedures via PP or on white board	Notes of vocabulary, concepts and procedures via PP or on white board	Notes of vocabulary, concepts and procedures via PP or on white board
Guided practice problems displayed on Communicators	Guided practice problems displayed on Communicators	Guided practice problems displayed on Communicators	Guided practice problems displayed on Communicators
Individual or small group exercises (standard number exercises or word problems)	Individual or small group exercises (standard number exercises or word problems)	Individual or small group exercises (standard number exercises or word problems)	Individual or small group exercises (standard number exercises or word problems)
Students will use number cubes and operations to generate target number (or close to it).	Students will use strips of colored paper to model equivalent ratios.	Students will measure wingspan and head girth and calculate mean, median and mode of data collected.	Students will use number cubes and coins to discover experimental probability and contrast it with theoretical probability.
Students will use algebra tiles to model simplifying algebraic expressions and solving algebraic equations.	Students will create computer spreadsheets to model proportional relationships.	Students will use test result data to construct a box and whisker plot.	Students will use computer spreadsheets to create simulations of random numbers.
Students will use number lines to model integers.	Students will create triangles to visually illustrate similarity as an application of proportional reasoning.	Students will use protractors to guess and then verify accuracy of angle measures.	Students will use different colored marbles in a bag to

<p>Students will use chips to model integer addition and subtraction.</p> <p>Students will use calculators to convert fractions to decimals.</p> <p>Students will use number lines to model absolute value (distance from zero).</p> <p>Students will use area models to demonstrate multiplication of fractions.</p>	<p>Students will create scale drawings of their room &/or classroom.</p> <p>Students will determine actual distances on a map using a scale.</p> <p>Students will plot points on a coordinate plane displayed on Smart Board.</p> <p>Students will explore slope by walking from one point to another point on a line using Smart Board coordinate grid.</p> <p>Students will use geoboards to model percent change.</p> <p>Students will use magazine ads, restaurant receipts and store purchase receipts for percent application of discounts, tips and tax.</p> <p>Students will use business section of newspaper to determine interest earned at various rates and terms.</p>	<p>Students will use grid paper &/or geoboards to create congruent and similar figures.</p> <p>Students will use Miras to explore lines of symmetry.</p> <p>Students will use Communicators with inserts or Smart Board to model transversals and discover the relationship of special pairs of angles.</p> <p>Students will use compasses to make geometric constructions.</p> <p>Students will walk taped out figures on floor to justify perimeter and area of various polygons.</p> <p>Students will use geo solids to classify 3-d figures.</p> <p>Students will use various measuring containers to explore the relationship between capacity and volume.</p> <p>Students will create edible 3-d figures and measure/compute surface area and volume.</p>	<p>discover dependent and independent events and their probabilities.</p> <p>Students will roll number cubes and flip coins to discover probabilities of compound events.</p> <p>Students will discover the concept of permutations by exploring the number of different ways a select number of students can sit in a limited number of seats.</p> <p>Students will use “balance beam” inserts in Communicators to visualize the requirement to balance both sides when solving equations or inequalities.</p> <p>Students will use algebra tiles to model solving multi-step equations and inequalities.</p> <p>Students will graph solutions to inequalities on number lines via Communicator inserts or Smart Board tools.</p>
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<p><u>21st Century Skills:</u></p> <ul style="list-style-type: none"> ✓ Creativity & Innovation ✓ Critical Thinking & Problem Solving ✓ Communication ✓ Collaboration 	<p><u>21st Century Skills:</u></p> <ul style="list-style-type: none"> ✓ Creativity & Innovation ✓ Critical Thinking & Problem Solving ✓ Communication ✓ Collaboration 	<p><u>21st Century Skills:</u></p> <ul style="list-style-type: none"> ✓ Creativity & Innovation ✓ Critical Thinking & Problem Solving ✓ Communication ✓ Collaboration 	<p><u>21st Century Skills:</u></p> <ul style="list-style-type: none"> ✓ Creativity & Innovation ✓ Critical Thinking & Problem Solving ✓ Communication ✓ Collaboration
<p>Essential Questions:</p> <p>What is the value of $36 - 18/2 \times 3 + 8$? Which operations have priority?</p> <p>What operations are commutative and associative?</p> <p>What are the different ways to write “3 times a number, n?” What does evaluate mean?</p> <p>What is meant by “combining like terms?”</p> <p>Will the absolute value of a number always be positive? Why?</p> <p>What are the rules for adding integers with the same signs? With different signs?</p> <p>How can I explain the steps to find the solution to $4 - (-3)$.</p> <p>What is the result of adding opposites?</p>	<p>Essential Questions:</p> <p>How do you find the unit price of 6 cans for \$4?</p> <p>How do you verify whether the fractions $3/8$ and $21/56$ are equivalent?</p> <p>How can you verify whether two polygons are similar?</p> <p>If you have two similar polygons, how do use proportions to find a missing side length?</p> <p>If the scale is 1 in = 8 ft, what is the actual distance for a measure of 3.25 inches on the map?</p> <p>Explain why the x and y values in each quadrant are positive or negative.</p> <p>When looking at a graph, how can one tell if there is a constant relationship between the x and y variables?</p>	<p>Essential Questions:</p> <p>How do you find the mean, median, mode and range of an even set of data?</p> <p>What measure of central tendency is used in constructing a box and whisker plot?</p> <p>Explain the differences between a random sample, a convenience sample and a biased sample.</p> <p>How do you properly designate lines, line segments, and rays?</p> <p>What symbols are used to show parallel lines, congruent line segments or angles?</p> <p>What is the measure (range of measures) for acute, obtuse, right and straight angles?</p> <p>What is the sum of measures for complementary and supplementary angles?</p>	<p>Essential Questions:</p> <p>What is the probability of rolling a multiple of 3 on a number cube? What is the complement to this event?</p> <p>If 6 out of 20 students in a class have more than 1 pet, how many kids out of 500 do you predict have more than one pet?</p> <p>If you have 3 different ties, 2 different pairs of pants and 4 different shirts, how many different outfits can you make?</p> <p>Distinguish theoretical probability from experimental probability.</p> <p>If you roll a number cube 300 times, what percent of times do you predict it will come up a prime number greater than 3?</p> <p>If you have 5 black socks and 6 white socks in a drawer, what is the probability of blindly picking out a black sock, not replacing it,</p>

<p>What is the sign of the product or quotient of 2 integers with the same sign? With different signs?</p> <p>How would you define a rational number?</p> <p>How do you convert from fractions to decimals – i.e., $\frac{3}{8} =$ as a decimal?</p> <p>How do you verify that two fractions are equivalent?</p> <p>What is the first thing you do when adding or subtracting decimals?</p> <p>If you multiply a factor with 2 decimal places by a factor with 3 decimal places, how many decimal places will be in the product? Why is estimating products helpful?</p> <p>What must you do with a decimal divisor? What adjustments do you then make with the dividend?</p> <p>What is meant by keeping an equation in balance? By isolating the variable?</p> <p>How do you compare fractions with different denominators?</p>	<p>Graph the function $y = \frac{1}{2}x - 1$ and describe how you can tell if a line slope is negative or positive. How does steepness of line relate to slope number?</p> <p>How can you verify whether there is a direct variation between the x and y variables?</p> <p>Explain two methods for writing a decimal as a percent and for writing a fraction as a percent.</p> <p>If you were 46 inches tall in 5th grade and now you're 57 inches tall, what is the percent of change in your height?</p> <p>If a shirt that normally sells for \$30 and is discounted by 40%, what is the sale price?</p> <p>If you deposit \$500 in a bank account that pays you 6% simple annual interest, what will be your balance after 3 years?</p>	<p>What is the sum of measures of interior angles in a triangle, a quadrilateral and other polygons?</p> <p>How can you determine the sum of interior angles in any polygon?</p> <p>Given two polygons are congruent, how do determine missing side length and missing angle measure?</p> <p>How do you find perimeter or missing side length (given perimeter) of polygons?</p> <p>How do you find circumference of a circle given a radius or diameter?</p> <p>What is the relationship between a circle's circumference and its diameter?</p> <p>How do you find the area of a circle given a radius or diameter?</p> <p>Given a circumference, how can you find area (or vice versa)?</p> <p>How do you estimate area of irregular geometric figures?</p> <p>How can one identify/classify various 3-d geometric figures?</p>	<p>and then picking out a white sock?</p> <p>If there are 15 different toppings choices for pizza, how many ways can you have a combo of 3 of your favorite toppings?</p> <p>If there are 12 runners in a race, how many different ways can you have a 1st and 2nd place finishers?</p> <p>If you roll two number cubes, what is the probability that the sum of the number will equal 5?</p> <p>Can I show the steps to solve $18 = -3p - 9$, and explain what is meant by "balancing" the equation?</p> <p>When solving and justifying each step in solving $-2p + 5 - 7p = 35$, which terms in this equation are "like" terms?</p> <p>How can I solve and justify each step in solving $19 + 7n = -2n + 37$?</p> <p>How do you graph the inequality $x > -4$?</p> <p>How can one solve and graph the inequality $c + 9 > 20$?</p>
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<p>How do compare fractions and decimals to determine which is greater?</p> <p>What is the first step when adding fractions or mixed numbers with different denominators?</p> <p>How can one explain how to “borrow” from the whole number of a mixed number when subtracting?</p> <p>What is the first step when multiplying or dividing mixed numbers?</p> <p>What is meant by “cross cancelling?”</p> <p>What do we do with the two fractions when dividing?</p> <p>How do you get a fraction into simplest form?</p>		<p>How can one identify bases, faces, edges and vertices of 3-d figures?</p> <p>How can you find the volume of triangular, rectangular prisms given the length, width and height?</p> <p>How do you find the volume of a cylinder given the radius and height?</p> <p>How can you explain the procedure to find missing dimensions given the volume?</p> <p>How can you find the surface area of prisms or cylinders given l, w, & h (prisms) or given radius and height (cylinders)?</p>	<p>After solving and graphing the inequality $-6w < 18$, how do you check your solution?</p>
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<p>Materials:</p> <p>Scientific calculators Smart Board Communicators Integer chips Algebra tiles Colored pencils Decimal grids Graph paper Textbook Activity and exercises worksheets Rulers, tape measures</p>	<p>Materials:</p> <p>Rulers, tape measures Social studies books, reference books or encyclopedias Maps Protractors Compasses Graph paper Media advertisements Dictionaries Toy money Number cubes Smart Board Communicators Textbook Activity and exercises worksheets</p>	<p>Materials:</p> <p>Graph paper Index cards Scientific calculators Smart Board Communicators Dot paper Protractors Compasses Straight edges Customary/metric rulers String Various circular objects Prism- and cylinder-shaped containers Rice Measuring cups scissors Cereal boxes or shoe boxes Textbook Activity and exercises worksheets</p>	<p>Materials:</p> <p>Colored paper Colored pencils Decks of playing cards Number cubes Spinners Index cards Algebra tiles balloons Coins Scientific calculators Smart Board Communicators Textbook Activity and exercises worksheets</p>
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<p>Assessment:</p> <p>Do-nows & daily homework checks (to assess understanding of previous day's concepts and procedures)</p> <p>Textbook problems displayed on Communicators, worked out on white board or submitted via paper and pencil</p> <p>Lesson-related exercises for intervention/support as well as enrichment/challenge</p> <p>Homework (standard number exercises and real-life word problems)</p> <p>Section quizzes (modified as necessary per IEP/504 or per ability level)</p> <p>Chapter tests – multiple choice &/or free response (level A, B or C administered according to degree of readiness with topic)</p> <p>Performance Assessments</p> <p>Cumulative unit tests (to be used as quarterly assessments)</p> <p>Notebook journal entries</p>	<p>Assessment:</p> <p>Do-nows & daily homework checks (to assess understanding of previous day's concepts and procedures)</p> <p>Textbook problems displayed on Communicators, worked out on white board or submitted via paper and pencil</p> <p>Lesson-related exercises for intervention/support as well as enrichment/challenge</p> <p>Homework (standard number exercises and real-life word problems)</p> <p>Section quizzes (modified as necessary per IEP/504 or per ability level)</p> <p>Chapter tests – multiple choice &/or free response (level A, B or C administered according to degree of readiness with topic)</p> <p>Performance Assessments</p> <p>Cumulative unit tests (to be used as quarterly assessments)</p> <p>Notebook journal entries</p>	<p>Assessment:</p> <p>Do-nows & daily homework checks (to assess understanding of previous day's concepts and procedures)</p> <p>Textbook problems displayed on Communicators, worked out on white board or submitted via paper and pencil</p> <p>Lesson-related exercises for intervention/support as well as enrichment/challenge</p> <p>Homework (standard number exercises and real-life word problems)</p> <p>Section quizzes (modified as necessary per IEP/504 or per ability level)</p> <p>Chapter tests – multiple choice &/or free response (level A, B or C administered according to degree of readiness with topic)</p> <p>Performance Assessments</p> <p>Cumulative unit tests (to be used as quarterly assessments)</p> <p>Notebook journal entries</p>	<p>Assessment:</p> <p>Do-nows & daily homework checks (to assess understanding of previous day's concepts and procedures)</p> <p>Textbook problems displayed on Communicators, worked out on white board or submitted via paper and pencil</p> <p>Lesson-related exercises for intervention/support as well as enrichment/challenge</p> <p>Homework (standard number exercises and real-life word problems)</p> <p>Section quizzes (modified as necessary per IEP/504 or per ability level)</p> <p>Chapter tests – multiple choice &/or free response (level A, B or C administered according to degree of readiness with topic)</p> <p>Performance Assessments</p> <p>Cumulative unit tests (to be used as quarterly assessments)</p> <p>Notebook journal entries</p>
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<p>Classroom activities and labs incorporated into daily lesson plans</p> <p>Longer-term projects related to multiple concepts introduced in chapter or unit (graded via teacher/student rubric)</p> <p>Portfolios of student work (to be shared with family)</p>	<p>Classroom activities and labs incorporated into daily lesson plans</p> <p>Longer-term projects related to multiple concepts introduced in chapter or unit (graded via teacher/student rubric)</p> <p>Portfolios of student work (to be shared with family)</p>	<p>Classroom activities and labs incorporated into daily lesson plans</p> <p>Longer-term projects related to multiple concepts introduced in chapter or unit (graded via teacher/student rubric)</p> <p>Portfolios of student work (to be shared with family)</p>	<p>Classroom activities and labs incorporated into daily lesson plans</p> <p>Longer-term projects related to multiple concepts introduced in chapter or unit (graded via teacher/student rubric)</p> <p>Portfolios of student work (to be shared with family)</p>
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<p>CCSS:</p> <p>CC.7.NS.1 (Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.)</p> <p>CC.7.NS.1a (Describe situations in which opposite quantities combine to make 0.)</p> <p>CC.7.NS.1b (Understand $p+q$ as the number located a distance q from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its number have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.)</p> <p>CC.7.NS.1c (Understand subtraction of rational numbers as adding the additive inverse, $p-q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their differences, and apply this principle in real-world contexts.)</p>	<p>CCSS:</p> <p>CC.7.NS.1 (Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.)</p> <p>CC.7.NS.1d (Apply properties of operations as strategies to add and subtract rational numbers.)</p> <p>CC.7.NS.3 (Solve real-world and mathematical problems involving the four operations with rational numbers.)</p> <p>CC.7.RP.1 (Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.)</p> <p>CC.7.RP.2 (Recognize and represent proportional relationships between quantities.)</p> <p>CC.7.RP.2a (Decide whether 2 quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the</p>	<p>CCSS:</p> <p>CC.7.G.2 (Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from the measures of angles or sides, noticing when the conditions determine a unique triangle, more than 1 triangle, or no triangle.)</p> <p>CC.7.G.4 (Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.)</p> <p>CC.7.G.5 (Use facts about supplementary, complementary, vertical and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.)</p> <p>CC.7.G.6 (Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes and right prisms.)</p>	<p>CCSS:</p> <p>CC.7.EE.1 (Apply properties of operations as strategies to add, subtract, factor and expand linear expressions with rational coefficients.)</p> <p>CC.7.EE.4 (Use variables to represent quantities in a real world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.)</p> <p>CC.7.EE.4a (Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operation used in each approach.)</p> <p>CC.7.EE.4b (Solve word problems leading to inequalities of the form $px + q < r$ or $px + q > r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret in the correct context of the problem.)</p>
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<p>CC.7.NS.1d (Apply properties of operations as strategies to add and subtract rational numbers.)</p> <p>CC.7.NS.2 (Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.)</p> <p>CC.7.NS.2a (Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.)</p> <p>CC.7.NS.2b (Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$)</p> <p>CC.7.NS.2c (Apply properties of operations as strategies to multiply and divide rational numbers.)</p>	<p>origin.)</p> <p>CC.7.RP.2b (Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.)</p> <p>CC.7.RP.2c (Represent proportional relationships by equations.)</p> <p>CC.7.RP.2d (Explain what a point (x,y) on a graph of a proportional relationship means in terms of the situation, with special attention to the points $(0,0)$ and $(1,r)$ where r is the unit rate.)</p> <p>CC.7.RP.3 (Use proportional relationships to solve multi-step ratio and percent problems.)</p> <p>CC.7.EE.2 (Apply properties of operations as strategies to add, subtract, factor and expand linear expressions with rational coefficients.)</p> <p>CC.7.RP.3 (Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions and decimals), using tools</p>	<p>CC.7.RP.2c (Represent proportional relationships by equations).</p> <p>CC.7.RP.3 (Use proportional relationships to solve multi-step ratio and percent problems).</p> <p>CC.7.SP.1 (Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about the population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.)</p> <p>CC.7.SP.2 (Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.)</p> <p>CC.7.SP.4 (Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two</p>	<p>CC.7.SP.5 (Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near zero indicates an unlikely event, a probability near $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near one indicates a likely event.)</p> <p>CC.7.SP.6 (Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.)</p> <p>CC.7.SP.7 (Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.)</p> <p>CC.7.SP.7b (Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.)</p>
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<p>CC.7.NS.3 (Solve real-world and mathematical problems involving the four operations with rational numbers.)</p> <p>CC.7.EE.1 (Apply properties of operations as strategies to add, subtract, factor and expand linear expressions with rational coefficients.)</p> <p>CC.7.EE.2 (Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.)</p> <p>CC.7.EE.3 (Solve multistep real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate, and assess the reasonableness of answers using mental computation and estimation strategies.)</p> <p>CC.7.EE.4 (Use variables to represent quantities in a real world or mathematical problem,</p>	<p>strategically. Apply properties of operations to calculate with numbers in any form, convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.)</p> <p>CC.7.G.1 (Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.)</p> <p>CC.7.EE.3 (Solve multistep real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate, and assess the reasonableness of answers using mental computation and estimation strategies.)</p>	<p>populations).</p>	<p>CC.7.SP.8 (Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.)</p> <p>CC.7.SP.8a (Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.)</p> <p>CC.7.SP.8b (Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event.)</p>
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and construct simple equations and inequalities to solve problems by reasoning about the quantities.)

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Mathematical Practices

MP 1: Make sense of problems and persevere in solving them.

MP 2: Reason abstractly and quantitatively.

MP 3: Construct viable arguments and critique the reasoning of others.

MP 4: Model with mathematics.

MP 5: Use appropriate tools strategically.

MP 6: Attend to precision.

MP 7: Look for and make use of structure.

MP 8: Look for and express regularity in repeated reasoning.