

Shrewsbury Borough School Mathematics Curriculum 2012
Grade 3

Marking Period 1:	Marking Period 2:	Marking Period 3:	Marking Period 4:
<p>Topic: Number and Operations in Base Ten</p>	<p>Topic: Operations and Algebraic Thinking-Division</p>	<p>Topic: Measurement and Data: Telling Time</p>	<p>Topic: Number and Operations-Fractions</p>
<p>Objectives and Mathematical Practices:</p>	<p>Objectives and Mathematical Practices:</p>	<p>Objectives and Mathematical Practices:</p>	<p>Objectives and Mathematical Practices:</p>
<p><i>Round two-digit and three-digit whole numbers to the nearest ten or hundred, by comparing to the number halfway between or by using place value.</i></p>	<p><i>Use models to solve division problems involving sharing and record solutions using division number sentences.</i></p>	<p><i>Tell time to the nearest half hour and quarter hour using analog and digital clocks.</i></p>	<p><i>Identify regions that have been divided into equal-sized parts and divide regions into equal sized parts.</i></p>
<p>MP5: Use appropriate tools strategically.</p>	<p>MP1: Make sense of problems and persevere in solving them.</p>	<p>MP1: Make sense of problems and persevere in solving them.</p>	<p>MP1: Make sense of problems and persevere in solving them.</p>
<p>MP6: Attend to precision.</p>	<p>MP4: Model with mathematics.</p>	<p>MP4: Model with mathematics.</p>	<p>MP4: Model with mathematics.</p>
<p>MP7: Look for and make use of structure.</p>	<p>MP7: Look for and make use of structure.</p>	<p>MP6: Attend to precision.</p>	<p>MP7: Look for and make use of structure.</p>
<p>MP8: Look for and express regularity in repeated reasoning.</p>	<p><i>Use models to solve division problems.</i></p>	<p><i>Tell time to the nearest minute using analog and digital clocks.</i></p>	<p><i>Associate the model, symbol, and words used to describe a fractional part of a whole region.</i></p>
<p><i>Solve problems by estimating sums.</i></p>	<p>MP1: Make sense of problems and persevere in solving them.</p>	<p>MP1: Make sense of problems and persevere in solving them.</p>	<p>MP1: Make sense of problems and persevere in solving them.</p>
<p>MP6: Attend to precision.</p>	<p>MP4: Model with mathematics.</p>	<p>MP4: Model with mathematics.</p>	<p>MP4: Model with mathematics.</p>
<p>MP7: Look for and make use of structure.</p>	<p>MP7: Look for and make use of structure</p>	<p>MP6: Attend to precision.</p>	<p>MP7: Look for and make use of structure.</p>

<p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Use concrete materials and concepts of addition to model the Commutative, Associative, and Identity Properties of Addition.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Use a hundreds chart to add two-digit numbers.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Add 2-digit and 3-digit numbers using paper-and-pencil methods and use addition to solve problems.</i></p>	<p><i>Give a multiplication fact, state a related division fact and vice versa.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Give quotients for division facts with divisors of 2, 3, 4, or 5.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Give quotients for division facts with divisors of 6 and 7.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p>	<p><i>Perform simple conversions for units of time.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p><i>Find elapsed time in intervals of minutes.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p>Topic: Measurement and Data:Metric Measurement</p> <p>Objectives and Mathematical Practices:</p> <p><i>Choose an appropriate unit tool, estimate, and measure in milliliters and liters. Students will identify objects that hold about a liter or a milliliter.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p>	<p><i>Associate the model, symbol, and words used to describe a fractional part of a set.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Use models to find equivalent fractions.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP3: Construct viable arguments and critique the reasoning of others.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p>
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<p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Add 3 or more 2-digit numbers using paper-and pencil methods and use addition to solve problems.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Recognize situations when subtraction is used to solve a problem and write number sentences.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p>	<p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Give quotients for divisors of 8 and 9.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Use patterns and fact families to answer division facts.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Use known multiplication patterns to divide multiples of 10 and 100 by a 1-digit number.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p>	<p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p><i>Choose an appropriate tool, estimate, and measure in grams and kilograms. Students identify objects with a mass of about one gram or kilogram.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p>	<p><i>Use models to compare fractions.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP3: Construct viable arguments and critique the reasoning of others.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Write fractions on mixed number line. Students will compare and order fractions and mixed numbers.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP3: Construct viable arguments and critique the</p>
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<p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Solve problems by estimating differences.</i></p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Subtract 2-digit and 3-digit numbers using paper-and-pencil methods and use subtraction to solve problems.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Use basic multiplication facts and number patterns to multiply by multiples of 10 and 100.</i></p> <p>MP1: Make sense of problems</p>	<p>MP7: Look for and make use of structure.</p> <p>Topics: Geometry</p> <p>Objectives and Mathematical Practices: Students will:</p> <p><i>Identify solid figures by name and describe their attributes.</i></p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Identify shapes related to given solids.</i></p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Identify and classify polygons.</i></p> <p>MP5: Use appropriate tools strategically.</p>	<p>Topic: Measurement and Data-Customary Measurement</p> <p>Objectives and Mathematical Practices:</p> <p><i>Understand the measurement process and the needs for standard units. Students learn to measure length with nonstandard units and to the nearest inch.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p><i>Measure length to the nearest $\frac{1}{2}$ inch and to the nearest $\frac{1}{4}$ inch.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p>	<p>reasoning of others.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Add fractions with like denominators.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP3: Construct viable arguments and critique the reasoning of others.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p>
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<p>and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP7: Look for and make use of structure.</p> <p>Topic: Operations and Algebraic Thinking: Multiplication</p> <p>Objectives and Mathematical Practices:</p> <p><i>Write multiplication number sentences for given equal group situations, using the multiplication symbol.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Write multiplication sentences for arrays, use arrays to find products, and use the Commutative Property of Multiplication.</i></p>	<p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p>	<p>Topic: Measurement and Data-Data and Graphs</p> <p>Objectives and Mathematical Practices:</p> <p><i>Use tally charts to record survey data.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Read and interpret data from a pictograph and a bar graph.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Make a pictograph from a table.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p>	<p><i>Subtract fractions with like denominators.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP3: Construct viable arguments and critique the reasoning of others.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p>
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<p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Use models and write multiplication sentences to compare amounts.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Use patterns to multiply with 2 and 5 as factors.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p>		<p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Make a bar graph to represent the data in a table.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Learn and understand how to draw line plots, interpret points, and recognize outliers.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p>	
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<p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Use patterns to multiply with 10 as a factor.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Use patterns to multiply with 9 as a factor.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Use patterns and properties to multiply with 0 and 1 as factors.</i></p> <p>MP2: Reason abstractly and quantitatively.</p>		<p>Topic: Measurement and Data-Perimeter, Area, and Volume</p> <p>Objectives and Mathematical Practices: Students will:</p> <p><i>Use standard units to find the perimeter of a shape.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Match shapes to a given perimeter and learn that different shapes can have the same perimeter.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP7: Look for and make use of structure.</p> <p><i>Use concrete and pictorial models of square units to determine the area of two-dimensional surfaces.</i></p>	
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<p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Use known facts to find products with 3 as a factor.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Use known facts and doubles to find the products with 4 as a factor.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Use known facts to find products with 6 and 7 as factors.</i></p>		<p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p><i>Estimate and find the area of irregular shapes drawn on a grid or with square units shown.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p><i>Relate operations of addition and multiplication to find the perimeter and area of a shape.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p>	
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<p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Use known facts and doubles to find products with 8 as a factor.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>Multiply three numbers and use the Associative Property of Multiplication.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP4: Model with mathematics.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express</p>		<p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p>	
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<p>regularity in repeated reasoning.</p> <p><i>Solve multiple-step problems.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p>			
<p>Lessons, Activities, & Student Products: Numbers and Operations</p> <p>Students will use place-value blocks or Teaching Tools 24, and Interactive Learning Recording Sheet to model numbers.</p> <p>Students will use place-value blocks or Teaching Tools 24 and 25 to model numbers.</p> <p>Students will use counters and concepts of addition to model the Commutative, Associative, and Identity Properties of Addition.</p> <p>Students will use a hundreds chart to add numbers.</p>	<p>Lessons, Activities, & Student Products: Division</p> <p>Students will use multiplication/division flashcards to practice facts.</p> <p>Students will use counters to assist in solving division problems.</p> <p>Students will use two-color counters to model repeated subtraction.</p> <p>Lessons, Activities, & Student Products: Geometry</p> <p>Students will create solid shapes from Teaching Tool materials to</p>	<p>Lessons, Activities, & Student Products: Time</p> <p>Students will use clock faces to tell time to the nearest minute, half hour, and quarter hour on an analog clock.</p> <p>Lessons, Activities, & Student Products: Metric Measurement</p> <p>Students will use a centimeter ruler to measure lengths.</p> <p>Students will use measure in meters and kilometers; students will convert units among kilometers, meters, and centimeters.</p>	<p>Lessons, Activities, & Student Products:</p> <p>Students will use centimeter grid paper to divide regions into equal-sized parts.</p> <p>Students will use two-colored counters to represent fractions.</p> <p>Students will use fraction strips to find equivalent fractions.</p> <p>Students will use fraction strips to compare fractions.</p> <p>Students will use grid paper to find and write fractions and mixed numbers on a number line.</p>

<p>Students will use center activities of: Toss and Talk, Display the Digits, or Teamwork to review skills taught.</p> <p>Lessons, Activities, & Student Products: Multiplication</p> <p>Students will use counters to find the total number of objects in a group.</p> <p>Students will use counters to create an array.</p> <p>Students will practice with flash cards daily.</p> <p>Students will use counters to create break apart arrays to model multiplying by 3, 4, 6, 7, and 8.</p> <p>Students will create their own “Flip Flop” facts to show how the Commutative Property of Multiplication works.</p> <p>Students will review multiplication through “Memory Game.”</p> <p>Students will use center activities of: Toss and Talk, Tic Tac Toe, or Teamwork to review skills taught.</p>	<p>assist with the number of faces, edges, and vertices.</p> <p>Students will use Geoboards and rubber bands; or dot paper (Teaching Tool 17) to create polygons.</p>	<p>Lessons, Activities, & Student Products: Customary Measurement</p> <p>Students will use an inch ruler to measure length with nonstandard units and to the nearest inch.</p> <p>Students will use an inch ruler to measure lengths to the nearest $\frac{1}{2}$ inch and $\frac{1}{4}$ inch.</p> <p>Lessons, Activities, & Student Products: Perimeter and Area</p> <p>Students will draw a figure and find the perimeter of that figure.</p> <p>Students will find the perimeter of common shapes.</p> <p>Students will use straws to create shapes with given perimeters.</p> <p>Students will use concrete models of square units to find the area of rectangles.</p> <p>Students will use grid paper to find the area of irregular shapes drawn on a grid or with square units.</p>	<p>Students will use information to compare and order fractions and mixed numbers.</p> <p>Students will use fraction strips to add fractions with like denominators.</p> <p>Students will use fraction strips to subtract fractions with like denominators.</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 (Numbers and Operation):</p> <p>How can you round numbers?</p> <p>How can you estimate a sum?</p> <p>How can addition properties be used to show relationships that always hold true?</p> <p>How can you use patterns on a hundreds chart to add two-digit numbers?</p> <p>How can you use addition to solve problems?</p> <p>How can you add 3-digit numbers?</p> <p>Why do you subtract?</p> <p>How can you estimate differences?</p> <p>How can you subtract 2 and 3-digit numbers using paper and pencil?</p>	<p>Essential Questions (Division):</p> <p>How can you think of division as sharing?</p> <p>How can you think of division as repeated subtraction?</p> <p>How are multiplication and division facts related?</p> <p>How can you use multiplication to help you divide?</p> <p>How can you use multiplication to help you divide by 6 and 7?</p> <p>How can you use multiplication to help you divide by 8 and 9?</p> <p>How can you use fact families to help you divide?</p> <p>How can you divide multiples of 10 and 100 easily?</p>	<p>Essential Questions (Time):</p> <p>How do you tell time to the nearest quarter hour or half hour?</p> <p>How do you tell time to the nearest minute?</p> <p>How can you change units of time?</p> <p>How can you find elapsed time?</p> <p>Essential Questions (Metric Measurement):</p> <p>What metric units describe how much a container holds?</p> <p>What metric units describe mass?</p> <p>Essential Questions (Customary Measurement):</p> <p>How do you measure an object in inches?</p> <p>How do you measure to a fraction of an inch?</p>	<p>Essential Questions (Fractions):</p> <p>How can you divide a region into two equal parts?</p> <p>How can you write a fraction to name part of a whole?</p> <p>How can you write a fraction to name part of a set?</p> <p>How can different fractions name the same number?</p> <p>How can you use models to compare numbers?</p> <p>How can you locate fractions on a number line?</p> <p>What strategies can help when you add fractions?</p> <p>What strategies can help when you subtract fractions?</p>

<p>What place-value patterns can be seen when you multiply 1-digit numbers by multiples of 10 and 100?</p> <p>Essential Questions (Multiplication):</p> <p>How can you find the total number of objects in equal groups?</p> <p>What are arrays, and how do they show multiplication?</p> <p>How can you use multiplication to compare?</p> <p>How can you use patterns to multiply by 2 and 5?</p> <p>What are the patterns in multiples of 10?</p> <p>How can patterns be used to find 9s products?</p> <p>What are the patterns in multiples of 1 and 0?</p> <p>How can you break apart arrays to multiply by 3?</p> <p>How can you break apart arrays to multiply with 4?</p>	<p>Essential Questions (Geometry):</p> <p>What is a solid figure?</p> <p>How can you describe parts of solid figures?</p> <p>What is a polygon?</p>	<p>Essential Questions (Data and Graphs):</p> <p>How can you collect and organize data?</p> <p>How can you read graphs?</p> <p>How do you determine how much a symbol in a pictograph represents?</p> <p>How can you choose a scale to make a bar graph?</p> <p>How can you organize data in a line plot?</p> <p>Essential Questions (Perimeter and Area)</p> <p>How do you find the perimeter of a shape?</p> <p>How can you find the perimeter of common shapes?</p> <p>What shapes can you make when you know the perimeter?</p> <p>How do you estimate to find the area of an irregular shape?</p> <p>How can you use addition or multiplication to find the perimeter or area of a shape?</p>	
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<p>How can you use break apart arrays to multiply with 6 or 7?</p> <p>How can you use break apart arrays and use known facts to multiply with 8?</p> <p>How can you multiply three numbers?</p> <p>How can you figure out what question needs to be answered first in a multiple-step problem?</p>			
<p>Materials:</p> <p>Vocabulary Math Journal</p> <p>Websites: www.pearsonsuccess.net www.ixl.com/ http://pbskids.org/ http://nlvm.usu.edu./ www.brainpopjr.com</p> <p>Envision Math: Topic 1-Numeration Topic 2- Adding Whole Numbers Topic 3- Subtracting Numbers Sense Topic 4- Subtracting Whole Numbers to Solve Problems Topic 5- Multiplication Meanings and Facts Topic 6- Multiplication Fact Strategies: Use Known Facts</p>	<p>Materials:</p> <p>Vocabulary Math Journal</p> <p>Websites: www.pearsonsuccess.net www.ixl.com/ http://pbskids.org/ http://nlvm.usu.edu./ www.brainpopjr.com</p> <p>Envision Math: Topic 7-Division Meaning Topic 8-Division Facts</p> <p>Manipulatives for Division: Flashcards Counters Two-color counter</p>	<p>Materials:</p> <p>Vocabulary Math Journal</p> <p>Websites: www.pearsonsuccess.net www.ixl.com/ http://pbskids.org/ http://nlvm.usu.edu./ www.brainpopjr.com</p> <p>Envision Math: Topic 17-Time and Temperature Topic 15 -Metric Measurement Topic 14 – Customary Measurement Topic 20 –Data and Graphs Topic 16 –Perimeter, Area, and Volume</p> <p>Manipulatives for Time: Blank clock faces (Teaching Tool</p>	<p>Materials:</p> <p>Vocabulary Math Journal</p> <p>Websites: www.pearsonsuccess.net www.ixl.com/ http://pbskids.org/ http://nlvm.usu.edu./ www.brainpopjr.com</p> <p>Envision Math: Topic 12 –Fractions</p> <p>Manipulatives for Fractions: Centimeter grid paper (Teaching Tools 13) Two-colored counters Fraction Strips (Teaching Tool 28) 8 ½ inch x 1 inch paper strips, glass measuring cups</p>

<p>Manipulatives for Number Operations: Place Value Blocks or Teaching Tools 24 and 25 Counters Hundreds Chart (Teaching Tool 7) Toss and Talk, Display the Digits, or Teamwork Centers</p> <p>Manipulatives for Multiplication: Counters or Teaching Tool 21 Flashcards Memory Game</p>	<p>Manipulatives for Geometry: Solid Shapes Teaching Tool 39-43. Geoboards and rubber bands; or dot paper (Teaching Tool 17)</p>	<p>34) or pupil's clock face</p> <p>Manipulatives for Metric Measurement: Centimeter Ruler (Teaching Tool 32) Meter Stick (Teaching Tool 32) Liter containers, water, rice, and sand Pan balance, dollar bill, stapler</p> <p>Manipulatives for Customary Measurement: Inch Ruler (Teaching Tools 33) Yardstick (Teaching Tool 33)</p> <p>Manipulatives for Data and Graphs: Tally Charts (Teaching Tool 10) Centimeter grid paper (Teaching Tool 13) First-quadrant grid (Teaching Tool 16)</p> <p>Manipulatives for Perimeter and Area: Centimeter grid paper (Teaching Tool 13) Inch Ruler (Teaching Tool 33) Straws, craft sticks, or toothpicks 1-inch grid paper (Teaching Tools 14), scissors, two-color tiles (Teaching Tool 20)</p>	
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<p>Assessment: Teacher Observation Topic Assessments Student Participation Projects</p>	<p>Assessment: Teacher Observation Topic Assessments Student Participation Projects</p>	<p>Assessment: Teacher Observation Topic Assessments Student Participation Projects</p>	<p>Assessment: Teacher Observation Topic Assessments Student Participation Projects</p>
<p>CCSS:</p> <p>Number and Operations in Base Ten</p> <p>Use place value understanding and properties of operations to perform multi-digit arithmetic. 3.NBT.1. Use place value understanding to round whole numbers to the nearest 10 or 100.</p> <p>3.NBT.2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.</p> <p>3.NBT.3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9×80, 5×60) using strategies based on place value and properties of operations.</p>	<p>CCSS:</p> <p>Operations and Algebraic Thinking</p> <p>Represent and solve problems involving multiplication and division. 3.OA.2. Interpret whole numbers, e.g., interpret $56/6$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as number of shares when 56 objects are partitioned into equal shares of 8 objects each.</p> <p>Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.</p> <p>3.OA.4. Determine the unknown whole number in a multiplication</p>	<p>CCSS:</p> <p>Measurement and Data</p> <p>Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. 3.MD.1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.</p> <p>3.MD.2. Measure and estimate liquid volumes and masses of objects using standard units of grams, kilograms, and liters. Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale)</p>	<p>CCSS:</p> <p>Number and Operations-Fractions</p> <p>Develop understanding of fractions as numbers. 3.NF.1. Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.</p> <p>3.NF.2. Understand a fraction as a number on the number line; represent fractions on a number line diagram. Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognizing that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line. Represent a fraction a/b on a</p>

<p>Operations and Algebraic Thinking 3.OA</p> <p>Represent and solve problems involving multiplication and division.</p> <p>3.OA.1. Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.</p> <p>3.OA.4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations.</p> <p>Understand properties of multiplication and the relationship between multiplication and division.</p> <p>3.OA.5. Apply properties operations as strategies to multiply and divide. (Commutative Property of Multiplication, Associative Property of Multiplication, and Distributive Property of Multiplication, and</p>	<p>or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations.</p> <p>Understand properties of multiplication and the relationship between multiplication and division.</p> <p>3.OA.5. Apply properties operations as strategies to multiply and divide. (Commutative Property of Multiplication, Associative Property of Multiplication, and Distributive Property of Multiplication.)</p> <p>Understand division as an unknown-factor problem. For example, find $32/8$ by finding the number that makes 32 when multiplied by 8.</p> <p>Multiply and Divide within 100.</p> <p>3.OA.7. Fluently multiply and divide with 100, using strategies such as the relationships between multiplication and division or properties of operations.</p> <p>Solve problems involving the four operations, and identify and explain patterns in arithmetic.</p>	<p>to represent the problem.</p> <p>Represent and interpret data.</p> <p>3.MD.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one-and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.</p> <p>3.MD.4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.</p> <p>Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</p> <p>Geometric measurement: recognize perimeter as an attribute a plane figure and distinguish between linear and area measures.</p> <p>3.MD.8. Solve real world mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different</p>	<p>number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.</p> <p>3.NF.3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.</p> <p>a. Understand two fractions as equivalent if they are the same size, or the same point on a number line.</p> <p>b. Recognize and generate simple equivalent fractions, e.g., $1/2=2/4$, $4/6=2/3$. Explain why the fractions are equivalent, e.g., by using visual fraction model.</p> <p>c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.</p> <p>d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusion.</p>
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<p>Property of Multiplication, and Distributive Property of Multiplication.)</p> <p>Understand division as an unknown-factor problem. For example, find $32/8$ by finding the number that makes 32 when multiplied by 8.</p> <p>Multiply and Divide within 100</p> <p>3.OA.7. Fluently multiply and divide with 100, using strategies such as the relationships between multiplication and division or properties of operations.</p> <p>Solve problems involving the four operations, and identify and explain patterns in arithmetic.</p> <p>3.OA.8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p>3.OA.9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using</p>	<p>3.OA.8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p>3.OA.9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.</p>	<p>perimeters.</p> <p>Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</p> <p>3.MD.5. Recognize area as an attribute of plane figures and understand concepts of area measurement.</p> <p>a. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.</p> <p>b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have and area of n square units.</p> <p>3.MD.6. Measure by counting unit squares (square cm, square m, square in, square ft., and improvise units).</p> <p>3.MD.7 Relate area to the operations of multiplication and addition.</p> <p>a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.</p> <p>b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the</p>	
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properties of operations.

context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.

d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.