

## Overview of 2016-2017 for 5<sup>th</sup> Grade Mathematicians

Unit Name	Students will know...	Students will be able to...
<b>1. Place Value, Multiplication, and Expressions</b>	<ul style="list-style-type: none"> <li>● How to use mathematical vocabulary can help translate words to expressions</li> <li>● That justifying computations will support their understanding of operations and how to solve problems.</li> <li>● The order of operations</li> <li>● Parentheses are used for emphasis or clarification</li> </ul>	<ul style="list-style-type: none"> <li>● Correctly write an expression to represent a specified amount.</li> <li>● Correctly write and evaluate an expression to find a number</li> </ul>
<b>2. Division</b>	<ul style="list-style-type: none"> <li>● How to model division with base-ten blocks.</li> <li>● That starting with a good estimate can reduce the number of calculations to solve a problem.</li> <li>● That division is a result of repeated subtraction.</li> </ul>	<ul style="list-style-type: none"> <li>● Interpret the remainder</li> <li>● Solve multi-step division problems</li> </ul>
<b>3. Add and Subtract Decimals</b>	<ul style="list-style-type: none"> <li>● Place value models help with decimal addition.</li> <li>● How to regroup in subtraction of decimals.</li> <li>● A zero has to be added as a place holder to subtract decimals properly.</li> </ul>	<ul style="list-style-type: none"> <li>● Correctly use place-value to add and subtract decimals.</li> <li>● Compare decimals correctly.</li> <li>● Order decimals correctly.</li> <li>● Use base-ten blocks to model decimals</li> </ul>
<b>4. Multiply Decimals</b>	<ul style="list-style-type: none"> <li>● decimal multiplication can be shown with an area model.</li> <li>● Estimation focuses on the value of the numbers rather than the rule of how to multiply them.</li> <li>● How to make reasonable estimates by rounding decimals.</li> </ul>	<ul style="list-style-type: none"> <li>● Calculate the answer to a multiplication of decimal question.</li> <li>● Clearly describe the process used for calculating the product of a decimal multiplication problem.</li> </ul>
<b>5. Divide Decimals</b>	<ul style="list-style-type: none"> <li>● Dividing decimals by whole numbers is best modeled using a sharing (partitive) division. This is where the total number (dividend) is shared among the given number of groups (divisor).</li> <li>● Students use decimal models to represent the dividend and then share them equally among the given number of groups, regrouping as necessary.</li> <li>● Students model dividing decimals by decimals using measurement division. In measurement division, the dividend is known, as is the divisor.</li> <li>● The quotient represents the number of groups.</li> </ul>	<ul style="list-style-type: none"> <li>● Correctly set up and solve a decimal division problem given a real-life scenario</li> <li>● Provide a clear explanation of the steps, operations, and numbers used to find the correct quotient.</li> <li>● Show work in an organized manner that is easy to follow and clearly supports the answer given.</li> </ul>
<b>11. Geometry and Volume</b> * Out of order for pacing	<ul style="list-style-type: none"> <li>● The relationship between two-dimensional figures based on their properties</li> <li>● Two dimensional shapes can be categorized in a hierarchy based on how they are classified according to their properties</li> <li>● The relationship between multiplication and the height of an object and its cross-sectional area to determine the volume of a rectangular prism</li> </ul>	<ul style="list-style-type: none"> <li>● Identify two dimensional figures and solid figures</li> <li>● Accurately label each shape according to the dimensions</li> <li>● Classify two dimensional figures according to their properties</li> <li>● Find correct volume using formula and dimensions</li> <li>● Presents work and accurately explains their thinking process using precise mathematical vocabulary</li> </ul>
<b>6. Add and Subtract Fractions with Unlike Denominators</b>	<ul style="list-style-type: none"> <li>● That using models will support students' thinking.</li> <li>● Students use pizzas and pies to represent</li> </ul>	<ul style="list-style-type: none"> <li>● Correctly set up and solve a fraction addition or subtraction problem given a real-life scenario</li> </ul>

	<p>circle fractions.</p> <ul style="list-style-type: none"> <li>Students use ribbons, fabric, or distances to correspond to fraction strips or number lines, which represent the linear model.</li> <li>Students use beads and other discrete objects to represent the set model.</li> <li>Students will use the context to evaluate the reasonableness of their answers.</li> </ul>	<ul style="list-style-type: none"> <li>Provide a clear explanation of the steps, operations, and numbers used to find the correct sum or difference.</li> <li>Show work in an organized manner that is easy to follow and clearly supports the answer given.</li> </ul>
<b>7. Multiply Fractions</b>	<ul style="list-style-type: none"> <li>That multiplying fractions works like multiplying whole numbers.</li> <li>That the first factor is the part of the group we want and the second factor is the size of the group (ie: <math>\frac{1}{2} \times 10</math> means half a group of ten, or <math>6 \times \frac{1}{3}</math> means 6 groups of <math>\frac{1}{3}</math> each).</li> <li><math>\frac{1}{2} \times \frac{1}{4}</math> means to take half of a group of one fourth of a whole.</li> <li>Students will use context to envision fraction multiplication.</li> </ul>	<ul style="list-style-type: none"> <li>That multiplying fractions works like multiplying whole numbers.</li> <li>That the first factor is the part of the group we want and the second factor is the size of the group (ie: <math>\frac{1}{2} \times 10</math> means half a group of ten, or <math>6 \times \frac{1}{3}</math> means 6 groups of <math>\frac{1}{3}</math> each).</li> <li><math>\frac{1}{2} \times \frac{1}{4}</math> means to take half of a group of one fourth of a whole.</li> <li>Students will use context to envision fraction multiplication.</li> </ul>
<b>8. Divide Fractions</b>	<ul style="list-style-type: none"> <li>Fractions can be connected to whole number division</li> <li>There are different ways to interpret a fraction number sentence. For example 2 divided by <math>\frac{1}{3}</math> is represented differently than <math>\frac{1}{3}</math> divided by 2</li> <li>Different diagrams can be used to represent solutions to a fraction division problem</li> </ul>	<ul style="list-style-type: none"> <li>Show how to represent division with a model</li> <li>Show a clear understanding of how to use a story problem to represent division</li> <li>Understand the relationship between division and multiplication and shows how to use multiplication to solve a division problem</li> <li>Show work and explain how answers were found</li> </ul>
<b>10. Convert Units of Measure</b>	<ul style="list-style-type: none"> <li>When converting customary and metric units it's important to focus on the meaning of the operations rather than just the procedural steps</li> <li>That they need to use what they know about the relationship between units of measure when making conversions to determine if an answer is reasonable</li> <li>When making multistep conversions, it's important to tackle the problem as two problems, focusing only on one conversion at a time.</li> <li>Place value charts can be useful tools to help us see the relationship and convert units of measure within the metric system</li> <li>When converting metric measures is to multiply or divide by a power of ten</li> </ul>	<ul style="list-style-type: none"> <li>Accurately solve multistep word problems involving converting different units of measure including elapsed time</li> <li>Explain the reasonableness of their answer</li> <li>Demonstrate the problem solving process through clear solving work and explain how answers were found</li> </ul>
<b>9. Algebra: Patterns and Graphing</b> * Out of order for pacing	<ul style="list-style-type: none"> <li>Graphing on a coordinate grid is a useful way to represent data when there are two corresponding data points for each entry, such as in a table.</li> <li>Graphs provide students with a "picture of the data" Students often "see" data differently in graphs compared to tables.</li> <li>Graphs and line plots help us analyze patterns and relationships found within the data</li> </ul>	<ul style="list-style-type: none"> <li>Set up a graph with a title, the correct labels on the axes, and an appropriate scale and interval</li> <li>Accurately graph the data from the table as a line graph</li> <li>Interpret and analyze data presented in graphs</li> </ul>