

## Math Power Standards

### 6<sup>th</sup> Grade

<b>Algebraic Relationships</b>		
2. Represent and analyze mathematical situations and structures using algebraic symbols.	A. Represent mathematical situations	<ul style="list-style-type: none"><li>• Write, read, and evaluate expressions in which letters stand for numbers.</li><li>• Write expressions that record operations with numbers and with letters standing for numbers.</li><li>• Evaluate expressions at specific values of their variables.</li><li>• Identify when two expressions are equivalent.</li><li>• Use variables to represent unknown numbers and write expressions</li></ul>
3. Use mathematical models to represent and understand quantitative relationships.	A. Use mathematical models	<ul style="list-style-type: none"><li>• Use substitution to determine whether a given number in a specified set makes an equation or inequality true</li><li>• Use variables to represent two quantities in a real-world problem that change in relationship to one another</li><li>• Understand the relationship between a dependent and independent variable</li><li>• Develop ways to model products and quotients of fractions with areas, strips, and number lines</li></ul>

<b>Data and Probability</b>		
1. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.	C. Represent and interpret data	<ul style="list-style-type: none"> <li>Understand and use the process of data investigation: posing questions, collecting and analyzing distributions, and making interpretations to answer questions.</li> </ul>
2. Select and use appropriate statistical methods to analyze data.	A. Describe and analyze data	<ul style="list-style-type: none"> <li>Represent distributions of data using line plots, bar graphs, stem-and-leaf plots, and coordinate graphs</li> <li>Compute the mean, median, mode and range of the data and use these statistics to represent data</li> <li>Distinguish between categorical data and numerical data and identify which graphs and statistics may be used to represent each kind of data</li> </ul>
<b>Geometric and Spatial Relationships</b>		
2. Specify locations and describe spatial relationships using coordinate geometry and other representational systems.	A. Use coordinate systems	<ul style="list-style-type: none"> <li>Draw polygons on the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.</li> <li>Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only</li> </ul>

		<p>by signs, the locations of the points are related by reflections across one or both axes. Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs on the coordinate plane. Use tables to compare ratios</p>
<b>Measurement</b>		
<p>2. Represent and analyze mathematical situations and structures using algebraic symbols.</p>	<p>C. Apply geometric measurements</p>	<ul style="list-style-type: none"> <li>• Develop formulas and procedures, stated in words and/or symbols, for finding areas and perimeters of rectangles, parallelograms, triangles.</li> <li>• Develop techniques for estimating the area and perimeter of an irregular figure.</li> <li>• Discover relationships between area and perimeter including that each can vary while the other stays fixed.</li> </ul>
<b>Number and Operations</b>		
<p>1. Understand numbers, ways of representing numbers, relationships among numbers and number systems.</p>	<p>A. Apply and understand whole numbers to millions, fractions and decimals to the thousandths (including location on the number line).</p>	<ul style="list-style-type: none"> <li>• Develop strategies for finding factors and multiples of whole numbers</li> <li>• Use divisibility rules to identify factors of a number</li> <li>• Decompose numbers into products of prime (Fundamental Theorem of Arithmetic)</li> <li>• Develop strategies for finding the Greatest Common Factor and Least Common Multiple of two numbers</li> </ul>

		<ul style="list-style-type: none"> <li>• Understand and use equivalent fractions to reason about situations</li> <li>• Compare and order fractions</li> </ul>
	B. Recognize and generate equivalent forms of fractions, decimals and benchmark percents.	<ul style="list-style-type: none"> <li>• Build an understanding of fractions, decimals, and percents and the relationships between and among these concepts and their representations</li> <li>• Develop ways to model situations involving fractions, decimals and percents</li> <li>• Move flexibly between fraction, decimal and percent representations</li> <li>• Develop and use benchmarks that relate different forms of representations of the numbers (for example, 50% is the same as <math>\frac{1}{2}</math>)</li> <li>• Use benchmarks and other strategies to estimate the reasonableness of results of operations with fractions</li> </ul>
3. Compute fluently and make reasonable estimates.	C. Compute problems	<ul style="list-style-type: none"> <li>• Use benchmarks such as 0, <math>\frac{1}{2}</math>, 1, and <math>1\frac{1}{2}</math> to help estimate the size of a number, sum or product of two or more numbers</li> <li>• Use knowledge of fractions and equivalence of fractions to develop algorithms for multiplying and dividing fractions</li> <li>• Solve problems using</li> </ul>

		<p>arithmetic operations on fractions</p> <ul style="list-style-type: none"><li>• Use estimates and exact solutions to make decisions</li></ul>
	<p>E. Use proportional reasoning</p>	<ul style="list-style-type: none"><li>• Solve unit rate problems including those involving unit pricing and constant speed</li><li>• Determine whether two fractions are proportional to each other</li></ul>