

Sixth Grade Math BIG IDEA Curriculum Guide

1 st quarter	2 nd quarter	3 rd quarter	4 th quarter
<p>Place Value and Expressions</p> <ul style="list-style-type: none"> Recognize equivalent representations for the same number and generate them by <u>decomposing and composing numbers</u>, including exponential notation (mental math, i.e. $27 \times 4 = (20 \times 4) + (7 \times 4)$) Add and subtract positive rational numbers Multiply and divide positive rational numbers Identify square and cubic numbers and determine whole number roots and cubes Describe the effects of addition and subtraction on fractions and decimals (+ get bigger, - get smaller) Apply <u>properties of operations</u> (including order of operations) to positive rational numbers Use <u>symbolic algebra</u> to represent unknown quantities in expressions or equations and solve one-step equations <u>Model</u> and solve problems, using multiple 	<p>Adding and Subtracting Fractions</p> <ul style="list-style-type: none"> Describe numbers according to characteristics including whole number common factors and multiples, prime or composite, and square numbers Apply and understand whole numbers to millions, fraction and decimals to the thousands (including location on the number line) Recognize and generate equivalent forms of fractions, decimals, and <u>benchmark percents</u> Describe the effects of addition and subtraction on fractions and decimals (+ get bigger, - get smaller) Describe the effects of multiplication and division on fractions and decimals <p>Multiplying and Dividing Fractions</p> <ul style="list-style-type: none"> Describe the effects of multiplication and division on fractions and decimals 	<p>Integers, 2-D, Equations, and Graphs</p> <ul style="list-style-type: none"> Use <u>coordinate systems</u> to construct geometric shapes Estimate and justify the results of multiplication and division of positive rational numbers Identify similar and congruent shapes Draw or use <u>visual models</u> to represent and solve problems Identify and justify an angle as acute, obtuse, straight, or right Describe the transformation from a given pre-image using the terms <u>reflection/flip</u>, <u>rotation/turn</u>, and <u>translation/slide</u> Create polygons and designs with <u>rotational symmetry</u> Identify <u>functions</u> as <u>linear</u> or <u>nonlinear</u> from tables or graphs Compare various forms of <u>representations</u> to identify patterns 	<p>Measurement</p> <ul style="list-style-type: none"> Convert from one unit to another within a system of measurement (mass and weight) Solve problems involving elapsed time (hours and minutes) Describe how to solve problems involving the area or perimeter of polygons Draw or use visual models to represent and solve problems Identify and justify the unit of measure for area and volume (customary and metric) Use spatial visualization to identify <u>isometric representations</u> or <u>mat plans</u> (2-dimensional drawings of 3-dimensional figures) <p>Data, Graphs, and Probability</p> <ul style="list-style-type: none"> Represent and describe patterns with tables, graphs, <u>pictures</u>, <u>symbolic rules</u> or words Compare various forms of <u>representations</u> (pictures, numbers, words) to identify

<p>representations such as graphs, tables, expressions, and equations</p> <ul style="list-style-type: none"> • Represent and describe patterns with tables, graphs, <u>pictures, symbolic rules</u> or words • Recognize equivalent forms for simple algebraic expressions (associative, distributive, and commutative property) <p>Decimals and Equations</p> <ul style="list-style-type: none"> • Describe the effects of multiplication and division on fractions and decimals • Describe the effects of addition and subtraction on fractions and decimals (+ get bigger, - get smaller) • Represent and describe patterns with tables, graphs, <u>pictures, symbolic rules</u> or words • Recognize equivalent forms for simple algebraic expressions (associative, distributive, and commutative property) • Use <u>symbolic algebra</u> to represent unknown quantities in expressions or equations and solve one-step equations • <u>Model</u> and solve problems, using multiple 		<p>Rates, Ratios, Proportions, and Percents</p> <ul style="list-style-type: none"> • Solve problems using ratios and rates • Construct and analyze representations to compare situations with constant or varying rates of change 	<p>a pattern</p> <ul style="list-style-type: none"> • Formulate questions, design studies, and collect data about a characteristic • Interpret circle graphs; create and interpret <u>stem-and-leaf plots</u> • Find the <u>range</u> and <u>measures of center</u>, including <u>median</u>, <u>mode</u>, and <u>mean</u> • Use observations about differences between 2 samples to make <u>conjectures</u> about the populations from which the samples were taken • <u>Model</u> and solve problems using multiple representations such as graphs, tables, expressions, and equations • Use a model (diagrams, list, sample space, or area model) to illustrate the possible outcomes of an event
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Ongoing objectives:

- Apply and understand whole numbers to millions, fractions, and decimals to the thousandths (including location on the number line)
- Estimate and justify the results of addition and subtraction of positive rational numbers
- Recognize and generate equivalent forms of fractions, decimals, and percents