**Overview of Year**

**7th Grade Math Curriculum**

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| **Unit 1** | **Understandings** | **Essential Questions** |
| **Comparing Bits and Pieces** | * Understanding fractions and decimals as numbers that can be located on the number line, compared, counted, partitioned and decomposed
* Understand ratios as comparisons of two numbers
* Apply a variety of strategies to solve problems involving rates and unit rates
* Understand equivalence of fractions and ratios, and use equivalence to solve problems
* Build and use rate tables of equivalent ratios to solve problems
 | * What are different ways that fractions can be interpreted and used?
* How can we compare fractions?
* What is equivalence and how can it be used to solve problems?
* What are ratios and how can they be used to solve problems?
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| **Unit 2** | **Understandings** | **Essential Questions** |
| **Stretching and Shrinking** | * Develop and understanding of similarity
* Use proportional reasoning to solve problems involving similarity
 | * What does it mean for two shapes to be similar?
* How can similarity properties be used to solve problems?
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| **Unit 3** | **Understandings** | **Essential Questions** |
| **Comparing and Scaling** | * Make intelligent comparisons of quantities – using fractions, decimals, ratios, rates, unit rates and percents
* Develop strategies to reason proportionally and use this to solve problems
* Understand ratios, rates and percents
* Understand proportionality in tables, graphs, and equations
 | * How can quantities be compared
* How can scaling be used in problem solving?
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| **Unit 4** | **Understandings** | **Essential Questions** |
| **Accentuate the Negative** | * Extend the number system to include rational numbers – positive and negative integers, fractions and decimals
* Locate on the number line and compare rational numbers
* Develop an understanding of strategies for adding, subtracting, multiplying, and dividing rational numbers
* Use rational numbers to solve problems
* Revisit and Extend order of operations and the distributive property
 | * What is the rational number system and how can we compare rational numbers?
* How can we develop strategies for computing with rational numbers?
* How can we use strategies to solve problems involving rational numbers?
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| **Unit 5** | **Understandings** | **Essential Question** |
| **Percents** | * Use proportional reasoning and other strategies to solve problems involving percent
* Apply percents to real world situations
 | * How can proportional reasoning strategies be used to solve real life problems with percent?
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| **Unit 6** | **Understandings** | **Essential Questions** |
| **Algebra Unit** | * Use the idea of pouches and coins to solve two step equations before solving these symbolically
* Express real world scenarios as equations and inequalities, and then use these to solve problems
* Extend the symbolic reasoning and graphing on the number line to include inequalities
* Understand equivalence
 | * How can symbolic reasoning and the number line be used to solve linear equation and inequalities?
* How can the solutions of equations and inequalities be interpreted in the context of the word problem?
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| **Unit 7** | **Understandings** | **Essential Questions** |
| **Data About Us** | * Calculate measures of center: mean, median, and mode
* Calculate measures of spread: range, interquartile range, mean absolute deviation
* Display data in frequency tables, histograms, line plots, and box-and-whisker plots
* Compare data distributions using the graphs, and measures of central tendency and spread
 | * How can data distributions be compared?
* What does it mean to reason statistically?
* How can statistics be used to make inferences about situations?
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| **Unit 8** | **Understandings** | **Essential Questions** |
| **Probability Mini Unit** | * Understand and reason about probability
* Understand the difference between theoretical and empirical probability
* Make connections between probability and rational numbers, geometry, statistics, science, and business
* Use probability to make decisions
 | * How can probability be used to make predictions?
* How can probability models be used to solve problems?
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| **Unit 9** | **Understandings** | **Essential Question** |
| **Circles** | * Measurement in a circle
* Area and perimeter
* Understand the area and perimeter of a circle and how they are related
 | * How can circle measurements be used to solve problems?
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| **Unit 10** | **Understandings** | **Essential Questions** |
| **Shapes and Designs**  | * Recognize, analyze, display, measure and reason about shapes and patterns
* Analyze properties that make certain shapes unique
* The relationship between form and function
* Understand the properties of polygons that determine their shape
* Understand special relationships among angles
* Understand the properties needed to construct polygons
 | * What properties are unique to a particular polygon?
* How are angles related?
* How can we use geometric relationships to solve problems?
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