**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? |