

COURSE: Math
Grade Level: Seventh Grade

| MAIN/GENERAL TOPIC | SUB-TOPIC: | ESSENTIAL QUESTIONS : | WHAT THE STUDENTS WILL KNOW: | WHAT THE STUDENT WILL BE ABLE TO DO: | ASSESSMENTS: | WHEN STUDENT DOES IT: |
|----------------------------------|--|---|---|--|--|------------------------|
| Interpreting Data and Statistics | Master Graphs Mean, Median mode Stem and Leaf Plots <i>Misleading information Interpret data and justify predictions.</i> | How are graphs used? What is the Mean? What is Mode? What is the Median? How do you construct a stem and leaf plot? | Axis, Bar graphs, Line Graphs, Circle graphs How to calculate the mean, median and mode and range. How and when to construct a stem and leaf plot | Construct and label bar graphs line graphs, and circle graphs Calculate the mean, median, and mode and range Construct and read a stem and leaf plots | Pretest .Brigance Inventory of Basic Skills, Arithmetic Unit tests M and M 's Project Journaling | Pre-march Sept. |
| MEASUREMENT NUMBER SENCE | <i>Master</i> Metric System, Order of Operations <i>Precision</i> Relative Error | How can we use decimals in the metric system? What does Please Excuse My Dear Aunt Sally really mean in Math? When do you use Order of Operations? <i>Repeating/Term. decimals</i> | How to convert values within the metric system. (kangaroos hop down my driveway Christmas morning) How the metric values compare to the English system values. Gram, Meter, Liter Kilo, Hecto, deka, UNIT, deci, centi, milli. When they need to use order of operations. | How to use the metric system to make conversions between metric and English systems. Which operation to use first, second, and so on. | Unit tests Journaling Review test given every two weeks (approx.) | Pre-march Sept. |

COURSE: MATH
Grade Level: Seventh Grade

| MAIN/GENERAL TOPIC | SUB-TOPIC: | ESSENTIAL QUESTIONS : | WHAT THE STUDENTS WILL KNOW: | WHAT THE STUDENT WILL BE ABLE TO DO: | ASSESSMENTS: | WHEN STUDENT DOES IT: |
|--------------------|------------|-----------------------|------------------------------|--------------------------------------|--------------|-----------------------|
| | | | | | | |

| | | | | | | |
|--|---|---|--|--|--|-----------|
| Algebra, Integers, and Equations | <i>Introduce</i> Variable expressions <i>Introduce</i> Integers <i>Introduce</i> Inequalities <i>Develop</i> Solving Equations <i>Develop</i> Absolute value <i>Master</i> Distributive Property | What is a variable? What does "x" stand for? What are integers? How are integers different from whole numbers? How are inequalities different from equations? | What a variable stands for. How to replace values for variables How to add, subtract, multiply, and divide integers How to compare integers. How to solve one and two step equations and inequalities. Translate 2-step verbal expressions into Algebraic expressions. Evaluate formulas for given input values. | Identify a variable in an equation. Solve an equation with one variable. Solve equations involving integers. Write equations from word problems. Solve one step and two step equations and inequalities. | Unit tests STOCK REPORT PROJECT Journaling Review tests approx. every two weeks | Pre-march |
| Algebra, Integers and Equations con't s | <i>Develop Evaluate</i> formulas for given input values | <i>What is a sequence?</i> | <i>How to find the next number in a sequence.</i> <i>How to fill out a chart in a sequence.</i> | <i>Fill out the charts of a number pattern.</i> <i>Predict the next number in a sequence.</i> | | |

COURSE: Math
Grade Level: Seventh Grade

| MAIN/GENERAL TOPIC | SUB-TOPIC: | ESSENTIAL QUESTIONS : | WHAT THE STUDENTS WILL KNOW: | WHAT THE STUDENT WILL BE ABLE TO DO: | ASSESSMENTS: | WHEN STUDENT DOES IT: |
|-----------------------------|--|---|--|--|--|-----------------------|
| Fractions and Number theory | <i>Master</i> Equivalent fractions <i>Master</i> Comparing and ordering fractions <i>Master</i> Exponents Square Roots Divisibility Prime Factors Simplifying | What is an equivalent fraction? How is comparing and ordering fractions different from decimals? What is that funny little number over another number? What are the divisibility rules? How do you use prime factors? How are prime factors different from regular factors? How are fractions simplified? | How to tell if fractions are equivalent and how to find an equivalent fraction. How to order fractions from greatest to least. How to identify an exponent and how to use exponents. Multiply and divide numbers with similar base numbers. Recognize and state values of a square root and perfect squares to 225 Determine the square roots on a non-perfect square using a calculator. Negative Exponents | To cross-multiply to see if fractions are equivalent. To make equivalent fractions. To order fractions by making common denominators. To calculate expressions with exponents in them. To use all the divisibility rules. To find prime factors using a factor tree. To put fractions in simplest terms. | Unit tests Journaling Review tests approx. every two weeks | Pre-march |

| | | | | | | |
|--|---|--|---|--|--|-----------|
| | fractions | | Whether or not a number can be divided with no remainder by 2,3,4,5,6,8,9,10. How to find factors and prime factors by using a factor tree. <i>Science Notation</i> They will be able to simplify all fractions. | | | |
| Fractions and Number Theory Applications of Fractions | Mixed numbers and Improper fractions Fractions and Decimals. Adding and Subtracting fractions and mixed numbers <i>Master</i> Solving Equations with fractions and mixed numbers. | How do mixed numbers and improper fractions differ in appearance? How can you change a fraction into a decimal and a decimal into a fraction? What do you have to do to add and subtract fractions? How is solving equations with fractions and mixed numbers similar to solving equations with whole numbers and how are they different? | How to identify a mixed number and an improper fraction. How to change a mixed number to an improper fraction and an improper fraction to a mixed number. How to convert decimals to fractions and fractions to decimals. How to find a common denominator. How to add and subtract fractions. How to subtract fractions with borrowing. How to solve equations with fractions in them. | To change mixed numbers and improper fractions back and forth. To divide fractions to create decimals and to change decimals to fraction form. To add and subtract all fractions and mixed numbers. To solve equations with fractions | Unit tests Journaling Review tests approx. every two weeks | Pre-march |

COURSE: Math
Grade Level: Seventh Grade

| MAIN/GENERAL TOPIC | SUB-TOPIC: | ESSENTIAL QUESTIONS : | WHAT THE STUDENTS WILL KNOW: | WHAT THE STUDENT WILL BE ABLE TO DO: | ASSESSMENTS: | WHEN STUDENT DOES IT: |
|--|--|---|---|---|--|-----------------------|
| Applications of Fractions Using Proportions | <i>Prime/Composite numbers</i> <i>Common Factors/Greatest Common Factors</i> <i>Prime Factorization</i> Multiplying fractions and mixed | How are multiplying and dividing fractions different from adding and subtracting fractions? What is a reciprocal? How are solving equations with fractions similar to solving | How to multiply and divide fractions. When they have to use a reciprocal. How to find common factors, the Greatest Common Factors and Least Common Multiples of 2 or more numbers. Determine Prime Factorization of given | To solve problems involving multiplying and dividing of fractions and mixed numbers. To solve equations involving multiplying and dividing of fractions. | Unit tests Bonus project; Stock report INCOME TAX PROJECT | Pre-march |

| | | | | | | |
|--------------------------------|--|---|---|---|--|-----------|
| | <p>numbers</p> <p>Dividing fractions and mixed numbers</p> <p>Solving equations with fractions and mixed numbers</p> <p><i>Exponents</i></p> <p><i>Science Notation</i></p> <p><i>Absolute Value</i></p> | <p>equations with whole numbers?</p> <p>How are they different?</p> <p>Is there a difference between ratios and rates?</p> <p>How are they different?</p> <p>How are proportions related to fractions?</p> | <p>numbers and write the answer in exponential form.</p> <p>How to solve equations using fractions with multiplying and dividing.</p> <p>Translate numbers from scientific notation to standard form</p> <p>Compare numbers written in scientific notation</p> <p>To know the difference between a rate and a ratio.</p> <p>How to use cross multiplication to find the answer in a proportion.</p> | <p>To use cross multiplication to solve problems involving proportions</p> | <p>Review tests approx. every two weeks</p> <p>Journaling</p> | |
| Using proportions and percents | <p>Using similar figures</p> <p>Modeling percents</p> <p>Percents, fractions and decimals</p> <p>Finding the percent of a number</p> <p>Finding percent of change.</p> <p><i>Measure length</i></p> | <p>What are Similar figures?</p> <p>How are Similar figures different from congruent figures?</p> <p>What is a percent based on?</p> <p>How are fractions, decimals and percents related?</p> <p>How do we figure discounts at the store?</p> <p>How do we figure out the best deal at a store?</p> | <p>How to distinguish between congruent and similar figures.</p> <p>How to use similar figures to find a missing side.</p> <p>How to change a fraction to a decimal and to a percent and back again.</p> <p>How to figure out percent of a number, discounts and how to get the best value at a store.</p> | <p>Use similar figures and congruent.</p> <p>Change fractions to decimals and percents.</p> <p>Use percents to find discounts, commission, sales tax, and mark-ups.</p> | <p>Unit tests</p> <p>Review tests approx. every two weeks.</p> | Pre-march |

COURSE: Math
Grade Level: Seventh Grade

| MAIN/GENERAL TOPIC | SUB-TOPIC: | ESSENTIAL QUESTIONS : | WHAT THE STUDENTS WILL KNOW: | WHAT THE STUDENT WILL BE ABLE TO DO: | ASSESSMENTS: | WHEN STUDENT DOES IT: |
|------------------------|---|---|---|---|---|-----------------------|
| Investigating geometry | <p>Exploring visual patterns</p> <p>Classifying and measuring Angles Triangles, Polygons and all four sided figures</p> | <p>What is a pattern?</p> <p>How are angles classified?</p> <p>What is a "Cute" angle?</p> <p>How are triangles classified?</p> | <p>How to find the next figure in a pattern and how to figure out a future item in the pattern</p> <p>How to classify angles</p> <p>How to classify triangles</p> | <p>Determine what pattern is being used or if one is being used at all.</p> <p>Figure out what a future number will be in a pattern (for example the 100th number in the pattern).</p> | <p>Unit tests</p> <p>Review tests approx. every two weeks</p> | Pre-march |

| | | | | | | |
|--|--|---|--|---|--|--|
| | <p>Circles</p> <p>Constructing bisectors</p> <p>Vertices</p> | <p>How are polygons classified?</p> <p>What makes circles different from polygons?</p> <p>What is a bisector?</p> | <p>How to use congruent triangles</p> <p>How to find the missing angle in a triangle</p> <p>How to classify polygons</p> <p>How circles are different from polygons</p> <p>Explain all the parts of a circle and identify them</p> <p>Know what a bisector is and how it is used</p> | <p>Classify all angles into acute, right, obtuse or straight.</p> <p>Classify all triangles according to the sides or angles</p> <p>Find the missing angle in a triangle.</p> <p>Classify all polygons</p> <p>Explain how circles are different from polygons</p> <p>Explain all the parts of a circle, diameter, radius, chord, central angle, semi-circle.</p> <p>Construct line and angle bisectors.</p> | | |
|--|--|---|--|---|--|--|

COURSE: Math
Grade Level: Seventh Grade

| MAIN/GENERAL TOPIC | SUB-TOPIC: | ESSENTIAL QUESTIONS : | WHAT THE STUDENTS WILL KNOW: | WHAT THE STUDENT WILL BE ABLE TO DO: | ASSESSMENTS: | WHEN STUDENT DOES IT: |
|--------------------|------------|-----------------------|------------------------------|--------------------------------------|--------------|-----------------------|
|--------------------|------------|-----------------------|------------------------------|--------------------------------------|--------------|-----------------------|

| | | | | | | |
|--------------------------|--|--|--|--|---|--------------------------------|
| Geometry and measurement | <p>Estimating length and area</p> <p>Area of Parallelogram</p> <p>Area of triangles and trapezoids</p> <p>Circumference and area of circles</p> <p>Exploring square roots</p> <p>Three dimensional figures</p> <p>Surface area of prisms and cylinders</p> <p>Volume of rectangular prisms and cylinders</p> <p><i>Precision</i></p> | <p>What is Area?</p> <p>How is area and Perimeter different?</p> <p>How do you find the area of different shapes?</p> <p>How are quadrilaterals similar and different?</p> <p>How are Circumference and perimeter similar?</p> <p>What is pie?</p> <p>What are perfect squares?</p> <p>How are squares and square roots related?</p> <p>What is a Hypotenuse?</p> <p>How are prisms different from pyramids?</p> <p>What is surface area <i>and density</i>?</p> <p>What is a net?</p> <p>How are surface areas different in prisms and in cylinders?</p> <p>What is volume and how is it different from area?</p> | <p>How to find the area of quadrilaterals, triangles and trapezoids.</p> <p>How to find the perimeters of all figures.</p> <p>The difference between the different classes of quadrilaterals.</p> <p>How circumference and perimeter are related.</p> <p>How to find the circumference and area of circles.</p> <p>What pie is and how to use it.</p> <p>What a perfect square is and to find the square root of them.</p> <p>To estimate area and square roots.</p> <p>The difference between prisms and pyramids.</p> <p>How to find surface area of prisms and cylinders</p> <p>How to find the volume of prisms and cylinders.</p> <p>The difference between perimeter, area and volume.</p> | <p>to find areas of quadrilaterals, triangles and trapezoids.</p> <p>To find perimeter.</p> <p>To classify quadrilaterals and triangles.</p> <p>To find the circumference and area of circles.</p> <p>To use pie.</p> <p>To find squares and square roots.</p> <p>To use estimation to get the approximate areas or square roots of numbers.</p> <p>To find the surface areas of prisms and cylinders.</p> <p>To find the volume of prisms and cylinders.</p> | <p>Unit tests</p> <p>Review tests approx. every 2 weeks</p> | Pre-march |
| Using probability | <p>Experimental probability</p> <p>Theoretical Probability and proportional reasoning</p> <p>Sample spaces</p> <p>Independent and dependent events</p> <p>Permutations</p> <p>Combinations</p> <p>Estimating population size</p> | <p>What is an event?</p> <p>How is experimental probability different from theoretical probability?</p> <p>What is an outcome?</p> <p>What is a sample space?</p> <p>What is the counting principle?</p> <p>How are independent and dependent outcomes different?</p> <p>What is a permutation?</p> <p>How are combinations different from permutations?</p> <p>How do we estimate population size?</p> | <p>What an event is.</p> <p>The difference between experimental probability and theoretical probability.</p> <p>The probability of an event occurring and its complement</p> <p>What a sample space is</p> <p>What the counting principle is.</p> <p>The difference between an independent and dependent outcome.</p> <p>How to figure the probability of an independent and dependent outcomes.</p> <p>How to solve simple permutations.</p> <p>The difference between a permutation and a combination.</p> <p>How to estimate population size.</p> | <p>Find the experimental and theoretical probability.</p> <p>Find the probability of an event occurring and the complement of the event.</p> <p>Write the sample space by drawing a chart or a tree diagram.</p> <p>Use the counting principle to find the number of outcomes.</p> <p>Find the probability of an independent or a dependent event.</p> <p>To solve simple permutations.</p> <p>To solve simple combinations.</p> <p>How to estimate population size based on data given.</p> | <p>Unit test</p> <p>Review tests approx. every 2 weeks</p> | Pre-march |
| MEASUREMENT | <p><i>MAP SCALES</i></p> <p><i>UNIT PRICING</i></p> <p><i>CURRENCY RATES</i></p> | <p>What scale is used on a map?</p> <p>How do you find the price of a single item?</p> <p>How much is our money worth compared to other currencies?</p> | <p>How to determine what scale is on a map</p> <p>To read a map and determine the distances between points</p> <p>Find the unit price of any items given a price for the group.</p> <p>Convert our currency to other currency and visa versa.</p> | <p>Give the scale of a map</p> <p>Determine the distance between two points</p> <p>Find unit prices</p> <p>Convert currencies to ours and our currency to others.</p> | <p>Unit test</p> <p>Review test approx. every 2 weeks</p> | <p>Post March</p> <p>April</p> |
| GEOMETRY | <p><i>PYTHAGOREAN THEOREM</i></p> | <p>What is a Right Triangle</p> <p>What is the Pythagorean</p> | <p>How to use the Pythagorean theorem?</p> <p>How to identify a right triangle.</p> | <p>Use the Pythagorean Theorem.</p> <p>Find any side of a right triangle</p> | <p>Unit test</p> | Post March |

| | | | | | | |
|---------|--|--|--|--|--|------------------------|
| | | Theorem? What is a Hypotheuse? | How to identify the legs and hypotenuse of a right triangle. | given the other two sides. | Review test approx. every 2 weeks. | May |
| ALGEBRA | <i>MONOMIALS POLYNOMIALS MULTI-STEP EQUATIONS PATTERNS FUNCTIONS</i> | What is a monomial? What is a Polynomial? How is a mult-step equation different from other equations? What is a pattern? What is a Function? | How to add and subtract monomials with exponents of one Identify a polynomial as an algebraic expression containing one or more terms. Solve multi-step equations by combining like terms- using the distributive property or moving variables to one side of the equation. Draw Graphic representation of a pattern from an equation or from a table of data. Create Algebraic patterns using charts/tables/graphs/equations and expressions. Build a pattern to develop a rule for determining the sum of the interior angles of polygons. Write an equation to represent a function from a table of values. | Add or subtract monomials Identify polynomials Solve multi-step equations by combining like terms Draw graphic representation of a pattern from an equation or from a table of data. Create Algebraic patterns Build a pattern to develop a rule for determining the sum of the interior angles of polygons Write an equation to represent a function from a table of values | Unit tests Review test approx. every 2 weeks. FINAL EXAM | Post-March June |