

*CONTENT	GRADES 6 – 8		
<p>NUMBER AND OPERATIONS <i>Understand numbers, ways of representing number, relationships Among numbers, and number systems</i></p> <p><i>Understand meanings of operations and how they relate to one another</i></p> <p><i>Compute fluently and make reasonable estimates</i></p>	<p>All students will:</p> <ul style="list-style-type: none"> - Work flexibly with fractions, decimals, and percents to solve problems - Compare and order fractions, decimals, and percents - Develop meaning for percents greater than 100 and less than 1 - Understand and use ratios and proportions to represent quantitative relationships - Recognize and appropriately use exponential and scientific notation - Use factors, multiples, prime factorization, and relatively prime numbers to solve problems - Develop meaning for integers and represent and compare quantities with them - Understand the meaning and effects of arithmetic operations with fractions, decimals, and integers - Use the associative and commutative properties of addition and multiplication and the distributive property of multiplication over addition to simplify computations with integers, fractions, and decimals - Understand and use the inverse relationships of addition and subtraction, multiplication and division, and squaring and finding square roots to simplify computations and solve problems - Develop and analyze algorithms for computing with fractions, decimals, and integers and develop fluency in their use - Use strategies to estimate the results of rational-number computations and judge the reasonableness of the results 		
BENCHMARKS	GRADE 6	Grade 7	Grade 8
<p>NUMBER AND OPERATIONS</p>	<ul style="list-style-type: none"> - give fraction, decimal and percent equivalents - read, write, compare and order decimals - add, subtract, multiply, and divide decimals - write equivalent fractions - compare and order fractions - Compare, order, add, subtract, multiply, and divide integers - round to estimate with decimals 	<ul style="list-style-type: none"> - carry out all operations involving fractions and decimals - apply prime factorization to determining the GCF or LCD - apply order of operations to integers -simplify an expression using the distributive property - solve a proportion using equivalent ratios, algebra or cross products - solve percent problems using the percent equation 	<ul style="list-style-type: none"> - carry out all operations with rational #s - apply powers w/ integer exponents to sci. notation - use LCD & GCF with algebraic fractions - calculate the percent of change to determine tax, markups and discounts - identify and use the properties of addition & multiplication in variable expressions

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	<ul style="list-style-type: none"> - use order of operations - write and evaluate exponents - write ratios and equivalent ratios - write rates, equivalent rates, and unit rates - finding the percent of a number 		
*CONTENT	GRADES 6 – 8		
<p style="text-align: center;">ALGEBRA</p> <p><i>Understand patterns, relations, and functions</i></p> <p><i>Represent and analyze mathematical situations and structures using algebraic symbols</i></p> <p><i>Use mathematical models to represent and understand quantitative relationships</i></p> <p><i>Analyze change in various contexts</i></p>	<p>All students will:</p> <ul style="list-style-type: none"> - Represent, analyze, and generalize a variety of patterns with tables, graphs & words - Identify functions as linear or nonlinear and contrast their properties from tables, graphs, or equations. - Develop an initial conceptual understanding of different uses of variables - Explore relationships between symbolic expressions and graphs of lines, paying particular attention to the meaning of intercept and slope - Use symbolic algebra to represent situations and to solve problems, especially those that involve linear relationships - Recognize and generate equivalent forms for simple algebraic expressions and solve linear equations - Model and solve problems using various representations, such as graphs, tables, and equations - Use graphs to analyze the nature of changes in quantities in linear relationships 		
BENCHMARKS	GRADE 6	Grade 7	Grade 8
<p style="text-align: center;">ALGEBRA</p>	<ul style="list-style-type: none"> -Write and evaluate variable expressions and equations -Solve variable equations with mental math -Solve one-step equations -Find expressions and equations for input-output tables -Make an input-output table from a variable equation -Use formulas with variables 	<ul style="list-style-type: none"> - identify the parts of a variable expression - solve a two-step equation or inequality involving rational #s - graph a linear function given the equation 	<ul style="list-style-type: none"> - solve multiple step equations and inequalities involving rational numbers - understand meaning of x and y intercepts of linear graphs - determine and understand the meaning of slope - write and graph an equation or inequality using slope intercept form - solve a linear system of

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			equations by graphing - write polynomials in standard form - graph a quadratic function and understand the meaning of the maximum or minimum value
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<p>GEOMETRY</p> <p><i>Analyze characteristics and properties of two- and three- dimensional geometric shapes and develop mathematical arguments about geometric relationships</i></p> <p><i>Specify locations and describe spatial relationships using coordinate geometry and other representational systems</i></p> <p><i>Apply transformations and use symmetry to analyze mathematical situations</i></p> <p><i>Use visualization, spatial reasoning and geometric modeling to solve problems</i></p>	<p>All students will:</p> <ul style="list-style-type: none"> - Precisely describe, classify, and understand relationships among types of two- and three-dimensional objects using their defining properties - Understand relationships among the angles, side lengths, perimeters, areas, and volumes of similar objects - Create and support arguments concerning geometric ideas and relationships, such as congruence, similarity, and the Pythagorean relationship - Use coordinate geometry to represent and examine the properties of geometric shapes - Describe sizes, positions, and orientations of shapes under informal transformations such as flips, turns, slides, and scaling - Examine the congruence, similarity, and line or rotational symmetry of objects using transformations - Draw geometric objects with specified properties, such as side lengths or angle measures - Use two-dimensional representations (nets) of three-dimensional objects to visualize and solve problems such as those involving surface area and volume - Use geometric models to represent and explain numerical and algebraic relationships - Recognize and apply geometric ideas and relationships in areas outside the mathematics classroom, such as art, science, and everyday life. 		
BENCHMARKS	GRADE 6	GRADE 7	GRADE 8
GEOMETRY	<ul style="list-style-type: none"> - Classify angles, triangles, quadrilaterals, polygons, and solids - Identify congruent and similar figures 	<ul style="list-style-type: none"> - identify special pairs of angles given two parallel lines cut by a transversal - determine the unknown interior or exterior angle of a 	<ul style="list-style-type: none"> - identify similar figures using proportions - apply proportions to scale drawing to find the actual size of an object

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	<ul style="list-style-type: none"> -Identify lines of symmetry -Identify parallel and perpendicular lines -Calculate area of parallelograms and circles -Graph points with negative coordinates -Recognize reflections and rotations -Translate figures in a coordinate plane 	<p>triangle</p> <ul style="list-style-type: none"> - graph a transformation on a coordinate plane and use coordinate notation - calculate the unknown side of a right triangle using the Pythagorean Theorem 	<ul style="list-style-type: none"> - apply radical expressions to represent the unknown length of a right triangle - calculate the distance and midpoint b/w 2 ordered pairs - calculate the unknown measurement given the surface area or volume
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<p style="text-align: center;">MEASUREMENT</p> <p><i>Understand measurable attributes of objects and the units, systems, and processes of measurement</i></p> <p><i>Apply appropriate techniques , tools, and formulas to determine measurements</i></p>	<p>All students will:</p> <ul style="list-style-type: none"> - Understand both metric and customary systems of measurement - Understand relationships among units and convert from one unit to another within the same system - Understand, select, and use units of appropriate size and type to measure angles, perimeter, area, surface area, and volume - Use common benchmarks to select appropriate methods for estimating measurements - Select and apply techniques and tools to accurately find length, area, volume, and angle measures to appropriate levels of precision - Develop and use formulas to determine the circumference of circles and the area of triangles, parallelograms, trapezoids, and circles and develop strategies to find the area of more-complex shapes - Develop strategies to determine the surface area and volume of selected prisms, pyramids, and cylinders - Solve problems involving scale factors, using ratio and proportion - Solve simple problems involving rates and derived measurements for such attributes as velocity and density 		
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<p>MEASUREMENT</p>	<ul style="list-style-type: none"> -Draw and measure an angle with a protractor -Calculate area and perimeter of squares, triangles, and rectangles -Calculate volume and surface area of rectangular prisms -Calculate the measure of an angle using various properties of lines and triangles - Estimate measures with customary and metric units 	<ul style="list-style-type: none"> - measure and estimate using common benchmarks for both customary and metric units - use unit analysis or the base ten system to convert between metric units - use unit analysis to convert between customary units - use a protractor to create a circle graph - find the unknown base or height given the area of a figure 	<ul style="list-style-type: none"> - find an unknown side of a similar figure using proportions - solve for the unknown distance, rate or time - calculate the surface area and volume of prisms, pyramids, cylinders and cones
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<p>DATA ANALYSIS</p> <p><i>Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them</i></p> <p><i>Select and use appropriate statistical methods to analyze data</i></p> <p><i>Develop and evaluate inferences and predictions that are based on data</i></p> <p><i>Understand and apply basic concepts of probability</i></p>	<p>All students will:</p> <ul style="list-style-type: none"> - Formulate questions, design studies, and collect data about a characteristic shared by two populations or different characteristics within one population - Select, create, and use appropriate graphical representations of data, including histograms, box plots, and scatterplots - Find, use, and interpret measures of center and spread, including mean and interquartile range - Understand the connection between data sets and their graphical representations, especially histograms, stem-and-leaf plots, box plots, and scatterplots - Use observations about differences between two or more samples to make inferences about the populations from which the samples were taken - Make predictions about possible relationships between two characteristics of a sample on the basis of scatterplots of the data and approximate lines of fit - Use proportionality and a basic understanding of probability to make and test conjectures about the results of experiments and simulations - Compute probabilities for simple compound events, using such methods as organized lists and tree diagrams

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DATA ANALYSIS	<ul style="list-style-type: none"> -Create and interpret circle graphs and make predictions -Create and interpret bar graphs, stem-and-leaf plots, frequency tables and line plots -Compute mean, median, mode, and range of a dataset -Write probabilities as fractions, percents, and decimals -Use diagrams, tables, and lists to find outcomes -Find the probability of one and two independent events 	<ul style="list-style-type: none"> - summarize data using mean, median, mode and range - organize data using box-and-whisker plots - conduct a survey, display and analyze results using a histogram - create and interpret a circle graph 	<ul style="list-style-type: none"> - apply ratios to determine the probability or odds of an event - determine the number of combinations using the counting principle - use line of best fit to make predictions of correlated data - find real world examples of applying line of best fit to make predictions with two related sets of data

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