

Math Curriculum Map for Comprehensive Middle School Math

	September	October	November	December	January	
Unit Name or Theme	Whole Numbers and Decimals	Problems Solving and Number Theory	Fractions	Mixed Numbers	Expressions and Equations	Unit Name or Theme
Enduring Understandings and Performance Indicators	<p>The decimal system represents numbers, relationships among numbers and number systems</p> <p>Estimation is based on reasonable results</p> <p>Mathematical operations relate to one another</p> <p>I can problem solve based on previous experiences, logic, estimation, perseverance and strategies</p> <p>I can communicate mathematical thinking and reasoning with precision, coherence and clarity</p>	<p>Operations can be applied to compute multi-digit numbers</p> <p>Various strategies can be utilized in solving computations</p> <p>Standard algorithms can be applied in solving division problems</p>	<p>Quotients of fractions can be interpreted through previous understandings of multiplication</p> <p>Fractions can be divided by other fractions</p>	<p>Operations can be performed on mixed numbers</p> <p>Ratio relationships exist between two quantities</p> <p>Reasoning with ratios can solve problems</p> <p>Unit rates are associated with ratios</p> <p>Percents can be derived from rates per 100</p> <p>Ratio reasoning can convert measurement units</p>	<p>Positive and negative numbers are used together to describe quantities having opposite directions or values</p> <p>Positive and negative numbers represent real world contexts</p> <p>Absolute values of rational numbers can be interpreted</p>	Enduring Understandings and Performance Indicators
Essential Questions	<p>How can I monitor and reflect upon the process of mathematical problem solving?</p> <p>What strategies can I apply to solve problems?</p> <p>How do I present a mathematical argument?</p> <p>How do I apply the proper reasoning and terminology to a mathematical situation?</p>	<p>What is the standard algorithm for each operation?</p> <p>How can I add, subtract, multiply and divide using the standard algorithm for each operation?</p> <p>How can I determine the GCF?</p> <p>How can I determine the LCM?</p>	<p>How can mathematical situations and problems be represented?</p> <p>How can operations relate to one another? What is a fraction?</p> <p>How can numbers have different numbers and the same value?</p> <p>How can I demonstrate the connection among fractions, decimals and percentages?</p> <p>Why are mixed numbers “mixed”?</p> <p>What makes a fraction “improper”?</p>	<p>How can I solve mathematical problems with mixed numbers?</p> <p>What is the relationship among ratios and quantities?</p> <p>How can reasoning with ratios solve problems?</p> <p>How can I solve unit rate problems?</p> <p>How can I solve problems finding the whole, given a part and a percent?</p>	<p>How are positive and negative numbers used in real world contexts?</p> <p>How can I explain the meaning of zero and the numbers that surround its location on a number line?</p> <p>How can I describe the absolute value of rational numbers?</p>	Essential Questions

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Assessment Strategies Formative & Summative	<p>Teacher-made tests Ongoing Wiki project Paper/pencil class work Homework</p>	<p>Teacher-made tests Ongoing Wiki project Paper/pencil class work Homework</p>	<p>Teacher-made tests Ongoing Wiki project Paper/pencil class work Homework</p>	<p>Teacher-made tests Ongoing Wiki project Paper/pencil class work Homework</p>	<p>Teacher-made tests Ongoing Wiki project Paper/pencil class work Homework</p>	Assessment Strategies Formative & Summative
Instructional Skills and Strategies	<p>Instructional Skills and Strategies: Read, write and recognize larger numbers</p> <p>Round whole numbers to decimals</p> <p>Name, compute, order and round decimals</p> <p>Relate exponential notation</p> <p>Compare place value</p> <p>Add, subtract, multiply and divide decimals</p> <p>Estimate sums and differences</p> <p>Solve problems</p>	<p>Instructional Skills and Strategies:</p> <p>Apply and extend previous understandings of numbers to the systems of rational numbers through hundred thousand</p> <p>Compute fluently with multi-digit numbers and find common factors</p> <p>Find multiples</p> <p>Divide multi-digit numbers using the standard algorithm</p> <p>Add, subtract, multiply, and divide multi-digit decimals</p> <p>Find the greatest common factor of two whole numbers less than or equal to 100</p> <p>Find the least common multiple of two whole numbers less than or equal to 12</p> <p>Fluently divide multi-digit numbers</p>	<p>Instructional Skills and Strategies: Compare decimals to fractional benchmarks</p> <p>Shade grids to represent fractions as decimals</p> <p>Name and reduce fractions to lowest terms</p> <p>Compare fractions; ordering from smallest to largest</p> <p>Use concrete objects to represent fractions and percentages</p> <p>Convert fractions to decimals and percents</p> <p>Add, subtract, multiply and divide fractions</p> <p>Create fraction strips</p> <p>Find fractional parts of whole number quantities</p> <p>Compare and order fractions</p> <p>Find fractions between two given fractions</p> <p>Change improper fractions to mixed numbers</p> <p>Add, subtract, multiply and divide mixed numbers</p>	<p>Instructional Skills and Strategies: Add, subtract, and multiply mixed numbers</p> <p>Equivalent and non-equivalent</p> <p>Solve problems with ratios and proportions</p> <p>Shade, construct, deconstruct ratios</p> <p>Identify proportions</p> <p>Solve percent problems</p> <p>Utilize “shortcut” strategies</p> <p>Describe a ratio relationship between two quantities</p> <p>Apply the concept of unit rate a/b associated with a ratio $a:b$</p> <p>Use ratio and rate reasoning to solve real world and mathematical problems</p>	<p>Instructional Skills and Strategies: Apply and extend previous understandings of mathematics to algebraic expressions</p> <p>One variable</p> <p>Negative and positive integers</p> <p>Create your own equations based on an everyday mathematical situation</p> <p>Recognize positive and negative numbers in real world contexts(e.g. temperature, credits/debits, sea levels, elevations, positive and negative electrical charges)</p> <p>Explain a rational number as a point on the number line</p> <p>Recognize the opposite signs of numbers as locations</p> <p>Write, interpret and explain statements of order for the absolute values of numbers</p>	Instructional Skills and Strategies

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Primary Resources	Textbooks Internet resources Math journals	Textbooks Internet resources Math journals	Textbooks Internet resources Math journals	Textbooks Internet resources Math journals	Textbooks Internet resources Math journals	Primary Resources
Links with CCSS/ NCTM	CCSS 6.NS.3 NCTM Number and Operations, Problem Solving, Communication, Connection, Representation	CCSS 6.NS.2, 6.NS.3, 6.NS.4 NCTM Number and Operations, Problem Solving, Communications, Connections, Representation	CCSS 6.NS.1 NCTM Numbers and Operation Standard, Algebra, Communications, Connections, Representation	CCSS 6.RP.1, 6.RP.2, 6.RP.3 NCTM Measurement, Problem Solving, Reasoning and Proof Communications, Connections, Representation,	CCSS 6.NS.5, 6.NS.6a, 6.NS.7ab NCTM Problem Solving, Communications, Connections, Representation	Links with CCSS/NCTM

Math Curriculum Map for Comprehensive Middle School Math

	February	March	April	May	June	
Unit Name or Theme	Graphs and Statistics	Probability	Geometry (2D)	Geometry (3D)	Geometry Review	Unit Name or Theme
Enduring Understandings and Performance Indicators	<p>The possible results of an experiment can be described and graphed</p> <p>A difference can be determined between predicted and actual outcomes</p> <p>Statistical questions anticipate variability in data questions and answers</p> <p>Sets of data can answer a statistical question</p> <p>Numerical data sets can relay various contexts</p>	<p>Experiments demonstrate probability</p> <p>Theoretical probability can be defined and relayed</p> <p>Probable events can be predicted</p>	<p>Real world and mathematical problems can be solved using formulas for area, surface area and volume</p> <p>Shapes can be represented and recognized by various attributes (e.g. pentagon, quadrilateral, up to 12 sided figure)</p> <p>Symmetry represents balanced and repeated patterns found in geometric shapes and in nature</p>	<p>Geometric shapes can be described, classified & compared according to their characteristics</p> <p>Geometric patterns can be recognized, described, extended & created based on attributes & numbers</p> <p>Volume, surface area</p> <p>Shapes (e.g. triangles, prisms and pyramids)</p> <p>The likelihood of an event can be described or written as a fraction</p>	<p>2 and 3 dimensional shapes can be represented by models and constructs</p>	Enduring Understandings and Performance Indicators
Essential Questions	<p>How can results of an experiment be collected, analyzed and reported?</p> <p>How can I determine a difference between predictions and outcomes?</p> <p>How can I represent data in a table or graph?</p> <p>How can I derive statistics from a research question?</p> <p>How can I display data?</p>	<p>How can I predict the likelihood of events?</p> <p>How can I record, interpret and display experiments?</p> <p>How can theory assist me in predicting results?</p>	<p>How can I find the area of triangles, quadrilaterals and polygons?</p> <p>How can I determine volume?</p> <p>How can I locate environmental symmetry?</p>	<p>How can I represent a shape as a 2 or 3 dimensional figure?</p> <p>How can I record characteristics of geometric shapes?</p> <p>What is the relationship among geometric shapes or patterns?</p> <p>How can I identify symmetry?</p> <p>How can we quantify an event or data without whole numbers?</p>	<p>How can I record or describe the conduction of an experiment?</p> <p>Why is it important to document an experiment?</p> <p>What is the purpose in developing & documenting outcomes?</p>	Essential Questions

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Instructional Skills and Strategies	<p>Instructional Skills and Strategies: Develop an understanding of statistical variability</p> <p>Summarize and describe distributions</p> <p>Develop statistical questions</p> <p>Recognize the measure of center for a numerical data set</p> <p>Display numerical data in plots on a number line, including dot plots, histograms, and box plots</p> <p>Report the number of observations from a numerical data set</p> <p>Describe measurements</p> <p>Relate choice of measures of center and variability to the shape of the data distribution</p>	<p>Instructional Skills and Strategies: Create spinners with variable sized sectors</p> <p>Flip coins and record results to see the progression of data generated and collected</p> <p>Predict coin toss results</p> <p>Develop data sets based on coin toss</p> <p>Design an experiment to answer a question, collect information and interpret the results</p> <p>Develop charts to demonstrate results</p> <p>Predict the likelihood of specific events</p> <p>Use tree diagrams to display possible outcomes</p>	<p>Instructional Skills and Strategies: Find the area of right triangles, other triangles, special quadrilaterals and polygons</p> <p>Compose shapes into rectangles</p> <p>Decompose shapes into triangles or other shapes</p>	<p>Instructional Skills and Strategies: Construct 2 and 3 dimensional shapes</p> <p>Find the volume of a right rectangular prism</p> <p>Pack unit cubes into 3 dimensional shapes to determine volume</p> <p>Locate symmetrical designs</p> <p>Create symmetrical shapes</p>	<p>Instructional Skills and Strategies: Draw polygons in coordinate planes</p> <p>Use coordinates to find the length of a side</p> <p>Represent 3 dimensional figures using nets made up of rectangles and triangles and find surface area</p>	Instructional Skills and Strategies
Primary Resources	Units of measurement Graph paper Graphic organizers Textbooks Internet resources	Graph paper Charts Coins Textbooks Internet resources	Geometric shapes Textbooks Internet resources	Units of measurement Graph paper Textbooks Internet resources	Graph paper Compasses Angles Figures Textbooks Internet resources	Primary Resources
Links with CCSS/ NCTM	CCSS 6.SP.1, 6.SP.2, 6.SP.3, 6.SP.4, 6.SP.5abcd NCTM Problem solving, Communications, Connections and Representation	NCTM Problem Solving, Communications, Connections, Representation	CCSS 6.G.1, 6.G.2 NCTM Numbers and Operation Standard, Algebra, Problem Solving, Communications, Connections, Representation	CCSS 6.G.1, 6.G.2 NCTM Algebra, Geometry, Measurement, Problem Solving, Communications, Connections, Representation	CCSS 6.G.3, 6.G.3 NCTM Data analysis and Probability, Problem Solving, Reasoning and Proof, Communications, Connections, Representation	Links with CCSS/NCTM

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