Mathematics Curriculum
Grade 7

Anchor		Number	Grade-Level Expectations	Every seventh grader should be able to:	Text pages or supplementary materials	Date Assessed
7A.Numbers and Operations						
1.	Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems	7A.1.1	Represent numbers in equivalent forms.	7A 1.1.1 Convert between fractions, decimals, and percents		
				7A 1.1.2 Express whole numbers using exponents, expanded, standard, and scientific notation.		
		7A.1.2	Compare quantities or magnitudes of numbers.	7A 1.2.1 Compare and order whole numbers, mixed numbers, fractions, decimals, integers, rationals, and real numbers.		
		7A.1.3	Apply number theory concepts.	7A 1.3.1 Find and use GCF (e.g. to simplify fractions.)		
				7A 1.3.2 Calculate and use the LCM (e.g. to find common denominators in fractions.)		
				7A 1.3.3 Find the square and square root of a number. Explain the relationship between the two using perfect squares only.		
2.	Understand meanings of operations, use operations and understand how they relate to each other.	7A 2.1	Complete calculations by applying order of operations.	7A 2.1.1 Use the order of operations to simplify numerical expressions using parentheses, brackets, square numbers.)		
		7A 2.2	Solve problems using ratios, proportions, percents and/or rates.	7A 2.2.1 Write ratios to compare quantities.		
				7A 2.2.2 Solve for a variable in a given proportion		
				7A 2.2.3 Determine the percentage and rate for a given quantity.		
				7A 2.2.4 Use proportions to determine if two quantities are equivalent.		
3.	Compute accurately and fluently and make reasonable estimates.	7A.3.1	Compute accurately with and without use of a calculator.	7A 3.1.1 Solve problems involving the four basic operations of whole numbers, decimals, fractions, mixed numbers, integers, and rationals. (straight computations and word problems.)		
		7A 3.2	Apply estimation strategies to a variety of problems.	7A 3.2.1 Estimate the answer to solve problems involving whole numbers, decimals, fractions, mixed numbers, and percents.		
				7A 3.2.2 Develop various strategies for estimating.		
				7A 3.2.3 Use estimation as a tool for problem solving and to determine if computational answers are reasonable.		

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Anchor		Number	Seventh Grade Content	Every seventh grader should be able to:	Text pages or supplementary materials	Date Assessed
7B. Measurement						
1.	Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement.	B.1.1	Add or subtract measurements.	7B1.1.1 Add and subtract measurements with and without regrouping. - in., ft., yd. - fl. oz., cup, pint, quart, gallon - oz., lb., ton - sec., min., h., day, yr. - metric units from milli- to kilo- for mass, volume and length		
				7B 1.1.2 Use proportion to determine scale and create a scale model.		
2.	Apply appropriate techniques, tools, and formulas to determine measurements.	B.2.1	Develop, use and/or describe measures of length, perimeter, circumference, area, or volume.	7B 2.1.1 Develop and use strategies to find the perimeter and area of simple and combined figures including triangles and quadrilaterals.		
				7B2.1.2 Calculate the area of triangles, all types of parallelograms, and/or trapezoids.		
				7B 2.1.3 Calculate surface area and/or volume for geometric figures including prisms, cubes, pyramids, and cylinders.		
				7B 2.1.3 Find the circumference and/or area of circles using the approximate 3.14 for pi.		
		B.2.2	Draw, label, measure and/or list properties of angles.	7B 2.1.4 Define, identify, and use the properties of complementary and supplementary angles.		
				7B 2.2.2 Measure the degree of an angle up to 180 degrees using a protractor.		

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Anchor		Number	Grade-Level Expectations	Every seventh grader should be able to:	Text pages or supplementary materials	Date Assessed
7C. Geometry						
1.	Analyze characteristics and properties of two- and three-dimensional geometric shapes and demonstrate understanding of geometric relationships.	7C 1.1	Define and/or apply basic properties of two- and three-dimensional geometric shapes.	7C 1.1.1 Identify, classify, and compare attributes of plane figures including regular and irregular polygons.		
				7C 1.1.2 Match the three-dimensional figure with its net. (cube, cylinder, cone, prism, pyramid)		
		7C 1.2	Identify congruence and/or similarity in polygons.	7C 1.2.1 Identify polygons that are similar or congruent given either tic or angle marks.		
				7C 1.2.2 Identify corresponding sides and/or angles of similar polygons.		
2.	Identify and/or apply concepts of transformation or symmetry.	7C 2.1	Identify transformations and symmetry.	7C 2.1.1 Identify the types of transformation (reflection, translation, rotation) and symmetry (rotational, bilateral, radial.)		
3.	Locate points or describe relationships using the coordinate plane.	7C 3.1	Locate and/or describe points on a coordinate plane.	7C 3.1.1 Plot and identify ordered pairs of integers on a coordinate plane.		
				7C 3.1.2 Identify the properties of the four quadrants.		

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Anchor		Number	Grade-Level Expectations	Every seventh grader should be able to:	Text pages or supplementary materials	Date Assessed
7D. Algebraic Concepts						
1.	Demonstrate an understanding of patterns, relations, and functions.	7D 1.1	Recognize, reproduce, extend, and/or describe patterns, sequences, and patterns.	7D **1.1.1** Describe, extend or find a missing element of a pattern. (Show at least three repetitions of the pattern. When using whole numbers, the pattern may involve +, -, x, ÷ or squares and up to two operations. When using fractions and decimals, the pattern should involve only one operation.)		
				7D 1.1.2 Form a rule based on a given pattern or illustrate a pattern for a given rule.		
2.	Represent and /or analyze mathematical situations using numbers, symbols, words, tables, and/or graphs.	7D 2.1	Select and/use appropriate strategies to solve or represent number sentences.	7D 2.1.1 Select and/or use appropriate strategies to solve one- or two-step equations involving integers.		
				7D 2.1.2 Graph simple inequalities on a number line (one variable only; e.g. graph x>-3.).		
		7D 2.2	Create and interpret expressions, equations, or inequalities that model problem situations.	7D 2.2.1 Identify expressions, equations, or inequalities that model mathematical situations.		
3.	Analyze change in various contexts.	7D 3.1	Interpret relationships between data tables and corresponding graphs and/or functions.	7D 3.1.1 Graph a linear equation on a coordinate graph given an x / y table (T chart).		
				7D 3.1.2 Analyze functional relationships to explain how a change in one quantity affects the other quantity.		

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Anchor		Number	Grade-Level Expectations	Every seventh grader should be able to:	Text pages or supplementary materials	Date Assessed
7E. Data Analysis and Probability						
1.	Collect, organize, display, and analyze data to answer questions.	7E 1.1	Interpret data shown in complex displays.	7E 1.1.1 Analyze data and answer questions pertaining to data represented in histograms, double bar graphs, multiple line graphs, circle graphs, and stem-and-leaf plots.		
		7E 1.2	Create data displays.	7E 1.1.2 Using given data, create an appropriate representation.		
2.	Select and/or use appropriate statistical methods to analyze data.	7E 2.1	Describe data represented in box-and-whisker plots.	7E 2.1.1 identify the median, the lower and upper quartiles, and/or the lower and upper extremes in a bow-and-whisker plot.		
				7E 2.1.2 Make comparisons between two sets of data displayed in box-and-whisker plots.		
		7E 2.2	Describe, compare, and/or contrast data using measures of central tendency.	7E 2.2.1 Identify and calculate mean, median, mode, and range for a given set of data.		
				7E 2.2.2 Decide which measure of central tendency would be most appropriate in a given situation.		
				7E 2.2.3 Make comparisons between two sets of data using measures of central tendency.		
3.	Understand and/or apply basic concepts of probability or outcomes.	7E 3.1	Determine or calculate theoretical or experimental probability.	7E 3.1.1 Find the theoretical probability of a simple and/or compound event. (Answer should be written as a fraction in lowest terms.)		
				7E 3.1.2 Determine whether the outcomes of an event are equally likely to occur or not equally likely to occur.		
				7E 3.1.3 Express the probability of an event in ratio, fraction, decimal, and percent form.		
				7E 3.1.4 Use frequency charts or graphs to determine the experimental probability for an event.		
4.	Develop and /or evaluate inferences and predictions or draw conclusions based on data or data displays.	7E 4.1	Draw conclusions; make predictions based on data displays.	7E 4.1.1 Formulate predictions and/or draw conclusions based on data displays (bar, graphs, circle graphs, and line graphs) or probability tables.		