

8th Grade Math Curriculum Focal Points	Grades 6, 7, 8 Strategies	Address these Focal Points in contexts of the Process Standards: problem solving, reasoning, communication, making connections, and designing and analyzing representations
<p>Algebra: Analyzing and representing linear functions and solving linear equations and systems of linear equations.</p> <ul style="list-style-type: none"> • proportions and constant of proportionality, understanding slope of a line • linear and quadratic equations • motion problems <p>Data Analysis and Number and Operations and Algebra: Analyzing and summarizing data sets.</p>	<p><u>Algebra</u></p> <p>8.a (6, 7) Represent, analyze, and generalize a variety of patterns with tables, graphs, words, and when possible, symbolic rules</p> <p>8. b (7) Identify functions as linear or nonlinear and contrast their properties from tables, graphs, or equations</p> <p>8.c (6, 7) Develop an initial conceptual understanding of different uses of variables.</p> <p>8.d Explore relationships between symbolic expressions and graphs of lines, paying particular attention to the meaning of the intercept and slope.</p> <p>8.e (6, 7) Use symbolic algebra to represent situations and to solve problems, especially those that involve linear relationships.</p> <p>8. f (6, 7) Recognize and generate equivalent forms for simple algebraic expressions and solve linear equations.</p> <p>8.g (6, 7) Model and solve contextualized problems using various representations, such as graphs, tables, and equations.</p> <p>8.h Use graphs to analyze the nature of changes in quantities in linear relationships.</p> <p><u>Numbers and Operations</u></p> <p>8.i (6, 7) Work flexibly with fractions, decimals, and percents to solve problems.</p>	

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	<p><u>Numbers and Operations (cont'd)</u></p> <p>8.j Develop an understanding of large numbers (identified in Grades 4 and 5 Curriculum Focal Points) and recognize and appropriately use exponential, scientific, and calculator notation.</p> <p>8.k (6, 7) Understand the meaning and effects of arithmetic operations with fractions, decimals, and integers .</p> <p>8.l (6, 7) Use the associate and commutative properties of addition and multiplication and the distributive property of multiplication over addition to simplify computations with integers, fractions, and decimals.</p> <p>8.m (6, 7) 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.</p> <p>8.n (6, 7) Select appropriate methods and tools for computing with fractions and decimals from among mental computation, estimation, calculators or computers, and paper and pencil, depending on the situation, and apply the selected methods.</p> <p>8.o (6, 7) Develop and analyze algorithms for computing with fractions, decimals, and integers and develop fluency in their use.</p> <p>8.p (6) Develop, analyze, and explain methods for solving problems involving proportions, such as scaling and finding equivalent ratios.</p> <p><u>Data Analysis and Probability</u></p> <p>8.q Select, create, and use appropriate graphical representation of data, including histograms, box plots, and scatter plots.</p>	

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<p>Geometry and Measurement: Analyzing two- and three-dimensional space and figures by using distance and angle.</p> <ul style="list-style-type: none"> • Use of facts about distance and angles to describe and analyze figures in two- and three-dimensional space • Pythagorean Theorem • Parallel lines <p>Cartesian coordinate system</p>	<p><u>Data Analysis and Probability (cont'd)</u></p> <p>8.r Find, use, and interpret measures of center and spread, including mean and interquartile range.</p> <p>8.s Discuss and understand the correspondence between data sets and their graphical representations, especially histograms, stem-and-leaf plots, box plots, and scatter plots.</p> <p>8.t Use observations about differences between two or more samples to make conjectures about the population from which the samples were taken.</p> <p>8.u Make conjectures about possible relationships between two characteristics of a sample on the basis of scatter plots of the data and appropriate lines of fit.</p> <p>8.v Use conjectures to formulate new questions and plan new studies to answer them.</p> <p>8.w Use proportionality and a basic understanding of probability to make and test conjectures about the results of experiments and simulation.</p> <p><u>Geometry</u></p> <p>8.x (6) Precisely describe, classify, and understand relationships among types of two- and three-dimensional objects using their defining properties.</p> <p>8.y (7) Understand relationships among the angles, side lengths, perimeters, areas, and volumes of similar objects.</p>	

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<p><u>Geometry Continued</u></p> <p>8.z Create and critique inductive and deductive arguments concerning geometric ideas and relationships, such as congruence, similarity, and the Pythagorean relationship.</p> <p>8.aa Use coordinate geometry to represent and examine the properties of geometric shapes (also in Grade 5 Curriculum Focal Points).</p> <p>8.bb Use coordinate geometry to examine special geometric shapes, such as regular polygons or those with pairs of parallel or perpendicular sides.</p> <p>8.cc Draw geometric objects with specified properties, such as side lengths or angle measures.</p> <p>8.dd Use geometric models to represent and explain numerical and algebraic relationships.</p> <p>8.ee (6) Recognize and apply geometric ideas and relationships in areas outside the mathematics classroom, such as art, science, and everyday life.</p> <p><u>Measurement</u></p> <p>8.ff (6, 7) Understand, select, and use units of appropriate size and type to measure angles, perimeter, area, surface area, and volume.</p> <p>8.gg (7) Select and apply techniques and tools to accurately find length, area, volume, and angle measures to appropriate levels of precision.</p> <p>8.hh (6, 7) Solve simple problems involving rates and derived measurements for such attributes as velocity and density</p>		