5th Grade Math **Curriculum Focal Points**	**Grades 3, 4, 5** **Strategies**	Address these Focal Points in contexts of the Process Standards: problem solving, reasoning, communication, making connections, and designing and analyzing representations
Numbers and Operations and Algebra: Developing an understanding of and fluency with division of whole numbers. Develop fluency with efficient procedures, including the standard algorithm, for dividing whole numbers, understand why the procedures work (on the basis of place value and properties and operations), and use them to solve problems	**<u>Number and Operations</u>** 5.a (3, 4) Recognize equivalent representation for the same number and generate them by decomposing and composing numbers(e.g. fact family ([8, 4, 2]). 5.b (4) Recognize and generate equivalent forms of commonly used fractions and decimals. 5.c Describe classes of numbers according to characteristics such as the nature of their factors. 5.d (3, 4) Understand effects of multiplying and dividing whole numbers. 5.e (3, 4) Identify and use relationships between operations, such as division as the inverse of multiplication, to solve problems. 5.f (3, 4) Understand and use properties of operations, such as the distributive property of multiplication over addition. 5.g (3, 4) Develop fluency with basic number combinations for multiplication and division and use these combinations to mentally compute related problems, such as 30 x 50. 5.h (3, 4) Develop fluency in adding, subtracting, multiplying, and dividing whole numbers. 5. i (3, 4) Develop and use strategies to estimate the results of whole number computations and to judge the reasonableness of such results	

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Numbers and Operations: Develop an understanding of and fluency with addition and subtraction of fractions and decimals. • Apply their understanding of decimal models, place value, and properties to add and subtract • Develop fluency with standard procedures for adding and subtracting fractions and decimals • Make reasonable estimates of fraction and decimal sums and differences	**Numbers and Operations (continued)** 5.j Develop and use strategies to estimate computations involving fractions and decimals in situations relevant to students' experience. 5.k Use visual models, benchmarks, and equivalent forms to add and subtract commonly used fractions and decimals. 5.l (3, 4) Select appropriate methods and tools for computing with whole numbers from among mental computation, estimation, calculators, and paper and pencil according to the context and nature of the computation and use the selected method or tool. **Algebra** 5.m (3, 4) Describe, extend and make generalizations about geometric and numeric patterns. 5.n (3, 4) Represent and analyze patterns and functions, using words, tables, and graphs. 5.o (3, 4) Identify such properties as commutative, associative, and distributive and use them to compute whole numbers. 5.p (3, 4) Express mathematical relationships using equations. 5.q (3, 4) Model problem situations with objects and use representations such as graphs, tables, and equations to draw conclusions.	

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Geometry and Measurement and Algebra: Describing three-dimensional shapes and analyzing their properties, including volume and surface area. • Decompose three-dimensional shapes and find surface areas and volume of prisms Measure necessary attributes of shapes to use area formulas to solve problems	**<u>Geometry</u>** 5.r (3, 4) Identify, compare, and analyze attributes of two-dimensional and three dimensional shapes and develop vocabulary to describe the attributes. 5.s (3) Classify two and three –dimensional shapes according to their properties and develop definitions of classes of shapes such as triangles and pyramids. 5.t (3, 4) Investigate, describe, and reason about the results of subdividing, combining, and transforming shapes. 5.u (3) Make and test conjectures about geometric properties and relationships and develop logical arguments to justify conclusions. 5.v Find the distance between points along horizontal and vertical lines of a coordinate system. 5.w (4) Identify and describe line and rotational symmetry in two and three dimensional shapes and designs. 5.x (3) Build and draw geometric objects. 5.y (3) Create and describe mental images of objects, patterns, and paths. 5.z Identify and draw a two-dimensional representation of a three dimensional object. 5.aa (3, 4) Use geometric models to solve problems in other areas of mathematics, such as number and measurement.	

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	<u>Measurement</u> 5.bb (3, 4) Understand such attributes as length, area, weight, volume, and size of angle and select the appropriate type of unit for measuring each attribute. 5.cc (4) Understand the need for measuring with standard units and become familiar with standard units in the customary and metric systems. 5.dd (3, 4) Carry out simple unit conversions, such as from cm to m, within a system of measurement. 5.ee Understand that measurements are approximations and understand how differences in units affect precision. 5.ff (3, 4) Develop strategies for estimating the perimeters, areas, and volumes of irregular shapes. 5.gg (3, 4) Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and size of angles. 5.hh (3, 4) Select and use benchmarks to estimate measurements. 5.ii Develop strategies to determine the surface areas and volumes of rectangular solids.	

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	Data Analysis and Probability 5.jj (3, 4) Design investigations to address a question and consider how data collection methods affect the nature of the data set. 5.kk (3, 4) Collect data using observations, surveys, and experiments. 5.ll (3, 4) Represent data using tables and graphs such as line plots, bar graphs, and line graphs. 5.mm Recognize the different kinds of data can be represented in different ways, e.g., choosing to use a pie or bar graph, etc. 5.nn (3, 4) Describe the shape and important features of a set of data and compare related data sets, with an emphasis on how the data are distributed – mean, median, mode, and range. 5.oo (3, 4) Compare different representations of the same data and evaluate how well each representation shows important aspects of the data. 5.pp (3, 4) Propose and justify conclusions and predictions that are based on data and design studies to further investigate the conclusions or predictions. 5.qq Recognize the differences in representing categorical and numerical data.	