

Sixth Grade

Standard	Everyday Math Goal	Ohio Benchmark
<p>Number, Number Sense, and Operations</p>	<p>Goal 1. Read and write whole numbers and decimals; identify places in such numbers and the values of the digits in those places; use expanded notation, number-and-word notation, exponential notation, and scientific notation to represent whole numbers and decimals.</p>	<p>Grades 3-4 and 8-10</p>
<p>Number, Number Sense, and Operations</p>	<p>Goal 2. Solve problems involving percents and discounts; explain strategies used; identify the unit whole in situations involving fractions, decimals, and percents.</p>	<p>C. Develop meaning for percents, including percents greater than 100 and less than 1.</p> <p>D. Use models and pictures to relate concepts of ratio, proportion and percent.</p>
<p>Number, Number Sense, and Operations</p>	<p>Goal 3. Use GCFs, LCMs, and divisibility rules to manipulate fractions.</p>	<p>G. Apply and explain the use of prime factorizations, common factors, and common multiples in problem situations</p>
<p>Number, Number Sense, and Operations</p>	<p>Goal 4. Apply the order of operations to numerical expressions to give equivalent names for rational numbers.</p>	<p>E. Use order of operations, including use of parenthesis and exponents to solve multi-step problems, and verify and interpret the results.</p>
<p>Number, Number Sense, and Operations</p>	<p>Goal 5. Find equivalent fractions and fractions in simplest form by applying multiplication and division rules and concepts from number theory; convert between fractions, mixed numbers, decimals, and percents.</p>	<p>B. Compare, order and convert among fractions, decimals and percents.</p> <p>C. Develop meaning for percents, including percents greater than 100 and less than 1.</p> <p>F. Apply number system properties when performing computations.</p>

<p>Number, Number Sense, and Operations</p>	<p>Goal 6. Choose and apply strategies for comparing and ordering rational numbers; explain those choices and strategies.</p>	<p>B. Compare, order and convert among fractions, decimals and percents.</p> <p>C. Develop meaning for percents, including percents greater than 100 and less than 1.</p>
<p>Number, Number Sense, and Operations</p>	<p>Goal 1. Use mental arithmetic, paper-and-pencil algorithms, and calculators to solve problems involving the addition and subtraction of whole numbers, decimals, and signed numbers; describe the strategies used and explain how they work.</p>	<p>H. Use and analyze the steps in standard and non-standard algorithms for computing with fractions, decimals and integers.</p> <p>I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.</p>
<p>Number, Number Sense, and Operations</p>	<p>Goal 2. Use mental arithmetic, paperand-pencil algorithms, and calculators to solve problems involving the multiplication and division of whole numbers, decimals, and signed numbers; describe the strategies used and explain how they work.</p>	<p>H. Use and analyze the steps in standard and non-standard algorithms for computing with fractions, decimals and integers.</p> <p>I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.</p>
<p>Number, Number Sense, and Operations</p>	<p>Goal 3. Use mental arithmetic, paperand-pencil algorithms, and calculators to solve problems involving the addition and subtraction of fractions and mixed numbers; describe the strategies used and explain how they work.</p>	<p>H. Use and analyze the steps in standard and non-standard algorithms for computing with fractions, decimals and integers.</p> <p>I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems</p>

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		involving integers, fractions, decimals and percents.
Number, Number Sense, and Operations	Goal 4. Use mental arithmetic, paper and pencil algorithms, and calculators to solve problems involving the multiplication and division of fractions and mixed numbers; describe the strategies used and explain how they work.	H. Use and analyze the steps in standard and non-standard algorithms for computing with fractions, decimals and integers. I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.
Number, Number Sense, and Operations	Goal 5. Make reasonable estimates for whole number, decimal, fraction, and mixed number addition, subtraction, multiplication, and division problems; explain how the estimates were obtained.	I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.
Number, Number Sense, and Operations	Goal 6. Use ratios and scaling to model size changes and to solve size-change problems; represent ratios as fractions, percents, and decimals, and using a colon; model and solve problems involving part-to-whole and part-to-part ratios; model rate and ratio number stories with proportions; use and explain cross multiplication and other strategies to solve proportions.	D. Use models and pictures to relate concepts of ratio, proportion and percent. H. Use and analyze the steps in standard and non-standard algorithms for computing with fractions, decimals and integers. I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.
Measurement	Goal 1. Estimate length with and without tools;	A. Select appropriate units to measure angles,

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<p><i>(Benchmarks F and G are not EM goals)</i></p>	<p>measure length with tools to the nearest $\frac{1}{16}$ inch and millimeter; estimate the measure of angles with and without tools; use tools to draw angles with given measures.</p>	<p>circumference, surface area, mass and volume, using:</p> <ul style="list-style-type: none"> • U.S. customary units; e.g., degrees, square feet, pounds, and other units as appropriate; • metric units; e.g., square meters, kilograms and other units as appropriate. <p>C. Identify appropriate tools and apply appropriate techniques for measuring angles, perimeter or circumference and area of triangles, quadrilaterals, circles and composite shapes, and surface area and volume of prisms and cylinders.</p> <p>D. Select a tool and measure accurately to a specified level of precision.</p>
<p>Measurement</p>	<p>Goal 2. Choose and use appropriate formulas to calculate the circumference of circles and to solve area, perimeter, and volume problems.</p>	<p>C. Identify appropriate tools and apply appropriate techniques for measuring angles, perimeter or circumference and area of triangles, quadrilaterals, circles and composite shapes, and surface area and volume of prisms and cylinders.</p> <p>D. Select a tool and measure accurately to a specified level of precision.</p> <p>E. Use problem solving techniques and technology as needed to solve problems involving length, weight, perimeter, area, volume, time and temperature.</p>
<p>Geometry and</p>	<p>Goal 3. Use ordered pairs of numbers to name,</p>	<p>C. Specify locations and plot ordered pairs on a</p>

<p>Spatial Sense</p> <p><i>(Benchmarks B, G, and I are not EM goals)</i></p>	<p>locate, and plot points in all four quadrants of a coordinate grid.</p>	<p>coordinate plane</p>
<p>Geometry and Spatial Sense</p>	<p>Goal 1. Identify, describe, classify, name, and draw angles; determine angle measures by applying properties of orientations of angles and of sums of angle measures in triangles and quadrangles.</p>	<p>A. Identify and label angle parts and the regions defined within the plane where the angle resides.</p> <p>D. Identify, describe and classify types of line pairs, angles, two-dimensional figures and three-dimensional objects using their properties.</p>
<p>Geometry and Spatial Sense</p>	<p>Goal 2. Identify and describe similar and congruent figures and describe their properties; construct a figure that is congruent to another figure using a compass and straightedge.</p>	<p>E. Use proportions to express relationships among corresponding parts of similar figures.</p> <p>F. Describe and use the concepts of congruence, similarity and symmetry to solve problems.</p> <p>J. Apply properties of equality and proportionality to solve problems involving congruent or similar figures; e.g., create a scale drawing.</p>
<p>Geometry and Spatial Sense</p>	<p>Goal 3. Identify, describe, and sketch (including plotting on the coordinate plane) instances of reflections, translations, and rotations.</p>	<p>H. Predict and describe results (size, position, orientation) of transformations of two-dimensional figures.</p>
<p>Patterns, Functions, and Algebra</p> <p><i>(Benchmarks J, L, and M are not EM goals)</i></p>	<p>Goal 1. Extend, describe, and create numeric patterns; describe rules for patterns and use them to solve problems; represent patterns and rules using algebraic notation; represent functions using words,</p>	<p>A. Describe, extend and determine the rule for patterns and relationships occurring in numeric patterns, computation, geometry, graphs and other applications.</p>

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	<p>algebraic notation, tables, and graphs; translate from one representation to another and use representations to solve problems involving functions.</p>	<p>B. Represent, analyze and generalize a variety of patterns and functions with tables, graphs, words and symbolic rules.</p> <p>C. Use variables to create and solve equations and inequalities representing problem situations.</p> <p>D. Use symbolic algebra to represent and explain mathematical relationships.</p> <p>E. Use rules and variables to describe patterns, functions and other relationships.</p> <p>F. Use representations, such as tables, graphs and equations, to model situations and to solve problems, especially those that involve linear relationships.</p> <p>G. Write, simplify and evaluate algebraic expressions.</p> <p>K. Graph linear equations and inequalities.</p>
<p>Patterns, Functions, and Algebra</p>	<p>Goal 2. Determine whether equalities and inequalities are true or false; solve open number sentences and explain the solutions; use a pan-balance model to solve linear equations in one or two unknowns; use trial-and-error and equivalent equations strategies to solve linear equations in one unknown.</p>	<p>H. Solve linear equations and inequalities symbolically, graphically and numerically.</p> <p>I. Explain how inverse operations are used to solve linear equations.</p>
<p>Patterns, Functions, and</p>	<p>Goal 3. Describe and apply the conventional order of operations.</p>	<p>none</p>

Algebra		
Patterns, Functions, and Algebra	Goal 4. Describe and apply properties of arithmetic and multiplicative and additive inverses.	none
Data Analysis and Probability <i>(Benchmark D is not an EM goal)</i>	Goal 1. Collect and organize data or use given data to create bar, line, circle, and stem-and-leaf graphs with reasonable titles, labels, keys, and intervals.	<p>A. Read, create and use line graphs, histograms, circle graphs, box-and-whisker plots, stem-and-leaf plots, and other representations when appropriate.</p> <p>B. Interpret data by looking for patterns and relationships, draw and justify conclusions, and answer related questions</p> <p>E. Collect, organize, display and interpret data for a specific purpose or need</p>
Data Analysis and Probability	Goal 2. Use the minimum, range, median, mode, and mean and graphs to ask and answer questions, draw conclusions, and make predictions; compare and contrast the median and mean of a data set.	<p>B. Interpret data by looking for patterns and relationships, draw and justify conclusions, and answer related questions.</p> <p>C. Evaluate interpretations and conclusions as additional data are collected, modify conclusions and predictions, and justify new findings.</p> <p>F. Determine and use the range, mean, median and mode to analyze and compare data, and explain what each indicates about the data.</p> <p>G. Evaluate conjectures and predictions based upon data presented in tables and graphs, and identify misuses of statistical data and displays.</p>

<p>Data Analysis and Probability</p>	<p>Goal 3. Use the Multiplication Counting Principle, tree diagrams, and other counting strategies to identify all possible outcomes for a situation; predict results of experiments, test the predictions using manipulatives, and summarize the findings; compare predictions based on theoretical probability with experimental results; calculate probabilities and express them as fractions, decimals, and percents; explain how sample size affects results; use the results to predict future events.</p>	<p>H. Find all possible outcomes of simple experiments or problem situations, using methods such as lists, arrays and tree diagrams.</p> <p>I. Describe the probability of an event using ratios, including fractional notation.</p> <p>J. Compare experimental and theoretical results for a variety of simple experiments.</p> <p>K. Make and justify predictions based on experimental and theoretical probabilities.</p>
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