

Hands-On Standards Deluxe

Grades: 3, 4, 5, 6

States: California Content Standards

Hands-On Standards Deluxe Edition Kit, Grades 5-6: Algebra

Summary: This resource guide meets 5 and 6 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand.

Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Algebra section of Hands-On Standards Deluxe Edition covers the following skills and concepts: properties of addition and multiplication; distributive property; order of operations; expressions and equations with a variable; addition, subtraction, multiplication, and division equations; patterns and function tables; adding, subtracting, multiplying, and dividing integers; 4-quadrant graphing; and graphing linear equations. Click on the blue link above to view and read about the program components and manipulatives. (43045-3)

California Content Standards

Mathematics

Grade: 4

CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	1.0.	Students understand the place value of whole numbers and decimals to two decimal places and how whole numbers and decimals relate to simple fractions. Students use the concepts of negative numbers.
GRADE LEVEL EXPECTATION	1.8.	Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in "owing").
CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	1.0.	Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences.
GRADE LEVEL EXPECTATION	1.1.	Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable).
GRADE LEVEL EXPECTATION	1.2.	Interpret and evaluate mathematical expressions that now use parentheses.
GRADE LEVEL EXPECTATION	1.3.	Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations.
GRADE LEVEL EXPECTATION	1.5.	Understand that an equation such as $y = 3x + 5$ is a prescription for determining a second number when a first number is given.
CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	2.0.	Students use two-dimensional coordinate grids to represent points and graph lines and simple figures.
GRADE LEVEL EXPECTATION	2.1.	Draw the points corresponding to linear relationships on graph paper (e.g., draw 10 points on the graph of the equation $y = 3x$ and connect them by using a straight line).
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.

CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 5

CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	1.0.	Students compute with very large and very small numbers, positive integers, decimals, and fractions and understand the relationship between decimals, fractions, and percents. They understand the relative magnitudes of numbers.
GRADE LEVEL EXPECTATION	1.5.	Identify and represent on a number line decimals, fractions, mixed numbers, and positive and negative integers.

CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	2.0.	Students perform calculations and solve problems involving addition, subtraction, and simple multiplication and division of fractions and decimals.
GRADE LEVEL EXPECTATION	2.1.	Add, subtract, multiply, and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.

CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	1.0.	Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results.
GRADE LEVEL EXPECTATION	1.2.	Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution.
GRADE LEVEL EXPECTATION	1.4.	Identify and graph ordered pairs in the four quadrants of the coordinate plane.

CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	1.0.	Students display, analyze, compare, and interpret different data sets, including data sets of different sizes.
GRADE LEVEL EXPECTATION	1.5.	Know how to write ordered pairs correctly; for example, (x, y).

CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.

CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 6

CONTENT STANDARD	CA.NS.	Number Sense
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PERFORMANCE STANDARD	2.0.	Students calculate and solve problems involving addition, subtraction, multiplication, and division.
GRADE LEVEL EXPECTATION	2.3.	Solve addition, subtraction, multiplication, and division problems, including those arising in concrete situations, that use positive and negative integers and combinations of these operations.
CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	1.0.	Students write verbal expressions and sentences as algebraic expressions and equations; they evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results.
GRADE LEVEL EXPECTATION	1.1.	Write and solve one-step linear equations in one variable.
GRADE LEVEL EXPECTATION	1.4.	Solve problems manually by using the correct order of operations or by using a scientific calculator.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.
GRADE LEVEL EXPECTATION	2.4.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.5.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.7.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Hands-On Standards Deluxe Edition Kit, Grades 5-6: Data Analysis and Probability
 Summary: This resource guide meets 5 and 6 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Data Analysis and Probability section of Hands-On Standards Deluxe Edition covers the following skills and concepts: mean, median, mode, and range; make conjecture using a scatter plot; line graphs; circle graphs; counting principle; probability of an event; complementary and mutually exclusive events; probability of a compound event. Click on the blue link above to view and read about the program components and manipulatives. (43045-5)

**California Content Standards
 Mathematics
 Grade: 4**

CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	1.0.	Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings.
GRADE LEVEL	1.2.	Identify the mode(s) for sets of categorical data and the mode(s), median, and any apparent outliers for numerical data sets.

EXPECTATION		
GRADE LEVEL EXPECTATION	1.3.	Interpret one- and two-variable data graphs to answer questions about a situation.
CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	2.0.	Students make predictions for simple probability situations.
GRADE LEVEL EXPECTATION	2.1.	Represent all possible outcomes for a simple probability situation in an organized way (e.g., tables, grids, tree diagrams).
GRADE LEVEL EXPECTATION	2.2.	Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; 3/4).
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 5

CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	1.0.	Students display, analyze, compare, and interpret different data sets, including data sets of different sizes.
GRADE LEVEL EXPECTATION	1.1.	Know the concepts of mean, median, and mode; compute and compare simple examples to show that they may differ.
GRADE LEVEL EXPECTATION	1.2.	Organize and display single-variable data in appropriate graphs and representations (e.g., histogram, circle graphs) and explain which types of graphs are appropriate for various data sets.
GRADE LEVEL EXPECTATION	1.4.	Identify ordered pairs of data from a graph and interpret the meaning of the data in terms of the situation depicted by the graph.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.

EXPECTATION		
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.
Grade: 6		
CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	1.0.	Students compute and analyze statistical measurements for data sets.
GRADE LEVEL EXPECTATION	1.1.	Compute the range, mean, median, and mode of data sets.
CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	3.0.	Students determine theoretical and experimental probabilities and use these to make predictions about events.
GRADE LEVEL EXPECTATION	3.1.	Represent all possible outcomes for compound events in an organized way (e.g., tables, grids, tree diagrams) and express the theoretical probability of each outcome.
GRADE LEVEL EXPECTATION	3.3.	Represent probabilities as ratios, proportions, decimals between 0 and 1, and percentages between 0 and 100 and verify that the probabilities computed are reasonable; know that if P is the probability of an event, 1-P is the probability of an event not occurring.
GRADE LEVEL EXPECTATION	3.4.	Understand that the probability of either of two disjoint events occurring is the sum of the two individual probabilities and that the probability of one event following another, in independent trials, is the product of the two probabilities.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.
GRADE LEVEL EXPECTATION	2.4.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.5.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.7.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Hands-On Standards Deluxe Edition Kit, Grades 5-6: Geometry

Summary: This resource guide meets 5 and 6 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Geometry section of Hands-On Standards Deluxe Edition covers the following skills and concepts: identifying, measuring, and classifying angles; angle sum for triangles; Triangle Inequality Theorem; identifying and classifying quadrilaterals; regular polygons; line symmetry; parallel and perpendicular lines; shapes in the coordinate plane; slides and flips; rotational symmetry; multiple transformations; tessellations; corresponding parts and congruent figures; similar triangles; nets; and three-dimensional figures. Click on the blue link above to view and read about the program components and manipulatives. (43045-2)

**California Content Standards
Mathematics
Grade: 4**

CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	3.0.	Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems.
GRADE LEVEL EXPECTATION	3.1.	Identify lines that are parallel and perpendicular.
GRADE LEVEL EXPECTATION	3.3.	Identify congruent figures.
GRADE LEVEL EXPECTATION	3.4.	Identify figures that have bilateral and rotational symmetry.
GRADE LEVEL EXPECTATION	3.5.	Know the definitions of a right angle, an acute angle, and an obtuse angle. Understand that 90 degrees, 180 degrees, 270 degrees, and 360 degrees are associated, respectively, with $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, and full turns.
GRADE LEVEL EXPECTATION	3.6.	Visualize, describe, and make models of geometric solids (e.g., prisms, pyramids) in terms of the number and shape of faces, edges, and vertices; interpret two-dimensional representations of three-dimensional objects; and draw patterns (of faces) for a solid that, when cut and folded, will make a model of the solid.
GRADE LEVEL EXPECTATION	3.7.	Know the definitions of different triangles (e.g., equilateral, isosceles, scalene) and identify their attributes.
GRADE LEVEL EXPECTATION	3.8.	Know the definition of different quadrilaterals (e.g., rhombus, square, rectangle, parallelogram, trapezoid).
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 5

CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	1.0.	Students understand and compute the volumes and areas of simple objects.
GRADE LEVEL EXPECTATION	1.2.	Construct a cube and rectangular box from two-dimensional patterns and use these patterns to compute the surface area for these objects.
CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	2.0.	Students identify, describe, and classify the properties of, and the relationships between, plane and solid geometric figures.
GRADE LEVEL EXPECTATION	2.1.	Measure, identify, and draw angles, perpendicular and parallel lines, rectangles, and triangles by using appropriate tools (e.g., straightedge, ruler, compass, protractor, drawing software).
GRADE LEVEL	2.2.	Know that the sum of the angles of any triangle is 180 degrees and the sum of the angles of

EXPECTATION		any quadrilateral is 360 degrees and use this information to solve problems.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 6

CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	2.0.	Students identify and describe the properties of two-dimensional figures.
GRADE LEVEL EXPECTATION	2.2.	Use the properties of complementary and supplementary angles and the sum of the angles of a triangle to solve problems involving an unknown angle.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.
GRADE LEVEL EXPECTATION	2.4.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.5.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.7.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Hands-On Standards Deluxe Edition Kit, Grades 5-6: Measurement

Summary: This resource guide meets 5 and 6 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Measurement section of Hands-On Standards Deluxe Edition covers the following skills and concepts: standard units and precision; perimeter and area; surface area;

volume; and circumference. Click on the blue link above to view and read about the program components and manipulatives. (43045-4)

**California Content Standards
Mathematics
Grade: 4**

CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	1.0.	Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences.
GRADE LEVEL EXPECTATION	1.4.	Use and interpret formulas (e.g., area = length x width or $A = lw$) to answer questions about quantities and their relationships.
CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	1.0.	Students understand perimeter and area.
GRADE LEVEL EXPECTATION	1.2.	Recognize that rectangles that have the same area can have different perimeters.
GRADE LEVEL EXPECTATION	1.3.	Understand that rectangles that have the same perimeter can have different areas.
GRADE LEVEL EXPECTATION	1.4.	Understand and use formulas to solve problems involving perimeters and areas of rectangles and squares. Use those formulas to find the areas of more complex figures by dividing the figures into basic shapes.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 5

CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	1.0.	Students understand and compute the volumes and areas of simple objects.
GRADE LEVEL EXPECTATION	1.1.	Derive and use the formula for the area of a triangle and of a parallelogram by comparing it with the formula for the area of a rectangle (i.e., two of the same triangles make a parallelogram with twice the area; a parallelogram is compared with a rectangle of the same area by pasting and cutting a right triangle on the parallelogram).
GRADE LEVEL EXPECTATION	1.3.	Understand the concept of volume and use the appropriate units in common measuring systems (i.e., cubic centimeter [cm ³], cubic meter [m ³], cubic inch [in. ³], cubic yard [yd. ³]) to compute the volume of rectangular solids.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables,

EXPECTATION		diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 6

CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	3.0.	Students investigate geometric patterns and describe them algebraically.
GRADE LEVEL EXPECTATION	3.1.	Use variables in expressions describing geometric quantities (e.g., $P = 2w + 2l$, $A = \frac{1}{2}bh$, $C = \pi d$ - the formulas for the perimeter of a rectangle, the area of a triangle, and the circumference of a circle, respectively).
GRADE LEVEL EXPECTATION	3.2.	Express in symbolic form simple relationships arising from geometry.
CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	1.0.	Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems.
GRADE LEVEL EXPECTATION	1.1.	Understand the concept of a constant such as pi; know the formulas for the circumference and area of a circle.
GRADE LEVEL EXPECTATION	1.2.	Know common estimates of pi (3.14; $22/7$) and use these values to estimate and calculate the circumference and the area of circles; compare with actual measurements.
GRADE LEVEL EXPECTATION	1.3.	Know and use the formulas for the volume of triangular prisms and cylinders (area of base x height); compare these formulas and explain the similarity between them and the formula for the volume of a rectangular solid.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.
GRADE LEVEL EXPECTATION	2.4.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.5.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.7.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Hands-On Standards Deluxe Edition Kit, Grades 5-6: Number and Operations

Summary: This resource guide meets math curriculum standards for grades 5 and 6 by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Number and Operations section of Hands-On Standards Deluxe Edition covers the following skills and concepts: fractions; fractional parts of a fraction; equivalent fractions; decimals; comparing and ordering fractions and decimals; percents; mixed numbers; factors, prime, and prime factorization; squares and square roots; adding and subtracting fractions with unlike denominators; multiplying with fractions; division; dividing fractions; multiplying and dividing decimals; ratios; and proportions. Click on the blue link above to view and read about the program components and manipulatives. (43045-1)

California Content Standards
 Mathematics
 Grade: 4

CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	1.0.	Students understand the place value of whole numbers and decimals to two decimal places and how whole numbers and decimals relate to simple fractions. Students use the concepts of negative numbers.
GRADE LEVEL EXPECTATION	1.5.	Explain different interpretations of fractions, for example, parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalence of fractions (see Standard 4.0).
GRADE LEVEL EXPECTATION	1.6.	Write tenths and hundredths in decimal and fraction notations and know the fraction and decimal equivalents for halves and fourths (e.g., $1/2 = 0.5$ or 0.50 ; $7/4 = 1 \frac{3}{4} = 1.75$).
GRADE LEVEL EXPECTATION	1.7.	Write the fraction represented by a drawing of parts of a figure; represent a given fraction by using drawings; and relate a fraction to a simple decimal on a number line.
GRADE LEVEL EXPECTATION	1.9.	Identify on a number line the relative position of positive fractions, positive mixed numbers, and positive decimals to two decimal places.
CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	2.0.	Students extend their use and understanding of whole numbers to the addition and subtraction of simple decimals.
GRADE LEVEL EXPECTATION	2.1.	Estimate and compute the sum or difference of whole numbers and positive decimals to two places.
CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	3.0.	Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations.
GRADE LEVEL EXPECTATION	3.2.	Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multidigit number by a two-digit number and for dividing a multidigit number by a one-digit number; use relationships between them to simplify computations and to check results.
GRADE LEVEL EXPECTATION	3.4.	Solve problems involving division of multidigit numbers by one-digit numbers.
CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	4.0.	Students know how to factor small whole numbers.
GRADE LEVEL EXPECTATION	4.1.	Understand that many whole numbers break down in different ways (e.g., $12 = 4 \times 3 = 2 \times 6 = 2 \times 2 \times 3$).
GRADE LEVEL EXPECTATION	4.2.	Know that numbers such as 2, 3, 5, 7, and 11 do not have any factors except 1 and themselves and that such numbers are called prime numbers.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE	2.0.	Students use strategies, skills, and concepts in finding solutions.

STANDARD		
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 5

CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	1.0.	Students compute with very large and very small numbers, positive integers, decimals, and fractions and understand the relationship between decimals, fractions, and percents. They understand the relative magnitudes of numbers.
GRADE LEVEL EXPECTATION	1.2.	Interpret percents as a part of a hundred; find decimal and percent equivalents for common fractions and explain why they represent the same value; compute a given percent of a whole number. What is 40 percent of 250? (CST released test question, 2004)
GRADE LEVEL EXPECTATION	1.3.	Understand and compute positive integer powers of nonnegative integers; compute examples as repeated multiplication.
GRADE LEVEL EXPECTATION	1.4.	Determine the prime factors of all numbers through 50 and write the numbers as the product of their prime factors by using exponents to show multiples of a factor
GRADE LEVEL EXPECTATION	1.5.	Identify and represent on a number line decimals, fractions, mixed numbers, and positive and negative integers.
CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	2.0.	Students perform calculations and solve problems involving addition, subtraction, and simple multiplication and division of fractions and decimals.
GRADE LEVEL EXPECTATION	2.1.	Add, subtract, multiply, and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.
GRADE LEVEL EXPECTATION	2.2.	Demonstrate proficiency with division, including division with positive decimals and long division with multidigit divisors.
GRADE LEVEL EXPECTATION	2.3.	Solve simple problems, including ones arising in concrete situations, involving the addition and subtraction of fractions and mixed numbers (like and unlike denominators of 20 or less), and express answers in the simplest form.
GRADE LEVEL EXPECTATION	2.4.	Understand the concept of multiplication and division of fractions.
GRADE LEVEL EXPECTATION	2.5.	Compute and perform simple multiplication and division of fractions and apply these procedures to solving problems.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning

PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 6

CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	1.0.	Students compare and order positive and negative fractions, decimals, and mixed numbers. Students solve problems involving fractions, ratios, proportions, and percentages.
GRADE LEVEL EXPECTATION	1.1.	Compare and order positive and negative fractions, decimals, and mixed numbers and place them on a number line.
GRADE LEVEL EXPECTATION	1.2.	Interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities, using appropriate notations (a/b , a to b , $a:b$).
CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	2.0.	Students calculate and solve problems involving addition, subtraction, multiplication, and division.
GRADE LEVEL EXPECTATION	2.1.	Solve problems involving addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation.
GRADE LEVEL EXPECTATION	2.2.	Explain the meaning of multiplication and division of positive fractions and perform the calculations (e.g.,).
GRADE LEVEL EXPECTATION	2.4.	Determine the least common multiple and the greatest common divisor of whole numbers; use them to solve problems with fractions (e.g., to find a common denominator to add two fractions or to find the reduced form for a fraction).
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.
GRADE LEVEL EXPECTATION	2.4.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.5.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.7.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Hands-On Standards Deluxe Edition Kit, Grades 7-8: Algebra

Summary: This resource guide meets Grades 7 and 8 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Algebra section of Hands-On Standards Deluxe Edition covers the following skills and concepts: linear functions; variables x , x -squared, and constants; combining like

terms; slope as a rate of change; lines in slope-intercept form; problem solving with rates of change; symbolic algebra; algebraic equivalencies: distributive property and FOIL method; solving linear and nonlinear equations; solving systems of equations; problem solving: two-step linear equations and multiple-step nonlinear equations; linear relationships; and writing equations. Click on the blue link above to view and read about the program components and manipulatives. (43046-3)

**California Content Standards
Mathematics
Grade: 4**

CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	1.0.	Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences.
GRADE LEVEL EXPECTATION	1.1.	Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable).
GRADE LEVEL EXPECTATION	1.5.	Understand that an equation such as $y = 3x + 5$ is a prescription for determining a second number when a first number is given.
CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	2.0.	Students use two-dimensional coordinate grids to represent points and graph lines and simple figures.
GRADE LEVEL EXPECTATION	2.1.	Draw the points corresponding to linear relationships on graph paper (e.g., draw 10 points on the graph of the equation $y = 3x$ and connect them by using a straight line).
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 5

CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	1.0.	Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results.
GRADE LEVEL EXPECTATION	1.2.	Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution.
GRADE LEVEL EXPECTATION	1.3.	Know and use the distributive property in equations and expressions with variables.
GRADE LEVEL EXPECTATION	1.5.	Solve problems involving linear functions with integer values; write the equation; and graph the resulting ordered pairs of integers on a grid.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE	2.0.	Students use strategies, skills, and concepts in finding solutions.

STANDARD		
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 6

CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	1.0.	Students write verbal expressions and sentences as algebraic expressions and equations; they evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results.
GRADE LEVEL EXPECTATION	1.3.	Apply algebraic order of operations and the commutative, associative, and distributive properties to evaluate expressions; and justify each step in the process.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.
GRADE LEVEL EXPECTATION	2.4.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.5.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.7.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Hands-On Standards Deluxe Edition Kit, Grades 7-8: Data Analysis and Probability

Summary: This resource guide meets Grades 7 and 8 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Data Analysis and Probability section of Hands-On Standards Deluxe Edition covers the following skills and concepts: population sampling; measures of central tendency; histograms, circle graphs, and percentages; finding probability without replacement; fair and unfair spinners; simple compound events; theoretical vs. experimental probability game;

mutually exclusive events; build a spinner; scatter plot diagrams; and line of best fit. Click on the blue link above to view and read about the program components and manipulatives. (43046-5)

**California Content Standards
Mathematics
Grade: 4**

CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	1.0.	Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings.
GRADE LEVEL EXPECTATION	1.2.	Identify the mode(s) for sets of categorical data and the mode(s), median, and any apparent outliers for numerical data sets.
GRADE LEVEL EXPECTATION	1.3.	Interpret one- and two-variable data graphs to answer questions about a situation.
CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	2.0.	Students make predictions for simple probability situations.
GRADE LEVEL EXPECTATION	2.1.	Represent all possible outcomes for a simple probability situation in an organized way (e.g., tables, grids, tree diagrams).
GRADE LEVEL EXPECTATION	2.2.	Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; 3/4).
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 5

CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	1.0.	Students display, analyze, compare, and interpret different data sets, including data sets of different sizes.
GRADE LEVEL EXPECTATION	1.1.	Know the concepts of mean, median, and mode; compute and compare simple examples to show that they may differ.
GRADE LEVEL EXPECTATION	1.2.	Organize and display single-variable data in appropriate graphs and representations (e.g., histogram, circle graphs) and explain which types of graphs are appropriate for various data sets.
GRADE LEVEL EXPECTATION	1.4.	Identify ordered pairs of data from a graph and interpret the meaning of the data in terms of the situation depicted by the graph.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.

GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 6

CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	1.0.	Students compute and analyze statistical measurements for data sets.
GRADE LEVEL EXPECTATION	1.1.	Compute the range, mean, median, and mode of data sets.
CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	2.0.	Students use data samples of a population and describe the characteristics and limitations of the samples.
GRADE LEVEL EXPECTATION	2.2.	Identify different ways of selecting a sample (e.g., convenience sampling, responses to a survey, random sampling) and which method makes a sample more representative for a population.
CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	3.0.	Students determine theoretical and experimental probabilities and use these to make predictions about events.
GRADE LEVEL EXPECTATION	3.1.	Represent all possible outcomes for compound events in an organized way (e.g., tables, grids, tree diagrams) and express the theoretical probability of each outcome.
GRADE LEVEL EXPECTATION	3.3.	Represent probabilities as ratios, proportions, decimals between 0 and 1, and percentages between 0 and 100 and verify that the probabilities computed are reasonable; know that if P is the probability of an event, 1-P is the probability of an event not occurring.
GRADE LEVEL EXPECTATION	3.4.	Understand that the probability of either of two disjoint events occurring is the sum of the two individual probabilities and that the probability of one event following another, in independent trials, is the product of the two probabilities.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.
GRADE LEVEL EXPECTATION	2.4.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.5.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.7.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.

EXPECTATION		
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Hands-On Standards Deluxe Edition Kit, Grades 7-8: Geometry

Summary: This resource guide meets Grades 7 and 8 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Geometry section of Hands-On Standards Deluxe Edition covers the following skills and concepts: properties of geometric shapes; Triangle Sum Theorem; sides and angles; area; sums of interior angles; prisms, pyramids, and cylinders; drawing a net; volume; parallel lines intersected by a transversal; Euler's Polyhedron Formula; Pythagorean Theorem; flips, slides, and turns; and dilations. Click on the blue link above to view and read about the program components and manipulatives. (43046-2)

California Content Standards

Mathematics

Grade: 4

CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	3.0.	Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems.
GRADE LEVEL EXPECTATION	3.1.	Identify lines that are parallel and perpendicular.
GRADE LEVEL EXPECTATION	3.6.	Visualize, describe, and make models of geometric solids (e.g., prisms, pyramids) in terms of the number and shape of faces, edges, and vertices; interpret two-dimensional representations of three-dimensional objects; and draw patterns (of faces) for a solid that, when cut and folded, will make a model of the solid.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 5

CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	1.0.	Students understand and compute the volumes and areas of simple objects.
GRADE LEVEL EXPECTATION	1.2.	Construct a cube and rectangular box from two-dimensional patterns and use these patterns to compute the surface area for these objects.

GRADE LEVEL EXPECTATION	1.3.	Understand the concept of volume and use the appropriate units in common measuring systems (i.e., cubic centimeter [cm ³], cubic meter [m ³], cubic inch [in. ³], cubic yard [yd. ³]) to compute the volume of rectangular solids.
CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	2.0.	Students identify, describe, and classify the properties of, and the relationships between, plane and solid geometric figures.
GRADE LEVEL EXPECTATION	2.2.	Know that the sum of the angles of any triangle is 180 degrees and the sum of the angles of any quadrilateral is 360 degrees and use this information to solve problems.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 6

CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	3.0.	Students investigate geometric patterns and describe them algebraically.
GRADE LEVEL EXPECTATION	3.2.	Express in symbolic form simple relationships arising from geometry.
CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	1.0.	Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems.
GRADE LEVEL EXPECTATION	1.3.	Know and use the formulas for the volume of triangular prisms and cylinders (area of base x height); compare these formulas and explain the similarity between them and the formula for the volume of a rectangular solid.
CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	2.0.	Students identify and describe the properties of two-dimensional figures.
GRADE LEVEL EXPECTATION	2.2.	Use the properties of complementary and supplementary angles and the sum of the angles of a triangle to solve problems involving an unknown angle.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.
GRADE LEVEL EXPECTATION	2.4.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.5.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

GRADE LEVEL EXPECTATION	2.7.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Hands-On Standards Deluxe Edition Kit, Grades 7-8: Measurement

Summary: This resource guide meets Grades 7 and 8 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Measurement section of Hands-On Standards Deluxe Edition covers the following skills and concepts: area of trapezoids and irregular figures; constant perimeter and changing area; perimeter of irregular shapes; triangles: angles and the sides opposite them; and Triangle Inequality Theorem. Click on the blue link above to view and read about the program components and manipulatives. (43046-4)

California Content Standards Mathematics Grade: 4

CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	1.0.	Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences.
GRADE LEVEL EXPECTATION	1.4.	Use and interpret formulas (e.g., $\text{area} = \text{length} \times \text{width}$ or $A = lw$) to answer questions about quantities and their relationships.
CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	1.0.	Students understand perimeter and area.
GRADE LEVEL EXPECTATION	1.2.	Recognize that rectangles that have the same area can have different perimeters.
GRADE LEVEL EXPECTATION	1.3.	Understand that rectangles that have the same perimeter can have different areas.
GRADE LEVEL EXPECTATION	1.4.	Understand and use formulas to solve problems involving perimeters and areas of rectangles and squares. Use those formulas to find the areas of more complex figures by dividing the figures into basic shapes.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning

PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 5

CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	2.0.	Students identify, describe, and classify the properties of, and the relationships between, plane and solid geometric figures.
GRADE LEVEL EXPECTATION	2.1.	Measure, identify, and draw angles, perpendicular and parallel lines, rectangles, and triangles by using appropriate tools (e.g., straightedge, ruler, compass, protractor, drawing software).

CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.

CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 6

CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	3.0.	Students investigate geometric patterns and describe them algebraically.
GRADE LEVEL EXPECTATION	3.1.	Use variables in expressions describing geometric quantities (e.g., $P = 2w + 2l$, $A = 1/2 bh$, $C = \pi d$ - the formulas for the perimeter of a rectangle, the area of a triangle, and the circumference of a circle, respectively).
GRADE LEVEL EXPECTATION	3.2.	Express in symbolic form simple relationships arising from geometry.

CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.
GRADE LEVEL EXPECTATION	2.4.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.5.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.7.	Make precise calculations and check the validity of the results from the context of the problem.

CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE	3.0.	Students move beyond a particular problem by generalizing to other situations.

STANDARD		
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Hands-On Standards Deluxe Edition Kit, Grades 7-8: Number and Operations

Summary: This resource guide meets Grades 7 and 8 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction, to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Number and Operations section of Hands-On Standards Deluxe Edition covers the following skills and concepts: converting fractions, decimals, and percentages; fraction, decimal, and percentage combinations that equal 1; estimating fractional numbers; comparing rational numbers; ratio and proportion; approximating square roots; scale factor; and adding, subtracting, multiplying, and dividing integers. Click on the blue link above to view and read about the program components and manipulatives. (43046-1)

California Content Standards Mathematics Grade: 4

CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 5

CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	1.0.	Students compute with very large and very small numbers, positive integers, decimals, and fractions and understand the relationship between decimals, fractions, and percents. They understand the relative magnitudes of numbers.
GRADE LEVEL EXPECTATION	1.2.	Interpret percents as a part of a hundred; find decimal and percent equivalents for common fractions and explain why they represent the same value; compute a given percent of a whole number. What is 40 percent of 250? (CST released test question, 2004)
CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	2.0.	Students perform calculations and solve problems involving addition, subtraction, and simple multiplication and division of fractions and decimals.
GRADE LEVEL EXPECTATION	2.1.	Add, subtract, multiply, and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.

CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.6.	Make precise calculations and check the validity of the results from the context of the problem.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Grade: 6

CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	1.0.	Students compare and order positive and negative fractions, decimals, and mixed numbers. Students solve problems involving fractions, ratios, proportions, and percentages.
GRADE LEVEL EXPECTATION	1.2.	Interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities, using appropriate notations (a/b , a to b , $a : b$).
GRADE LEVEL EXPECTATION	1.3.	Use proportions to solve problems (e.g., determine the value of N if $4/7 = N/21$, find the length of a side of a polygon similar to a known polygon). Use cross-multiplication as a method for solving such problems, understanding it as the multiplication of both sides of an equation by a multiplicative inverse.
CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	2.0.	Students calculate and solve problems involving addition, subtraction, multiplication, and division.
GRADE LEVEL EXPECTATION	2.3.	Solve addition, subtraction, multiplication, and division problems, including those arising in concrete situations, that use positive and negative integers and combinations of these operations.
CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	2.0.	Students analyze and use tables, graphs, and rules to solve problems involving rates and proportions.
GRADE LEVEL EXPECTATION	2.2.	Demonstrate an understanding that rate is a measure of one quantity per unit value of another quantity.
GRADE LEVEL EXPECTATION	2.3.	Solve problems involving rates, average speed, distance, and time.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.3.	Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.
GRADE LEVEL EXPECTATION	2.4.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.
GRADE LEVEL EXPECTATION	2.5.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.
GRADE LEVEL EXPECTATION	2.7.	Make precise calculations and check the validity of the results from the context of the problem.

CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	3.0.	Students move beyond a particular problem by generalizing to other situations.
GRADE LEVEL EXPECTATION	3.1.	Evaluate the reasonableness of the solution in the context of the original situation.
GRADE LEVEL EXPECTATION	3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

Hands-On Standards, Deluxe Edition Kit, Grades 3-4: Algebra

Summary: This resource guide meets Grades 3-4 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Algebra section covers the following skills and concepts: extending patterns; identifying the rule; square numbers; identifying change; commutative property of addition; commutative property of multiplication; associative property of addition; associative property of multiplication; distributive property; input/output tables; addition and subtraction; multiplication and division; and mathematical reasoning. Click on the blue link above to view and read about the program components and manipulatives. (43044-3)

California Content Standards Mathematics Grade: 3

CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	1.0.	Students select appropriate symbols, operations, and properties to represent, describe, simplify, and solve simple number relationships.
GRADE LEVEL EXPECTATION	1.2.	Solve problems involving numeric equations or inequalities.
GRADE LEVEL EXPECTATION	1.5.	Recognize and use the commutative and associative properties of multiplication (e.g., if $5 \times 7 = 35$, then what is 7×5 ? and if $5 \times 7 \times 3 = 105$, then what is $7 \times 3 \times 5$?).
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

Grade: 4

CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	1.0.	Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences.
GRADE LEVEL EXPECTATION	1.1.	Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable).
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

Hands-On Standards, Deluxe Edition Kit, Grades 3-4: Data Analysis and Probability
 Summary: This resource guide meets Grades 3-4 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Data Analysis and Probability section covers the following skills and concepts: finding the average; pictographs; bar graphs; circle graphs; line graphs; probability; degrees of probability; predictions and outcomes; and fairness. Click on the blue link above to view and read about the program components and manipulatives. (43044-5)

**California Content Standards
 Mathematics
 Grade: 3**

CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	1.0.	Students conduct simple probability experiments by determining the number of possible outcomes and make simple predictions.
GRADE LEVEL EXPECTATION	1.1.	Identify whether common events are certain, likely, unlikely, or improbable.
GRADE LEVEL EXPECTATION	1.2.	Record the possible outcomes for a simple event (e.g., tossing a coin) and systematically keep track of the outcomes when the event is repeated many times.
GRADE LEVEL EXPECTATION	1.4.	Use the results of probability experiments to predict future events (e.g., use a line plot to predict the temperature forecast for the next day).
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

Grade: 4

CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	1.0.	Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings.
GRADE LEVEL EXPECTATION	1.3.	Interpret one- and two-variable data graphs to answer questions about a situation.
CONTENT STANDARD	CA.SDAP.	Statistics, Data Analysis, and Probability
PERFORMANCE STANDARD	2.0.	Students make predictions for simple probability situations.
GRADE LEVEL EXPECTATION	2.2.	Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; 3/4).
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

Hands-On Standards, Deluxe Edition Kit, Grades 3-4: Geometry
 Summary: This resource guide meets Grades 3-4 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by

strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Geometry section covers the following skills and concepts: plane shapes; attributes of geometric shapes; spatial visualization; classifying three-dimensional shapes; building three-dimensional shapes; points on a coordinate plane; location and movement; congruent and similar figures; symmetrical figures; tangram puzzles; tiling patterns; tessellations; putting shapes together; flips (reflections); rotational symmetry; vertical and horizontal line symmetry; locating points on a coordinate grid; directions on a coordinate grid; and reflections on a coordinate grid. Click on the blue link above to view and read about the program components and manipulatives. (43044-2)

**California Content Standards
Mathematics
Grade: 3**

CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	2.0.	Students describe and compare the attributes of plane and solid geometric figures and use their understanding to show relationships and solve problems.
GRADE LEVEL EXPECTATION	2.5.	Identify, describe, and classify common three-dimensional geometric objects (e.g., cube, rectangular solid, sphere, prism, pyramid, cone, cylinder).
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

Grade: 4

CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	3.0.	Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems.
GRADE LEVEL EXPECTATION	3.1.	Identify lines that are parallel and perpendicular.
GRADE LEVEL EXPECTATION	3.3.	Identify congruent figures.
GRADE LEVEL EXPECTATION	3.4.	Identify figures that have bilateral and rotational symmetry.
GRADE LEVEL EXPECTATION	3.6.	Visualize, describe, and make models of geometric solids (e.g., prisms, pyramids) in terms of the number and shape of faces, edges, and vertices; interpret two-dimensional representations of three-dimensional objects; and draw patterns (of faces) for a solid that, when cut and folded, will make a model of the solid.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

Hands-On Standards, Deluxe Edition Kit, Grades 3-4: Measurement

Summary: This resource guide meets Grades 3-4 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Measurement section covers the following skills and concepts: telling time;

elapsed time; estimating and measuring; perimeter of shapes; building perimeter; finding area; area of irregular figures; building area; perimeter and area; finding volume; and measuring weight. Click on the blue link above to view and read about the program components and manipulatives. (43044-4)

**California Content Standards
Mathematics
Grade: 3**

CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	1.0.	Students choose and use appropriate units and measurement tools to quantify the properties of objects.
GRADE LEVEL EXPECTATION	1.1.	Choose the appropriate tools and units (metric and U.S.) and estimate and measure the length, liquid volume, and weight/mass of given objects.
GRADE LEVEL EXPECTATION	1.2.	Estimate or determine the area and volume of solid figures by covering them with squares or by counting the number of cubes that would fill them.
GRADE LEVEL EXPECTATION	1.3.	Find the perimeter of a polygon with integer sides.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

Grade: 4

CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	1.0.	Students understand perimeter and area.
GRADE LEVEL EXPECTATION	1.2.	Recognize that rectangles that have the same area can have different perimeters.
GRADE LEVEL EXPECTATION	1.3.	Understand that rectangles that have the same perimeter can have different areas.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

Hands-On Standards, Deluxe Edition Kit, Grades 3-4: Number and Operations
 Summary: This resource guide meets Grades 3-4 math curriculum standards by matching activities to instructional objectives with ready-to-use, full-color lesson plans organized by strand. Lessons use hands-on activities, incorporating manipulatives into instruction to build concrete understanding and connect concepts to students' growing background of real-world experiences. The Number and Operations section covers the following skills and concepts: writing numbers in different forms; comparing and ordering numbers; adding and subtracting; estimating the sum or difference; multiplying with arrays; multiplying with a one-digit multiplier; multiplying by 5; multiplying with a two-digit number; multiplying by 10; finding factor pairs; exploring division; dividing with one-digit divisors; dividing with two-digit divisors; dividing by multiples of 10; identifying and writing fractions; fractional parts; equivalent fractions; comparing and ordering fractions; mixed numbers; adding and subtracting fractions; fractions and decimals; comparing fractions and decimals; comparing decimals; and adding and

subtracting decimals. Click on the blue link above to view and read about the program components and manipulatives. (43044-1)

**California Content Standards
Mathematics
Grade: 3**

CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	1.0.	Students understand the place value of whole numbers.
GRADE LEVEL EXPECTATION	1.1.	Count, read, and write whole numbers to 10,000.
GRADE LEVEL EXPECTATION	1.2.	Compare and order whole numbers to 10,000.
GRADE LEVEL EXPECTATION	1.3.	Identify the place value for each digit in numbers to 10,000.
GRADE LEVEL EXPECTATION	1.5.	Use expanded notation to represent numbers (e.g., $3,206 = 3,000 + 200 + 6$).
CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	2.0.	Students calculate and solve problems involving addition, subtraction, multiplication, and division.
GRADE LEVEL EXPECTATION	2.1.	Find the sum or difference of two whole numbers between 0 and 10,000.
GRADE LEVEL EXPECTATION	2.2.	Memorize to automaticity the multiplication table for numbers between 1 and 10.
GRADE LEVEL EXPECTATION	2.4.	Solve simple problems involving multiplication of multidigit numbers by one-digit numbers ($3,671 \times 3 = \underline{\quad}$).
GRADE LEVEL EXPECTATION	2.5.	Solve division problems in which a multidigit number is evenly divided by a one-digit number ($135 \div 5 = \underline{\quad}$).
GRADE LEVEL EXPECTATION	2.8.	Solve problems that require two or more of the skills mentioned above.
CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	3.0.	Students understand the relationship between whole numbers, simple fractions, and decimals.
GRADE LEVEL EXPECTATION	3.1.	Compare fractions represented by drawings or concrete materials to show equivalency and to add and subtract simple fractions in context (e.g., $1/2$ of a pizza is the same amount as $2/4$ of another pizza that is the same size; show that $3/8$ is larger than $1/4$).
GRADE LEVEL EXPECTATION	3.4.	Know and understand that fractions and decimals are two different representations of the same concept (e.g., 50 cents is $1/2$ of a dollar, 75 cents is $3/4$ of a dollar).
CONTENT STANDARD	CA.AF.	Algebra and Functions
PERFORMANCE STANDARD	1.0.	Students select appropriate symbols, operations, and properties to represent, describe, simplify, and solve simple number relationships.
GRADE LEVEL EXPECTATION	1.2.	Solve problems involving numeric equations or inequalities.
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

Grade: 4

CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE	1.0.	Students understand the place value of whole numbers and decimals to two

STANDARD		decimal places and how whole numbers and decimals relate to simple fractions. Students use the concepts of negative numbers.
GRADE LEVEL EXPECTATION	1.1.	Read and write whole numbers in the millions.
GRADE LEVEL EXPECTATION	1.2.	Order and compare whole numbers and decimals to two decimal places.
GRADE LEVEL EXPECTATION	1.5.	Explain different interpretations of fractions, for example, parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalence of fractions (see Standard 4.0).
GRADE LEVEL EXPECTATION	1.6.	Write tenths and hundredths in decimal and fraction notations and know the fraction and decimal equivalents for halves and fourths (e.g., $1/2 = 0.5$ or 0.50 ; $7/4 = 1\ 3/4 = 1.75$).
GRADE LEVEL EXPECTATION	1.7.	Write the fraction represented by a drawing of parts of a figure; represent a given fraction by using drawings; and relate a fraction to a simple decimal on a number line.
CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	2.0.	Students extend their use and understanding of whole numbers to the addition and subtraction of simple decimals.
GRADE LEVEL EXPECTATION	2.1.	Estimate and compute the sum or difference of whole numbers and positive decimals to two places.
CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	3.0.	Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations.
GRADE LEVEL EXPECTATION	3.1.	Demonstrate an understanding of, and the ability to use, standard algorithms for the addition and subtraction of multidigit numbers.
GRADE LEVEL EXPECTATION	3.2.	Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multidigit number by a two-digit number and for dividing a multidigit number by a one-digit number; use relationships between them to simplify computations and to check results.
GRADE LEVEL EXPECTATION	3.3.	Solve problems involving multiplication of multidigit numbers by two-digit numbers.
GRADE LEVEL EXPECTATION	3.4.	Solve problems involving division of multidigit numbers by one-digit numbers.
CONTENT STANDARD	CA.NS.	Number Sense
PERFORMANCE STANDARD	4.0.	Students know how to factor small whole numbers.
GRADE LEVEL EXPECTATION	4.1.	Understand that many whole numbers break down in different ways (e.g., $12 = 4 \times 3 = 2 \times 6 = 2 \times 2 \times 3$).
CONTENT STANDARD	CA.MG.	Measurement and Geometry
PERFORMANCE STANDARD	3.0.	Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems.
GRADE LEVEL EXPECTATION	3.8.	Know the definition of different quadrilaterals (e.g., rhombus, square, rectangle, parallelogram, trapezoid).
CONTENT STANDARD	CA.MR.	Mathematical Reasoning
PERFORMANCE STANDARD	2.0.	Students use strategies, skills, and concepts in finding solutions.
GRADE LEVEL EXPECTATION	2.4.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.