

Northpoint Horizons

CAVS (Content Academic Vocabulary System) Math 3-5 Correlated to the California State Mathematic Content Standards

Grade 4

This document provides a correlation to the math directives offered throughout the *CAVS Math* program that meet the California Mathematics Content Standards. The n/a signifies the standards that are not directly met for this grade level.

Math Content Standard	CAVS Math Grades 3-5 Teacher's Guide Lessons
Number Sense	
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:	
1.1 Read and write whole numbers in the millions.	Students have opportunities to read and write whole numbers in <i>CAVS</i> lessons. They study place value to hundred thousands: Lesson 1 – TG p. 1 <i>How can you put numbers in order?</i>
1.2 Order and compare whole numbers and decimals to two decimal places.	Students study decimals and percents: Lesson 6 – TG p. 31 <i>How else can you show less than one whole?</i>
1.3 Round whole numbers through the millions to the nearest ten, hundred, thousand, ten thousand, or hundred thousand.	Students round whole numbers to nearest thousand and ten thousand: Lesson 1 – TG p. 1 <i>How can you put numbers in order?</i>
1.4 Decide when a rounded solution is called for and explain why such a solution may be appropriate.	n/a
1.5 Explain different interpretations of fractions, for example, parts of a whole, parts of a set, and division	Lesson 4 – TG p. 19 <i>How do we make equal groups?</i>

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of whole numbers by whole numbers; explain equivalents of fractions (see Standard 4.0).	Lesson 5 – TG p. 25 <i>How do you show that a number is not a whole?</i> Lesson 6 – TG p. 31 <i>How else can you show less than one whole?</i>
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 $.50$; $7/4 = 1\ 3/4 = 1.75$).	Students write tenths and hundredths in decimal and fraction notations: Lesson 6 – TG p. 31 <i>How else can you show less than one whole?</i>
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.	Students represent a given fraction by using drawings: Lesson 6 – TG p. 31 <i>How else can you show less than one whole?</i>
1.8 Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in "owing").	Lesson 1 – TG p. 1 <i>How can you put numbers in order?</i>
1.9 Identify on a number line the relative position of positive fractions, positive mixed numbers, and positive decimals to two decimal places.	n/a
2.0 Students extend their use and understanding of whole numbers to the addition and subtraction of simple decimals:	
2.1 Estimate and compute the sum or difference of whole numbers and positive decimals to two places.	n/a
2.2 Round two-place decimals to one decimal or the nearest whole number and judge the reasonableness of the rounded answer.	n/a
3.0 Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations:	
3.1 Demonstrate an understanding of, and the ability to use, standard algorithms for the addition and subtraction of multi digit numbers.	Students use traditional set of rules for solving simple addition problems: Lesson 2 – TG p.7 <i>How do numbers tell a story?</i>
3.2 Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multi digit number by a two-digit number and for dividing a multi digit number by a one-digit number; use relationships between them to simplify computations and to check results.	Students use traditional set of rules for solving simple multiplication and division problems: Lesson 3 – TG p. 13 <i>How do we count large amounts?</i> Lesson 4 – TG p. 19 <i>How do we make equal groups?</i>

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3.3 Solve problems involving multiplication of multi digit numbers by two-digit numbers.	n/a
3.4 Solve problems involving division of multi digit numbers by one-digit numbers.	Students use math content vocabulary: <i>division, dividend, divisor, quotient, and remainder</i> to solve simple division problems with and without a remainder: Lesson 4 – TG p. 19 <i>How do we make equal groups?</i>
4.0 Students know how to factor small whole numbers:	
4.1 Understand that many whole numbers break down in different ways (e.g., $12 = 4 \times 3 = 2 \times 6 = 2 \times 2 \times 3$).	Lesson 3 – TG p. 13 <i>How do we count large amounts?</i>
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.	Lesson 3 – TG p. 13 <i>How do we count large amounts?</i>
Algebra and Functions	
1.0 Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences:	
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).	Lesson 9 – TG p. 49 <i>How can math rules help you solve equations?</i>
1.2 Relate problem 1.2 Interpret and evaluate mathematical expressions that now use parentheses to number sentences involving addition and subtraction.	Lesson 9 – TG p. 49 <i>How can math rules help you solve equations?</i>
1.3 Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations.	Lesson 9 – TG p. 49 <i>How can math rules help you solve equations?</i>
1.4 Use and interpret formulas (e.g., area = length x width or $A = lw$) to answer questions about quantities and their relationships.	Lesson 12 - TG p. 67 <i>How do you measure flat shapes?</i>
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.	n/a
2.0 Students know how to manipulate equations:	
2.1 Know and understand that equals added to equals	n/a

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are equal.	
2.2 Know and understand that equals multiplied by equals are equal.	n/a
Measurement and Geometry	
1.0 Students understand perimeter and area:	
1.1 Measure the area of rectangular shapes by using appropriate units, such as square centimeter (cm ²), square meter (m ²), square kilometer (km ²), square inch (in ²), square yard (yd ²), or square mile (mi ²).	n/a
1.2 Recognize that rectangles that have the same area can have different perimeters.	Lesson 12 - TG p. 67 <i>How do you measure flat shapes?</i>
1.3 Understand that rectangles that have the same perimeter can have different areas.	Lesson 12 - TG p. 67 <i>How do you measure flat shapes?</i>
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.	Lesson 12 - TG p. 67 <i>How do you measure flat shapes?</i>
2.0 Students use two-dimensional coordinate grids to represent points and graph lines and simple figures:	
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).	Students identify and interpret a grid; distinguish between the x -axis and y -axis; and identify a location and grid by using coordinates: Unit 8 – TG p. 43 <i>How can you use models?</i>
2.2 Understand that the length of a horizontal line segment equals the difference of the x - coordinates.	
2.3 Understand that the length of a vertical line segment equals the difference of the y - coordinates.	
3.0 Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems:	
3.1 Identify lines that are parallel and perpendicular.	Lesson 16 – TG p. 91 <i>How do we describe shapes with straight sides?</i>
3.2 Identify the radius and diameter of a circle.	Lesson 12 - TG p. 67 <i>How do you measure flat shapes?</i>
3.3 Identify congruent figures.	Lesson 18 – TG p. 103 <i>How do we draw different shapes?</i>

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3.4 Identify figures that have bilateral and rotational symmetry.	Students use the vocabulary word: <i>symmetry</i> to identify and describe line symmetry in 2-dimensional shapes and designs: Lesson 18 – TG p. 103 <i>How do we draw different shapes?</i> Students use the vocabulary words: <i>slide</i> , <i>flip (reflection)</i> , and <i>turn (rotation)</i> to predict and describe the results of sliding, flipping, and turning 2-dimensional shapes: Lesson 20 – TG p. 115 <i>How can you change shapes?</i>
3.5 Know the definitions of a right angle, an acute angle, and an obtuse angle. Understand that 90°, 180°, 270°, and 360° are associated, respectively, with 1/4, 1/2, 3/4, and full turns.	Students use the vocabulary words: <i>angle</i> , <i>ray</i> , <i>vertex</i> , <i>right angle</i> , <i>acute angle</i> , <i>obtuse angle</i> , <i>equilateral triangle</i> , and <i>isosceles triangle</i> to identify, classify, and construct triangles: Lesson 17 – TG p. 97 <i>How do we describe shapes with three sides?</i>
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.	Lesson 19 - TG p. 109 <i>What attributes do solid shapes share?</i>
3.7 Know the definitions of different triangles (e.g., equilateral, isosceles, scalene) and identify their attributes.	Lesson 17 – TG p. 97 <i>How do we describe shapes with three sides?</i>
3.8 Know the definition of different quadrilaterals (e.g., rhombus, square, rectangle, parallelogram, trapezoid).	Lesson 16 – TG p. 91 <i>How do we describe shapes with straight sides?</i>
Statistics, Data Analysis, and Probability	
1.0 Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings:	
1.1 Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables, and charts.	Lesson 21 – TG p. 121 <i>Why do you need information?</i>
1.2 Identify the mode(s) for sets of categorical data and the mode(s), median, and any apparent outliers for numerical data sets.	Lesson 22 – TG p. 127 <i>How do you compare facts and information?</i>
1.3 Interpret one-and two-variable data graphs to	Lesson 21 – TG p. 121

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answer questions about a situation.	<i>Why do you need information?</i> Lesson 22 – TG p. 127 <i>How do you compare facts and information?</i>
2.0 Students make predictions for simple probability situations:	
2.1 Represent all possible outcomes for a simple probability situation in an organized way (e.g., tables, grids, tree diagrams).	Lesson 21 – TG p. 121 <i>Why do you need information?</i> Lesson 23 – TG p. 133 <i>Do you think it will happen?</i>
2.2 Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; 3 /4).	Lesson 23 – TG p. 133 <i>Do you think it will happen?</i>
Mathematical Reasoning	
1.0 Students make decisions about how to set up a problem:	
1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.	Students use vocabulary words: <i>relevant information</i> and <i>irrelevant information</i> to apply and adapt a variety of appropriate strategies to solve problems and reflect on the process of problem solving:
1.2 Determine when and how to break a problem into simpler parts.	Lesson 24 – TG p. 139 <i>How can you solve problems?</i> During each <i>CAVS</i> Math Lesson, the teacher helps students determine the approach, materials, and strategies to be used to solve problems using the <i>5-E</i> Instructional Approach while highlighting math content academic vocabulary. The <i>5-E</i> Approach: <i>Engage</i> : Concept Posters and Math Vocabulary Cards are used to introduce the math concept and vocabulary as a whole group activity. <i>Explore</i> and <i>Learn</i> : Students use hands-on Activity Placemats with manipulatives as a small group inquiry activity. Students complete the Record Sheet and then discuss the activity and compare observations with classmates. <i>Explain</i> Concepts and Vocabulary: Teacher and students and/or student pairs read and discuss the academic vocabulary words in context on the Reader Cards. Reader Card A is targeted to

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	<p>the reading levels of Beginning/Emerging English language learners. Reader Card B is targeted to the reading levels of the Intermediate/Expanding English language learners and native English speakers.</p> <p><i>Elaborate:</i> Students apply newly learned concepts when working with a partner to complete the Concept Webs. As a small group or paired activity, students practice listening to, reading, writing, and speaking each academic vocabulary word with the Radius Audio System™.</p> <p><i>Evaluate:</i> Teachers review the lesson's academic vocabulary words through Interactive Transparencies (whole group activity) and assess each lesson through the Lesson Review sheets (individual activity).</p>
2.0 Students use strategies, skills, and concepts in finding solutions:	
2.1 Use estimation to verify the reasonableness of calculated results.	Lesson 24 – TG p. 139 <i>How do you solve problems?</i>
2.2 Apply strategies and results from simpler problems to more complex problems.	Students have opportunities to apply lesson concepts, strategies, and results in the Now Try This activity at the end of the Activity Placemats in each CAVS lesson.
2.3 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.	Lesson 21 – TG p. 121 <i>Why do you need information?</i>
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.	Students learn to use appropriate mathematical terms in the CAVS Math program. The program is designed to help elementary students master content academic vocabulary that they will encounter in their textbooks and on their standardized state tests. Each CAVS lesson has a Record Sheet and Concept Web for students to complete by drawing pictures and/or completing charts/graphic organizers.
2.5 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.	Lesson 23 – TG p. 133 <i>Do you think it will happen?</i> Lesson 24 – TG p. 139 <i>How do you solve problems?</i>
2.6 Make precise calculations and check the validity of the results from the context of the problem.	Lesson 23 – TG p. 133 <i>Do you think it will happen?</i>

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	Lesson 24 – TG p. 139 <i>How do you solve problems?</i>
3.0 Students move beyond a particular problem by generalizing to other situations:	
3.1 Evaluate the reasonableness of the solution in the context of the original situation.	n/a
3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.	n/a
3.3 Develop generalizations of the results obtained and apply them in other circumstances.	n/a