California Alternate Assessments: Revised Blueprint *for* Mathematics

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Grade Three

Note: Each test will contain 25 operational items and three field test items.

Domain	Approximate Percentages	Common Core State Standard	Core Content Connectors	Essential Understandings
Operations & Algebraic Thinking		**3.OA.A.1** Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*	**3.NO.2d3** Solve multiplication problems with neither number greater than 5.	Create an array of sets (e.g., 3 rows of 2).
Operations & Algebraic Thinking	**30%**	**3.OA.D.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	**3.NO.2e1** Solve or solve and check one or two-step word problems requiring addition, subtraction, or multiplication with answers up to 100.	Combine (+), decompose (-), and multiply (x) with concrete objects; use counting to get the answers. Match the action of combining with vocabulary (i.e., in all; altogether) or the action of decomposing with vocabulary (i.e., have left; take away) in a word problem.
Operations & Algebraic Thinking		**3.OA.D.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*	**3.PRF.2d1** Identify multiplication patterns in a real world setting.	Concrete understanding of a pattern as a set that repeats regularly or grows according to a rule; ability to identify a pattern that grows (able to show a pattern) (shapes, symbols, objects).

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Domain	Approximate Percentages	Common Core State Standard	Core Content Connectors	Essential Understandings
Number & Operations in Base Ten	40%	**3.NBT.A.1** Use place value understanding to round whole numbers to the nearest 10 or 100.	**3.NO.1j3** Use place value to round to the nearest 10 or 100.	Identify ones or tens in bundled sets—similar/different with concrete representations (i.e., is this set of manipulatives [8 ones] closer to this set [a ten] or this set ([one]?).
Number & Operations in Base Ten		**3.NBT.A.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	**3.NO.2c1** Solve multi-step addition and subtraction problems up to 100.	Combine (+) or decompose (-) with concrete objects; use counting to get the answers.
Number & Operations— Fractions		**3.NF.A.1** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.	**3.NO.1l3** Identify the fraction that matches the representation (rectangles and circles; halves, fourths, and thirds, eighths).	Identify part and whole when item is divided. Count the number of the parts selected (3 of the 4 parts; have fraction present but not required to read ¾).
Number & Operations— Fractions		**3.NF.A.3d** Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	**3.SE.1g1** Use =, <, or > to compare two fractions with the same numerator or denominator.	Concrete representation of a fractional part of a whole as greater than, less than, equal to another.

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Domain	Approximate Percentages	Common Core State Standard	Core Content Connectors	Essential Understandings
Measurement & Data	**30%**	**3.MD.B.3** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*	**3.DPS.1g1** Collect data, organize into picture or bar graph.	Organize data into a graph using objects (may have number symbols).
Measurement & Data		**3.MD.C.6** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	**3.ME.1d2** Measure area of rectangular figures by counting squares.	Ability to identify the area of a rectangular figure.
Geometry		**3.G.A.2** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.*	**3.GM.1i1** Partition rectangles into equal parts with equal area.	Concept of equal parts; partitioning with concrete objects; find the rectangle that is the same or match two congruent rectangles.

Grade Four

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Domain	Approximate Percentages	Core Content Connectors	Essential Understandings
Operations & Algebraic Thinking	**35%**	**4.NO.2d7** Determine how many objects go into each group when given the total number of objects and groups where the number in each group or number of groups is not > 10.	Create an array of objects given a specific number of rows and the total number, place one object in each group/row at a time.
Operations & Algebraic Thinking		**4.PRF.1e3** Solve multiplicative comparisons with an unknown using up to 2-digit numbers with information presented in a graph or word problem (e.g., an orange hat cost $3. A purple hat cost 2 times as much. How much does the purple hat cost? [3 x 2 = p]).	Identify visual multiplicative comparisons (e.g., which shows two times as many tiles as this set?).
Operations & Algebraic Thinking		**4.NO.2e2** Solve or solve and check one or two step word problems requiring addition, subtraction, or multiplication with answers up to 100.	Select the representation of manipulatives on a graphic organizer to show addition/multiplication equation; match to same for representations of equations with equations provided (may be different objects but same configuration).
Number & Operations in Base Ten	**30%**	**4.NO.1j5** Use place value to round to any place (i.e., ones, tens, hundreds, thousands).	Identify ones, tens, hundreds in bundled sets—similar/different with concrete representations (i.e., is this set of manipulatives [8 tens] closer to this set [a hundred] or this set [a ten]?).
Number & Operations— Fractions		**4.NO.1m1** Determine equivalent fractions.	Equivalency: what is and what is not equivalent; this may begin with numbers/sets of objects: e.g., 3 = 3 or two fraction representations that are identical (two pies showing 2/3).
Number & Operations— Fractions		**4.NO.1n2** Compare up to 2 given fractions that have different denominators.	Differentiate between parts and a whole.
Number & Operations— Fractions		**4.SE.1g2** Use =, <, or > to compare 2 fractions (fractions with a denominator of 10 or less).	Concrete representation of a fractional part of a whole as greater than, less than, equal to another.

Grade Four

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Domain	Approximate Percentages	Core Content Connectors	Essential Understandings
Measurement & Data	**35%**	**4.ME.1g2** Solve word problems using perimeter and area where changes occur to the dimensions of a rectilinear figure.	Identify the perimeter; identify the area; show each when size of figure changes.
Measurement & Data		**4.DPS.1g3** Collect data, organize in graph (e.g., picture graph, line plot, bar graph).	Identify data set based on a single attribute (e.g., pencils vs. markers); identify data set with more or less (e.g., this bar represents a set with more); organize the data into a graph using objects (may have number symbols).
Geometry		**4GM.1h2** Classify two-dimensional shapes based on attributes (# of angles).	Identify attributes within a 2-dimensional figure (e.g., rectangles have sides—student identifies sides of rectangle—and angles—student identifies angles in rectangle).

Grade Five

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Domain	Approximate Percentages	Core Content Connectors	Essential Understandings
Operations & Algebraic Thinking	10%	**5.PRF.2b1** Generate or select a comparison between two graphs from a similar situation.	Compare two pieces of information provided in a single display.
Numbers & Operations in Base Ten	60%	**5.NO.1b1** Read, write, or select a decimal to the hundredths place.	Recognize part whole using materials divided into tenths—count tenths to determine how many (e.g., 4 tenths) (.4 have the decimal present but not required to read).
Numbers & Operations in Base Ten		**5.NO.1b4** Round decimals to the next whole number.	Identify place value to the ones, tens, hundreds, thousands.
Numbers & Operations in Base Ten		**5.NO.2a5** Solve word problems that require multiplication or division.	Combine (x) or decompose (÷) with concrete objects; use counting to get the answers.
Numbers & Operations in Base Ten		**5.NO.2c1** Solve 1 step problems using decimals.	Combine (+) or decompose (-) with concrete objects; use counting to get the answers; match the action of combining with vocabulary (i.e., in all; altogether) or the action of decomposing with vocabulary (i.e., have left; take away) in a word problem.
Numbers & Operations— Fractions		**5.NO.2c2** Solve word problems involving the addition, subtraction, multiplication, or division of fractions.	Identify what to do with the parts when given the key word (using the fractional parts).
Numbers & Operations— Fractions		**5.PRF.1a1** Determine whether the product will increase or decrease based on the multiplier.	Limit to whole numbers and 1 or more; show what happens to set when have one of these (1x) versus some other number (e.g., 2x).

Grade Five

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Domain	Approximate Percentages	Core Content Connectors	Essential Understandings
Measurement & Data	**30%**	**5.ME.1b2** Convert standard measurements of length.	To measure an object or quantity using 2 different units to show they mean the same thing (e.g., 12 inches and 1 foot). If larger unit, there are less; smaller units, you need more.
Measurement & Data		**5.ME.2a1** Solve problems involving conversions of standard measurement units when finding area, volume, time-lapse, or mass.	Identify what measures time (clock used to measure time; calendar used to measure days); identify past/present (for lapsed time).
Geometry		**5.GM.1c3** Use ordered pairs to graph given points.	Identify the x- and y-axis; or concept of intersection.

Grade Six

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Domain	Approximate Percentages	Core Content Connectors	Essential Understandings
Ratios & Proportional Relationships	30%	**6.PRF.1c1** Describe the ratio relationship between two quantities for a given situation.	Match/Identify a simple ratio (1:X) to the relationship between two quantities.
Ratios & Proportional Relationships		**6.NO.1f1** Find a percent of a quantity as rate per 100.	State a relationship to a quantity out of 100.
The Number System	30%	**6.NO.2c3** Solve one-step, addition, subtraction, multiplication, or division problems with fractions or decimals.	Concept of +, -, x, ÷. Concept of fraction and decimal. Use concrete object to represent the removal (subtraction) or addition of one half from/to a whole object.
The Number System		**6.NO.1d4** Select the appropriate meaning of a negative number in a real world situation.	Ability to select the appropriate representation of more than or less than 0 in a real world situation.
The Number System		**6.NO.1d2** Locate positive and negative numbers on a number line.	Recognize how values/numbers lie on either side of zero.
Expressions & Equations	20%	**6.PRF.1d1** Solve real world single-step linear equations.	Recognize the intended outcome of a word problem based on a linear equation.
Expressions & Equations		**6.ME.2a2** Solve one-step real world measurement problems involving unit rates with ratios of whole numbers when given the unit rate (3 inches of snow falls per hour, how much in 6 hours).	Identify a familiar unit rate.
Expressions & Equations		**6.NO.2a6** Solve problems or word problems using up to three digit numbers and any of the four operations.	Decompose (÷) with concrete objects; use counting to get the answer.

Grade Six

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Domain	Approximate Percentages	Core Content Connectors	Essential Understandings
Geometry	**10%**	**6.GM.1d1** Find the area of quadrilaterals.	Use manipulatives to measure the area of a rectangle (e.g., tiling).
Statistics & Probability	**10%**	**6.DPS.1d3** Select statement that matches mean, mode, and spread of data for 1 measure of central tendency for given data set.	Identify the highest and lowest value in a data set given a number line and matching symbols; identify the representation (plastic snap cubes, wiki sticks) of the mode; use concrete materials to produce the mean (leveled plastic snap cubes).

Grade Seven

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Domain	Approximate Percentages	Core Content Connectors	Essential Understandings
Ratios & Proportional Relationships	40%	**7.NO.2f1** Identify the proportional relationship between two quantities (use rules or symbols to show quantitative relationships).	Recognize the constancy of one object to its parts (i.e., one fact, two eyes).
Ratios & Proportional Relationships		**7.NO.2f2** Determine if two quantities are in a proportional relationship using a table of equivalent ratios or points graphed on a coordinate plane.	Use a table to recognize the quantity of two entries, without counting, to determine which is relatively larger.
Ratios & Proportional Relationships		**7.PRF.1f1** Use proportional relationships to solve multistep percent problems in real world situations.	Identify how one variable changes in relation to another variable in a directly proportional relationship (e.g., a/b = c/d, if a increases, what will happen to c?).
Ratios & Proportional Relationships		**7.NO.2f6** Solve word problems involving ratios.	Show rate when asked; show proportion when asked; select a set for the ratio given (Maria stamps three letters every minute which we write as 3:1. Show me the letters she stamps in a minute).
The Number System	15%	**7.NO.2i1** Solve multiplication problems with positive/negative numbers.	Create an array of objects for the mathematical equation and match answer symbol (+ or -) following multiplication rules for an equation.
The Number System		**7.NO.2i2** Solve division problems with positive/negative numbers.	Create an array of objects for the mathematical equation and match answer symbol (+ or -) following division rules for an equation.
Expressions & Equations	15%	**7.PRF.1g2** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and in-equalities to solve problems by reasoning about the quantities.	Record/Replace a variable in an equation with a fact from a story on a graphic organizer.

Grade Seven

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Domain	Approximate Percentages	Core Content Connectors	Essential Understandings
Geometry	15%	**7.ME.2d1** Apply formula to measure area and circumference of circles.	Recognize the area of a circle and the circumference when shown a graphic representation.
Geometry		**7.GM.1h2** Find the surface area of three-dimensional figures using nets of rectangles or triangles.	Demonstrate the concept of the surface area of a rectangular prism; fill rectangular prism.
Statistics & Probability	15%	**7.DPS.1k1** Analyze graphs to determine or select appropriate comparative inferences about two samples or populations.	Understand basic information from simple graphs (e.g., interpret a bar graph using the understanding that the taller column on a graph has a higher frequency, the shorter column on a graph has a lower frequency).

Grade Eight

Note: Each test will contain 25 operational items and three field test items.

Domain	Approximate Percentages	Core Content Connectors	Essential Understandings
The Number System	10%	**8.NO.1k3** Use approximations of irrational numbers to locate them on a number line.	Recognize how values/numbers can lie between whole number values on a number line.
Expressions & Equations	35%	**8.PRF.1e2** Represent proportional relationships on a line graph.	Recognize a positive relationship between two variables.
Expressions & Equations		**8.PRF.1g3** Solve linear equations with 1 variable.	Use manipulatives or graphic organizer to solve a problem.
Functions		**8.PRF.2e2** Identify the rate of change (slope) and initial value (y-intercept) from graphs.	Indicate the point on a line that crosses the y-axis.
Functions		**8.PRF.1f2** Describe or select the relationship between the two quantities given a line graph of the situation.	Use a graph to recognize the quantity in two sets, without counting, to determine which is relatively larger.
Geometry	30%	**8.GM.1g1** Recognize congruent and similar figures.	Demonstrate the concept of congruent and similar (e.g., match concrete examples of congruent shapes, match concrete examples of similar shapes).
Geometry		**8.ME.1e1** Describe the changes in surface area, area, and volume when the figure is changed in some way (e.g., scale drawings).	Recognize how the space inside a figure increases when the sides are lengthened.
Geometry		**8.ME.2d2** Apply the formula to find the volume of 3-dimensional shapes (i.e., cubes, spheres, and cylinders).	Ability to recognize attributes of a 3-dimensional shape.

Grade Eight

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Domain	Approximate Percentages	Core Content Connectors	Essential Understandings
Statistics & Probability	25%	**8.DPS.1h1** Graph bivariate data using scatter plots and identify possible associations between the variable.	Locate points on the x-axis and y-axis of an adapted grid (not necessarily numeric).
Statistics & Probability		**8.DPS.1k2** Analyze displays of bivariate data to develop or select appropriate claims about those data.	Use graphic supports (e.g., highlighted transparency of an association) to identify the appropriate statement when given a relationship between two variables.

Grade Eleven

Note: Each test will contain 25 operational items and three field test items.

Domain	Approximate Percentages	Core Content Connectors	Essential Understandings
Number and Quantity: The Real Number System	25%	**HS.NO.1a1** Simplify expressions that include exponents.	Create an array with a number multiplied by itself (show me 3 rows of 3).
Number and Quantity: Quantities		**H.ME.1a2** Solve real world problems involving units of measurement.	Ability to solve real world measurement problems that require interpretation and use of a table.
Algebra: Creating Equations	40%	**H.PRF.2b1** Translate a real-world problem into a one-variable linear equation.	Match an equation with one variable to the real world context.
Algebra: Creating Equations		**H.PRF.2b2** Solve equations with one or two variables using equations or graphs.	Count and arrange a given number of objects into two sets in multiple combinations.
Algebra: Creating Equations		**H.ME.1b2** Solve a linear equation to find a missing attribute given the area, surface area, or volume and the other attribute.	Identify the unknown quantity when given an equation and labeled figure.
Functions: Interpreting Functions		**H.PRF.1c1** Select the appropriate graphical representation of a linear model based on real world events.	Match a point not on a line as not being part of a data set for a given line.
Functions: Interpreting Functions		**H.PRF.2c1** Make predictions based on a given model (for example, a weather model, data for athletes over years).	Extend a graph when provided a relationship and two choices.

Grade Eleven

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Domain	Approximate Percentages	Core Content Connectors	Essential Understandings
Geometry: Similarity, Right Triangles & Trigonometry	**10%**	**H.GM.1b1** Use definitions to demonstrate congruency and similarity in figures.	Identify the right angle within a given triangle; identify sides and/or hypotenuse of a right triangle.
Statistics & Probability: Interpreting Categorical & Quantitative Data	**25%**	**H.DPS.1b1** Complete a graph given the data, using dot plots, histograms, or box plots.	Make a connection between categories in a data table to the appropriate axis of a graph.
Statistics & Probability: Interpreting Categorical & Quantitative Data		**H.DPS.1c1** Use descriptive stats; range, median, mode, mean, outliers/gaps to describe data set.	Identify the highest and lowest value in a data set given a number line and matching symbols (concept of range).