

Numbers Up!2 Baggin' the Dragon™

Match to California Content Standards & Frameworks for Mathematics K-7

* **Note: All MR Standards are addressed in the design of NUBD questions.**

****Assessment is via the User Statistics feature of the program.**

1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (Corresponding NUVP Level)	4. Assessment Y/N	5. Assessment Citations			
	Y	N	M R *	P			**	M R		
Kindergarten										
<i>Measurement and Geometry</i>										
1.0 Students understand the concept of time and units to measure it; they understand that objects have properties, such as length, weight, and capacity, and that comparisons may be made by referring to those properties:	✓		✓	✓	Levels 1-5	✓	See User Statistics in Admin Section.	x		
1.1 Compare the length, weight, and capacity of objects by making direct comparisons with reference objects (e.g., note which object is shorter, longer, taller, lighter, heavier, or holds more).	✓			✓		✓		x		
1.2 Demonstrate an understanding of concepts of time (e.g., morning, afternoon, evening, today, yesterday, tomorrow, week, year) and tools to measure time (e.g., clock, calendar)	✓			✓		✓		x		
1.3 Name the days of the week.	✓			✓		✓		x		
1.4 Identify the time (to the nearest hour) of everyday events (e.g., lunch time is 12 o'clock; bedtime is 8 o'clock at night).										
2.0 Students identify common objects in their environment and describe the geometric features:	✓			✓		✓		x		
1. Standards-based instructional content as stated in the California Mathematics Framework	Y	N	M R	P		(NUVP Level)		Y/N		M R
	2. Standard Development					3. Citations		4. Assessment	5. Assessment Citations	

1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R
2.1 Identify and describe common geometric objects (e.g., circle, triangle, square, rectangle, cube, sphere, cone).	✓			✓		✓		x
2.2 Compare familiar plane and solid objects by common attributes (e.g., position, shape, size, roundness, number of corners).								
<i>Statistics, Data Analysis, and Probability</i>					Levels 1-5			
1.0 Students collect information about objects and events in their environment:	✓			✓		✓		x
1.1 Pose information questions; collect data; and record the results using objects, pictures, and picture graphs.	✓			✓		✓		x
1.2 Identify, describe, and extend simple patterns (such as circles and triangles) by referring to their shapes, sizes, or colors.								
Grade One								
<i>Algebra and Functions</i>					Levels 6-11			
1.0 Students use number sentences with operational symbols and expressions to solve problems:	✓			✓		✓		x
1.1 Write and solve number sentences from problem situations that express relationships involving addition and subtraction.	✓			✓		✓		x
1.2 Understand the meanings of the symbols +, -, =.	✓			✓		✓		x
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	Y	N	M R	P				M R

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	Y	N	M R	P				M R
<i>Measurement and Geometry</i>					Levels 6-11			
1.0 Students use direct comparison and non-standard units to describe the measurements of objects:	✓			✓		✓		x
1.1 Compare the length, weight, and volume of two or more objects by using direct comparison or a non-standard unit.	✓			✓		✓		x
1.2 Tell time to the nearest half hour and relate time to events (e.g., before/after, shorter/longer).								
2.0 Students identify common geometric figures, classify them by common attributes, and describe their relative position or their location in space:	✓			✓		✓		x
2.1 Identify, describe, and compare triangles, rectangles, squares, and circles, including the faces of three-dimensional objects.	✓			✓		✓		x
2.2 Classify familiar plane and solid objects by common attributes, such as color, position, shape, size, roundness, or number of corners, and explain which attributes are being used for classification.	✓			✓		✓		x
2.3 Give and follow directions about location.								
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	Y	N	M R	P				M R

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	Y	N	M R	P	(NUVP Level)	Y/N		M R
2.4 Arrange and describe objects in space by proximity, position, and direction (e.g., near, far, below, above, up, down, behind, in front of, next to, left or right of).					Levels 6-11			
<i>Statistics, Data Analysis, and Probability</i>								
1.0 Students organise, represent, and compare data by category on simple graphs and charts:								
1.1 Sort objects and data by common attributes and describe the categories.								
1.2 Represent and compare data (e.g., largest, smallest, most often, least often) by using pictures, bar graphs, tally charts, and picture graphs.								
2.0 Students sort objects and create and describe patterns by numbers, shapes, sizes, rhythms, or colors:								
2.1 Describe, extend, and explain ways to get to a next element in a simple repeating pattern (e.g. rhythmic, numeric, color, and shape).								
Grade Two								
<i>Number Sense</i>								
6.0 Students use estimation strategies in computation and problem solving that involve numbers that use the ones, tens, hundreds, and thousands places:	✓			✓		✓		x
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	Y	N	M R	P	(NUVP Level)	Y/N		M R

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	Y	N	M R	P				M R
6.1 Recognise when an estimate is reasonable in measurements (e.g., closest inch).	✓			✓		✓		x
<i>Algebra and Functions</i>								
1.0 Students model, represent, and interpret number relationships to create and solve problems involving addition and subtraction:	✓			✓	Levels 12-15	✓		x
1.1 Use the commutative and associative rules to simplify mental calculations and to check results.	✓			✓		✓		x
1.2 Relate problem situations to number sentences involving addition and subtraction.	✓			✓		✓		x
1.3 Solve addition and subtraction problems by using data from simple charts, picture graphs, and number sentences.	✓			✓		✓		x
<i>Measurement and Geometry</i>								
1.0 Students understand that measurement is accomplished by identifying a unit of measure, iterating (repeating) that unit, and comparing it to the item to be measured:	✓			✓		✓		x
1.1 Measure the length of objects by iterating (repeating) a non-standard or standard unit.	✓			✓		✓		x
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	Y	N	M R	P				M R

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	Y	N	M R	P				M R
1.4 Tell time to the nearest quarter hour and know relationships of time (e.g., minutes in an hour, days in a month, weeks in a year).	✓			✓		✓		x
1.5 Determine the duration of intervals of time in hours (e.g., 11:00 am to 4:00 pm.).	✓			✓		✓		x
2.0 Students identify and describe the attributes of common figures in a plane and of common objects in space:	✓			✓		✓		x
2.1 Describe and classify plane and solid geometric shapes (e.g., circle, triangle, square, rectangle, sphere, pyramid, cube, rectangular prism) according to the number and shape of faces, edges, and vertices.	✓			✓	Levels 12-15	✓		x
2.2 Put shapes together and take them apart to form other shapes (e.g., two congruent right triangles can be arranged to form a rectangle).	✓			✓		✓		x
<i>Statistics, Data Analysis, and Probability</i>								
1.0 Students collect numerical data and record, organize, display, and interpret the data on bar graphs and other representations:	✓			✓		✓		x
1.1 Record numerical data in systematic ways, keeping track of what has been counted.	✓			✓		✓		x
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	Y	N	M R	P				M R

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	Y	N	M R	P				M R
1.2 Represent the same data set in more than one way (e.g., bar graphs and charts with tallies).								
1.3 Identify features of data sets (range and mode).	✓			✓		✓		x
1.4 Ask and answer simple questions related to data representations.	✓			✓		✓		x
2.0 Students demonstrate an understanding of patterns and how patterns grow and describe them in general ways:	✓			✓		✓		x
2.1 Recognise, describe, and extend patterns and determine a next term in linear patterns (e.g., 4, 8, 12. □.□.□).	✓			✓		✓		x
2.2 Solve problems involving simple number patterns.								
<i>Mathematical Reasoning</i>								
3.0 Students note connections between one problem and another.								
Grade Three								
<i>Algebra and Functions</i>								
1.0 Students select appropriate symbols, operations, and properties to represent, describe, simplify, and solve simple number relationships:	✓			✓	Levels 16-17	✓		x
1.2 Solve problems involving numeric equations or inequalities.	✓			✓		✓		x
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	Y	N	M R	P				M R

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	Y	N	M R	P				M R
1.3 Select appropriate operational and relational symbols to make an expression true (e.g., if $4_3=12$, what operational symbol goes in the blank?)	✓			✓		✓		x
1.4 Express simple unit conversions in symbolic form (e.g., $_inches = _feet \times 12$).	✓			✓		✓		x
1.5 Recognise 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 $7 \times 3 \times 5$?).	✓			✓		✓		x
2.0 Students represent simple functional relationships:	✓			✓		✓		x
2.1 Solve simple problems involving a functional relationship between two quantities (e.g., find the total cost of multiple items given the cost per unit).	✓			✓		✓		x
<i>Measurement and Geometry</i>								
1.0 Students choose and use appropriate units and measurement tools to quantify the properties of objects:	✓			✓		✓		x
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.	✓			✓		✓		x
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	Y	N	M R	P				M R

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	Y	N	M R	P				M R
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.	✓			✓		✓		x
1.3 Find the perimeter of a polygon with integer sides.	✓			✓	Levels 16-18	✓		x
1.4 Carry out simple unit conversions within a system of measurement (e.g., centimetres and meters, hours and minutes).	✓			✓		✓		x
2.0 Students describe and compare the attributes of plane and solid geometric figures and use their understanding to show relationships and solve problems:	✓			✓		✓		x
2.1 Identify, describe, and classify polygons (including pentagons, hexagons, and octagons).	✓			✓		✓		x
2.2 Identify attributes of triangles (e.g. two equal sides for the isosceles triangle, three equal sides for the equilateral triangle, right angle for the right triangle).	✓			✓	Level 19	✓		x
2.3 Identify attributes of quadrilaterals (e.g. parallel sides for the parallelogram, right angles for the rectangle, equal sides and right angles for the square).	✓			✓		✓		x
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	Y	N	M R	P				M R

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	Y	N	M R	P				M R
2.4 Identify right angles in geometric figures or in appropriate objects and determine whether other angles are greater or less than a right angle.	✓			✓		✓		x
2.5 Identify, describe, and classify common three-dimensional geometric objects (e.g., cube, rectangular solid, sphere, prism, pyramid, cone, cylinder).	✓			✓		✓		x
Identify common solid objects that are the components needed to make a more complex solid object.	✓			✓		✓		x
<i>Mathematical Reasoning</i>								
1.0 Students make decisions about how to approach problems:	✓			✓	Levels 17-19	✓		x
1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.								
Grade Four								
<i>Algebra and Functions</i>								
1.0 Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences:	✓			✓	Level 20	✓		x
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	Y	N	M R	P				M R

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	Y	N	M R	P				M R
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).	✓			✓	Levels 18-22	✓		x
1.2 Interpret and evaluate mathematical expressions that now use parentheses.	✓			✓	Levels 20-22	✓		x
1.3 Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations	✓			✓	Levels 18-22	✓		x
1.4 Use and interpret formulas (e.g., area = length x width or $A = lw$) to answer questions about quantities and their relationships.	✓			✓	Levels 18-22	✓		x
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.	✓			✓	Levels 19-22	✓		x
2.0 Students know how to manipulate equations:	✓			✓	Levels 18-22	✓		x
2.1 Know and understand that equals added to equals are equal.	✓			✓	Levels 22-26	✓		x
2.2 Know and understand that equals multiplied by equals are equal.	✓			✓	Level 19↔	✓		x
<i>Measurement and Geometry</i>								
1.0 Students understand perimeter and area:	✓			✓		✓		x
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	Y	N	M R	P				M R

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	Y	N	M R	P				M R
1.2 Recognize that rectangles that have the same area can have different perimeters.	✓			✓		✓		x
1.3 Understand that rectangles that have the same perimeter can have different areas.	✓			✓		✓		x
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.	✓			✓		✓		x
2.0 Students use two-dimensional coordinate grids to represent points and graph lines in simple figures:	✓			✓		✓		x
2.2 Understand that the length of a horizontal line segment equals the difference of the x-coordinates.	✓			✓		✓		x
2.3 Understand that the length of a vertical line segment equals the difference of the y-coordinates.	✓			✓		✓		x
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.	✓			✓	Level 14⇨	✓		x
3.2 Identify the radius and diameter of a circle.	✓			✓		✓		x
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	Y	N	M R	P				M R

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3.3 Identify congruent figures.	✓			✓	Level 20 ⇨	✓		x
3.4 Identify figures that have bilateral and rotational symmetry.	✓			✓	Level 23 ⇨	✓		x
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 ¼, ½, ¾, and full turns.	✓			✓	Level 23 ⇨	✓		x
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.	✓			✓	Level 20 ⇨	✓		x
3.7 Know the definitions of different triangles (e.g., equilateral, isosceles, scalene) and identify their attributes.								
3.8 Know the definition of different quadrilaterals (e.g., rhombus, square, rectangle, parallelogram, trapezoid).	✓			✓	Level 20 ⇨	✓		x
<i>Statistics, Data Analysis, and Probability</i>								
1.0 Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings:	✓			✓		✓		x
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	Y	N	M R	P				M R

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	Y	N	M R	P				M R
1.2 Identify the mode(s) for sets of categorical data and the mode(s), median, and any apparent outliers for numerical data sets.	✓			✓	Level 20 ⇨	✓		x
1.3 Interpret one- and two-variable data graphs to answer questions about a situation.	✓			✓		✓		x
2.0 Students make predictions for simple probability situations:	✓			✓		✓		x
2.1 Represent all possible outcomes for a simple probability situation in an organised way (e.g., tables, grids, tree diagrams).	✓			✓	Level 22 ⇨	✓		x
2.2 Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; $\frac{3}{4}$).	✓			✓		✓		x
Grade Five								
<i>Algebra and Functions</i>								
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:	✓			✓	Level 22 ⇨	✓		x
1.1 Use information taken from a graph or equation to answer questions about a problem situation.	✓			✓		✓		x
1.2 Use a letter to represent and unknown number; write and evaluate simple algebraic expressions in one variable by substitution.								
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	Y	N	M R	P				M R

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	Y	N	M R	P				M R
1.3 Know and use the distributive property in equations and expressions with variables.	✓			✓	Level 23⇨	✓		x
1.4 Identify and graph ordered pairs in the four quadrants of the coordinate plane.	✓			✓		✓		x
1.5 Solve problems involving linear functions with integer values; write the equation; and graph the resulting ordered pairs of integers on a grid.	✓			✓		✓		x
<i>Measurement and Geometry</i>								
1.0 Students understand and compute the volumes and areas of simple objects:	✓			✓		✓		x
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 cutting and pasting a right triangle on the parallelogram).	✓			✓		✓		x
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 compare the volumes of rectangular solids.	✓			✓		✓		x
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	Y	N	M R	P				M R
1.4 Differentiate between, and use appropriate units of measure for, two- and three-dimensional objects (i.e., find the perimeter, area, volume).	✓			✓	Level 23↔	✓		x
2.0 Students identify, describe, and classify the properties of, and the relationships between, plane and solid geometric figures.	✓			✓		✓		x
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).	✓			✓		✓		x
2.2 Know that the sum of the angles of any triangle is 180° and the sum of the angles of any quadrilateral is 360° and use this information to solve problems.	✓			✓		✓		x
2.3 Visualize and draw two-dimensional views of three-dimensional objects made from rectangular solids.	✓			✓		✓		x
<i>Statistics, Data Analysis, and Probability</i>								
1.0 Students display, analyse, compare, and interpret different data sets, including data sets of different sizes.	✓			✓		✓		x
1.1 Know the concepts of mean, median, and mode; compute and compare simple examples to show that they may differ.								
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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.	✓			✓	Level 23↔	✓		x
1.3 Use fractions and percentages to compare data sets of different sizes.	✓			✓		✓		x
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.	✓			✓		✓		x
1.5 Know how to write ordered pairs correctly; for example, (x, y) .	✓			✓		✓		x
Grade Six								
<i>Algebra and Functions</i>								
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.	✓			✓		✓		x
1.1 Write and solve one-step linear equations in one variable.	✓			✓		✓		x
1.2 Write and evaluate an algebraic expression for a given situation, using up to three variables.								
1.3 Apply algebraic order of operations and the commutative, associative, and distributive properties to evaluate expressions; and to justify each step in the process.								
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1.4 Solve problems manually by using the correct order of operations or by using a scientific calculator.	✓			✓	Level 23↔	✓		x
2.0 Students analyse and use tables, graphs, and rules to solve problems involving rates and proportions:	✓			✓		✓		x
2.1 Convert one unit of measurement to another (e.g., from feet to miles, from centimeters to inches).	✓			✓		✓		x
2.2 Demonstrate an understanding that <i>rate</i> is a measure of one quantity per unit value of another quantity.	✓			✓		✓		x
2.3 Solve problems involving rates, average speed, distance and time.	✓			✓		✓		x
3.0 Students investigate geometric patterns and describe them algebraically:	✓			✓		✓		x
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).	✓			✓		✓		x
3.2 Express in symbolic form simple relationships arising from geometry.								
1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R

1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R
<i>Measurement and Geometry</i>								
1.0 Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems:								
1.1 Understand the concept of a constant such as π ; know the formulas for the circumference and area of a circle.	✓			✓	Level 23↔	✓		x
1.2 Know common estimates of π (3.14; 22/7) and use these values to estimate and calculate the circumference and area of circles; compare with actual measurements.	✓			✓		✓		x
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.	✓			✓		✓		x
2.0 Students identify and describe the properties of two-dimensional figures:	✓			✓		✓		x
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.	✓			✓		✓		x
<i>Statistics, Data Analysis, and Probability</i>	✓			✓		✓		x
1.0 Students compute and analyse statistical measurements for data sets:	✓			✓		✓		x
1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R

1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R
1.1 Compute the range, mean, median, and mode of data sets.								
2.0 Students use data samples of a population and describe the characteristics and limitations of the samples:	✓			✓	Level 23↔	✓		x
2.1 Compare different samples of a population with the data from the entire population and identify a situation in which it makes sense to use a sample.	✓			✓		✓		x
2.5 Identify claims based on statistical data and, in simple cases, evaluate the validity of the claims.	✓			✓		✓		x
3.0 Students determine theoretical and experimental probabilities and use these to make predictions about events:	✓			✓		✓		x
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.	✓			✓		✓		x
3.2 Use data to estimate the probability of future events (e.g., batting averages or number of accidents per mile driven).	✓			✓		✓		x
1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development					3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations
Y	N	M R	P		M R			

1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R
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.								
Grade Seven								
<i>Algebra and Functions</i>					Level 23 ⇨			
1.0 Students express quantitative relationships by using algebraic terminology, expressions, equations, inequalities, and graphs:	✓			✓		✓		x
1.1 Use variables and appropriate operations to write an expression, an equation, an inequality, or a system of equations or inequalities that represents a verbal description (e.g., three less than a number, half as large as area A).	✓			✓		✓		x
1.2 Use the correct order of operations to evaluate algebraic expressions such as $3(2x + 5^2)$.	✓			✓		✓		x
1.3 Simplify numerical expressions by applying properties of rational numbers (e.g., identity, inverse, distributive, associative, commutative) and justify the process used.	✓			✓		✓		x
3.0 Students graph and interpret linear and some nonlinear functions:	✓			✓		✓		x
1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R

1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R
3.3 Graph linear functions, noting that the vertical change (change in y-value) per unit of horizontal change (change in x-value) is always the same and know that the ratio (“rise over run”) is called the slope of a graph.								
<i>Measurement and Geometry</i>					Level 23⇨			
1.0 Students choose appropriate units of measure and use ratios to convert within and between measurement systems to solve problems:	✓			✓		✓		x
1.1 Compare weights, capacities, geometric measures, times, and temperatures within and between measurement systems (e.g., miles per hour and feet per second, cubic inches to cubic centimetres).	✓			✓		✓		x
1.3 Use measures expressed as ratios (e.g. speed, density) and measures expressed as products (e.g. person-days) to solve problems; check the units of the solutions; and use dimensional analysis to check the reasonableness of the answer.	✓			✓		✓		x
1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R

1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R
2.0 Students compute the perimeter, area, and volume of common geometric objects and use the results to find measures of less common objects. They know how perimeter, area, and volume are affected by changes of scale:	✓			✓		✓		x
2.1 Use the formulas routinely for finding the perimeter and area of basic two-dimensional figures and the surface area and volume of basic three-dimensional figures, including rectangles, parallelograms, trapezoids, squares, triangles, circles, prisms, and cylinders.								
2.2 Estimate and compute the area of more complex or irregular two- and three-dimensional figures by breaking the figures down into more basic geometric objects.	✓			✓	Level 23⇨	✓		x
2.3 Compute the length of the perimeter, the surface area of the faces, and the volume of a three-dimensional object built from rectangular solids. Understand that when the lengths of all dimensions are multiplied by a scale factor, the surface area is multiplied by the square of the scale factor and the volume is multiplied by the cube of the scale factor.	✓			✓		✓		x
1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R

1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R
2.4 Relate the changes in measurement with a change of scale to the units used (e.g., square inches, cubic feet) and to conversions between units (1 square foot = 144 square inches or $[1 \text{ ft}^2]=[133 \text{ in}^2]$. 1 cubic inch is approximately 16.38 cubic centimetres or $[1 \text{ in}^3]=[16.38\text{cm}^3]$).	✓			✓		✓		x
3.0 Students know the Pythagorean theorem and deepen their understanding of plane and solid geometric shapes by constructing figures that meet given conditions and by identifying attributes of figures:								
3.2 Understand and use coordinate graphs to plot simple figures, determine lengths and areas related to them, and determine their image under translations and reflections.	✓			✓	Level 23⇨	✓		x
3.3 Know and understand the Pythagorean theorem and its converse and use it to find the length of the missing side of a right triangle and the lengths of other line segments and, in some situations, empirically verify the Pythagorean theorem by direct measurement.	✓			✓		✓		x
1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R

1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations	4. Assessment	5. Assessment Citations	
	Y	N	M R	P	(NUVP Level)	Y/N		M R
3.4 Demonstrate an understanding of conditions that indicate two geometrical figures are congruent and what congruence means about the relationships between the sides and angles of the two figures.								
<i>Statistics, Data Analysis, and Probability</i>								
1.0 Students collect, organize, and represent data sets that have one or more variables and identify relationships among variables within a data set by hand and through the use of an electronic spreadsheet software program:								
1.1 Know various forms of display for data sets, including a stem-and-leaf plot or box-and-whisker plot; use the forms to display a single set of data or to compare two sets of data.		✓		✓	Level 23↔	✓		x
<i>Mathematical Reasoning</i>								
1.0 Students make decisions about how to approach problems:								
1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.								
1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations	4. Assessment	5. Assessment Citations	
	Y	N	M R	P	(NUVP Level)	Y/N		M R

1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R
Grades Eight to Twelve								
<i>Algebra I</i>								
4.0 Students simplify expressions before solving linear equations and inequalities in one variable, such as $3(2x-5)+4(x-2)=12$.	✓			✓		✓		x
7.0 Students verify that a point lies on a line, given an equation of that line. Students are able to derive linear equations by using a point-slope formula.								
8.0 Students understand the concepts of parallel lines and perpendicular lines and how those slopes are related. Students are able to find the equation of a line perpendicular to a given line that passes through a given point.	✓			✓	Level 23⇨	✓		x
10.0 Students add, subtract, multiply, and divide monomials and polynomials. Students solve multistep problems, including word problems, by using these techniques.	✓			✓		✓		x
11.0 Students apply basic factoring techniques to second- and simple third-degree polynomials. These techniques include finding a common factor for all terms in a polynomial, recognizing the difference of two squares, and recognizing perfect squares of binomials.								
1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R

1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations	4. Assessment	5. Assessment Citations	
	Y	N	M R	P	(NUVP Level)	Y/N		M R
14.0 Students solve a quadratic equation by factoring or completing the square.								
21.0 Students graph quadratic functions and know that their roots are the χ -intercepts.	✓			✓		✓		x
22.0 Students use the quadratic formula or factoring techniques or both to determine whether the graph of a quadratic function will intersect the χ -axis in zero, one or two points.								
<i>Geometry</i>					Level 23 ⇄			
8.0 Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures.	✓			✓		✓		x
9.0 Students compute the volumes and surface areas of prisms, pyramids, cylinders, cones, and spheres; and students commit to memory the formulas for prisms, pyramids, and cylinders.								
10.0 Students compute areas of polygons, including rectangles, scalene triangles, equilateral triangles, rhombi, parallelograms, and trapezoids.								
1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations	4. Assessment	5. Assessment Citations	
	Y	N	M R	P	(NUVP Level)	Y/N		M R

1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R
11.0 Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids.								
15.0 Students use the Pythagorean theorem to determine distance and find missing lengths of sides of right triangles.								
1. Standards-based instructional content as stated in the California Mathematics Framework listed by Strand and standards	2. Standard Development				3. Citations (NUVP Level)	4. Assessment Y/N	5. Assessment Citations	
	Y	N	M R	P				M R