

Nevada Grade 3 Mathematics Item Specifications

Grade 3 Item Specifications – Number and Operations		
Content Standard 1.0 Students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.		
“Enduring and Important Knowledge” identified in previous grade-levels may be included within the context of some problems.		
Assessed Indicators	Depth of Knowledge Essence (*)	Item Specifications and Assessment Development Notes
<p>1.3.1 Place Value Identify, use, and model place value positions of 1’s, 10’s, 100’s, and 1,000’s.</p> <p>Identify the value of a given digit in the 1’s, 10’s, 100’s, and 1,000’s place.</p>	DOK 1	Items may ask students to identify place value positions, identify the value of a given digit, change the standard form of a number to its expanded form and vice versa, and use models (e.g. base ten blocks, place-value chart) to identify/describe place value positions.
<p>1.3.2 Fractions Identify and model the unit fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, and $\frac{1}{8}$ as equal parts of a whole or sets of objects.</p> <p>Read and write unit fractions with numbers and words.</p>	DOK 1	<p>The model may show obvious non- equal parts</p> <p>Unit fractions limited to benchmark fractions, ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$, $\frac{1}{10}$, $\frac{1}{12}$, $\frac{1}{100}$).</p> <p>Models may include different representations of wholes such as circles, rectangles etc...</p>
<p>1.3.3 Comparing and Ordering Read, write, compare, and order numbers from 0 – 9,999.</p> <p>Read and write number words to 100.</p>	DOK 1	<p>When comparing numbers, the caret symbol (^) may be used as a distracter.</p> <p>Computation is not required.</p> <p>When ordering, a maximum of 4 numbers may be used.</p>
<p>1.3.5 Facts Immediately recall and use addition and subtraction facts.</p> <p>Immediately recall multiplication facts (products to 81).</p>	DOK 1	<p>Addition and corresponding subtraction facts up to 12 + 12.</p> <p>Multiplication facts up to 9 × 9 .</p>

(*) = 50% of the assessed items must be at or above the Depth of Knowledge Essence

Nevada Grade 3 Mathematics Item Specifications

Assessed Indicators	Depth of Knowledge Essence (*)	Item Specifications and Assessment Development Notes
<p>1.3.7 Computation Add and subtract two- and three-digit numbers with and without regrouping.</p> <p>Add and subtract decimals using money as a model.</p>	DOK 1	<p>Limit regrouping in subtraction of whole numbers with zeros. (e.g. 500 – 428 above grade level, 506 – 428 at grade level)</p> <p>Limit computation to one step.</p> <p>Distracters based on computational errors</p> <p>Money amounts must be multiples of \$0.25. Subtraction should not require regrouping.</p>
<p>1.3.8 Solving Problems and Number Theory Generate and solve two-step addition and subtraction problems and one-step multiplication problems based on practical situations.</p> <p>Model addition, subtraction, multiplication, and division in a variety of ways.</p> <p><i>Use mathematical vocabulary and symbols to describe multiplication and division. (Not on state CRT)</i></p>	DOK 2	<p>Items may use representations such as drawings and base ten blocks to model addition, subtraction, multiplication, and division.</p> <p>Items may use whole numbers only.</p> <p>Items may not require a combination of operations (addition and subtraction).</p> <p>Subtraction may require regrouping.</p> <p>Multiplication limited to facts up to 9×9.</p>

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Nevada Grade 3 Mathematics Item Specifications

Grade 3 Item Specifications - Algebra		
Content Standard 2.0 Students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions and algebraic relations as modeled in practical situations to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.		
“Enduring and Important Knowledge” identified in previous grade-levels may be included within the context of some problems.		
Assessed Indicators	Depth of Knowledge Essence (*)	Item Specifications and Assessment Development Notes
<p>2.3.1 Patterns Recognize, describe, and create patterns using objects and numbers found in tables, number charts, and charts.</p> <p>Record results of patterns created using manipulatives, pictures, and numeric representations and describe how they are extended.</p>	DOK 2	<p>Patterns must be repeated at least 3 times. Items may use patterns of shapes, dots and tiles. Limit number patterns to simple repeating patterns. (1 2 3 1 2 3 1 2 3) Increasing and decreasing patterns are acceptable (graphical patterns only). Items may be in context. Items may ask students to describe a rule for a pattern using words or symbols.</p>
<p>2.3.2 Variables and Unknowns Model, explain, and solve open number sentences involving addition, subtraction, and multiplication facts.</p> <p>Use variables and open sentences to express relationships.</p>	DOK 1	<p>Number sentences should be equations or inequalities with one missing value. Items may use addition and subtraction up to 999, and multiplication facts up to 9×9. Items may ask students to use number sentences to express relationships. (Only equal relationships will be assessed on state CRT) Items involving addition or subtraction facts may use two operations. (e.g., $2 + 3 = \square + 5$ or $8 - 3 = \square + 1$) Number sentences using only one operation are not limited to just facts. (e.g., $135 + 210 = \square$)</p>
<p>2.3.3 Number Sentences Complete number sentences with the appropriate words and symbols (+, -, >, <, =).</p>	DOK 1	<p>Items may ask students to compare one or two basic number facts using the same operation. (i.e., $2 + 4 \square 6 + 4$) Items may ask students to complete simple number sentences that contain addition and subtraction without regrouping. (e.g., $17 \square 10 > 21 + 3$ or $75 + 62 \square 199$).</p>

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Nevada Grade 3 Mathematics Item Specifications

Grade 3 Item Specifications - Measurement		
Content Standard 3.0 Students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.		
“Enduring and Important Knowledge” identified in previous grade-levels may be included within the context of some problems.		
Assessed Indicators	Depth of Knowledge Essence (*)	Item Specifications and Assessment Development Notes
3.3.1 Comparison, Estimation, Conversion Compare, order, and describe objects by various measurable attributes for area and volume/capacity.	DOK 2	Length, weight, and temperature may also be assessed. All objects must be represented graphically. Polygons must be drawn on a grid for area problems only. Items may ask students to identify which object has the greatest/least area or other measurable attribute When ordering a list of objects, a maximum of 4 objects may be used.
3.3.2 Precision in Measurements Select and use appropriate units of measure. Measure to a required degree of accuracy (to the nearest $\frac{1}{2}$ unit).	DOK 1	Units for length include inch, foot, yard, and mile. Units for weight include pounds only. Units for temperature include degrees Fahrenheit only. Items may ask students to select tools or units that are appropriate for measuring temperature, weight (mass). Graphic may be included. Students will be provided a ruler. Students will measure length to the nearest $\frac{1}{2}$ -inch.
3.3.4 Money Determine possible combinations of coins and bills to equal given amounts. Read, write, and use money notation. Recognize equivalent relationships between and among bills and coins.	DOK 2	Coins may include pennies, nickels, dimes, and quarters only. For items assessing recognizing equivalent relationships, students should be asked to determine the number of one type of coin that is equivalent to 1 unit of a different type of coin/bill (i.e., How many nickels are in \$1?) Given the money value, students find equivalent combinations of bills and coins (may be given as diagrams or descriptions).
3.3.6 Time Tell time to the nearest minute, using analog and digital clocks. Use elapsed time in half-hour increments, beginning on the hour or half-hour, to determine start, end, and elapsed time. Recognize that there are 60 minutes in 1 hour.	DOK 2	Start and end times must be on the hour or half-hour. Elapsed time is in half-hour increments. Graphic representations of clocks may be either digital or analog. For start time, items should include end time (represented on a clock) and amount of elapsed time and ask students to determine start time or vice versa. For elapsed time, items must include a representation of both start and end time (represented on two clocks) and ask students to calculate the elapsed time.

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Nevada Grade 3 Mathematics Item Specifications

Grade 3 Item Specifications - Geometry		
Content Standard 4.0 Students will identify, represent, verify, and apply spatial relationships and geometric properties to solve problems, communicate, and make connections within and beyond the field of mathematics.		
“Enduring and Important Knowledge” identified in previous grade-levels may be included within the context of some problems.		
Assessed Indicators	Depth of Knowledge Essence (*)	Item Specifications and Assessment Development Notes
4.3.1 Two-Dimensional Shapes Describe, sketch, compare, and contrast plane geometric figures.	DOK 1	Items may include the following geometric figures: circle, triangle, rectangle, square, rhombus, and trapezoid. Any orientation is acceptable as long as all figures are oriented in the same direction.
4.3.6 Lines, Angles, and their Properties Identify, draw, and describe horizontal, vertical, and oblique lines.	DOK 1	Items will not assess oblique lines on the state test.

Grade 3 Item Specifications – Data Analysis		
Content Standard 5.0 Students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.		
“Enduring and Important Knowledge” identified in previous grade-levels may be included within the context of some problems.		
Assessed Indicators	Depth of Knowledge Essence (*)	Item Specifications and Assessment Development Notes
5.3.1 Data Collection and Organization <i>Pose questions that can be used to guide data collection, organization, and representation.</i> <i>(Not on state CRT)</i> Use graphical representations, including number lines, frequency tables, and pictographs to represent data.	DOK 1	Data displays may include tables/charts, bar graphs, number lines, frequency tables, and pictographs. Frequency tables may display categorical data only. Items may ask students to select the correct data display given a set of data. Items may ask students to read a display.
5.3.5 Experimental and Theoretical Probability Use informal concepts of probability (certain, likely, unlikely, impossible) to make predictions about future events.	DOK 1	Items are limited to one independent event. Only terms impossible, likely, unlikely and certain may be used.

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