Nevada
Curricular Standards
Mathematics - Grade 7
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1.800.900.2290

Benchmark Number	*Benchmark* • *Instructional Target*	*Gourmet Resource*	*Taught*	*Tested*
	Numbers, Number Sense, and Computation			
1.0	**To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, 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.**			
1.7.1	• *Read, write, and compute ratios and proportion; read, write, add, subtract, multiply, and divide positive and negative numbers.*	**Appetizers 1 A; 2 C & D; 6 A; 7 A; 8 A; 9 A; 12 A; 1 (Number Concepts); 2 (Mathematical Relations); 6 (Addition); 7 (Subtraction); 8 (Multiplication); 9 (Division); 12 (Mathematical Representation)**		
1.7.2	• *Apply positive and negative numbers, ratios, and proportions to solve mathematical and practical problems.*	**Appetizers 2 A, C, & D; 12 A; 14 A; 2 (Mathematical Relations); 12 (Mathematical Representation); 14 (Mathematical Language, Representations, and Models)**		
1.7.3	• *Use absolute value and the properties of real numbers including distributive, commutative, and associative to solve problems.*	**Appetizers 2 A; 2 (Mathematical Relations)**		
1.7.6	• *Compare and order groups of fractions and groups of decimals (e.g., on a number line).*	**Appetizers 2 F; 2 (Mathematical Relations)**		

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1.7.7	• *Select and round to the appropriate significant digit; estimate using a variety of methods.*	**Appetizers 1 B; 10 A & B; 1 (Number Concepts); 10 (Estimation)**		
1.7.9	• *Translate among fractions, decimals, and percents.*	**Appetizers 1 C; 1 (Number Concepts)**		
	Patterns, Functions, and Algebra			
2.0	**To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will use the 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.**			
2.7.1	• *Use and create coordinate graphs (i.e., linear, geometric, and exponential) to represent and/or interpret patterns and relationships, with and without calculators.*	**Appetizers 2 E; 3 H; 12 B; 2 (Mathematical Relations); 3 (Geometry); 12 (Mathematical Representation)**		
2.7.2	• *Identify, model, describe, and evaluate relationships using graphs, with and without technology.*	**Appetizers 2 H; 3 H; 2 (Mathematical Relations); 3 (Geometry)**		
2.7.3	• *Evaluate formulas and algebraic expressions for given values of a variable (e.g., $A = lw$ given $l = 6$, $w = 2$, then $A = 12$).*	**Appetizers 4 D & E; 4 (Measurement)**		
2.7.4	• *Represent mathematical situations using algebraic language and symbols.*	**Appetizers 1 D & G; 2 D & G; 12 A; 14 A; 1 (Number Concepts); 2 (Mathematical Relations); 12 (Mathematical Representation); 14 (Mathematical Language, Representations, and Models)**		

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2.7.5	• *Combine like terms variable expressions (e.g., 2a + 3a = 5a).*	**Appetizers 2 D & G; 12 A; 2 (Mathematical Relations); 12 (Mathematical Representation)**		
2.7.6	• *Model, identify, and solve linear equations and inequalities using concrete and informal methods; relate this process to the order of operations.*	**Appetizers 2 G; 2 (Mathematical Relations)**		
2.7.7	• *Generate and graph a set of ordered pairs to solve a linear equation.*	**Appetizers 2 H; 2 (Mathematical Relations)**		
	Measurement			
3.0	**To solve problems, communicate, reason and make connections within and beyond the field of mathematics, students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements.**			
3.7.1	• *Estimate and convert, units of measure for mass and volume within the same measurement system; compare corresponding units of the two systems.*	**Appetizers 4 E; 4 (Measurement)**		
3.7.2	• *Given a measurement, determine the greatest possible error.*			
3.7.3	• *Estimate, measure to the required degree of accuracy, derive, and apply standard formulas to find the volume and surface area of solid figures (e.g., cylinders, triangular solids).*	**Appetizers 4 E; 4 (Measurement)**		
3.7.5	• *Write, solve, and apply proportions.*	**Appetizers 2 B; 2 (Mathematical Relations)**		
3.7.6	• *Use elapsed time to solve practical problems (e.g., develop schedules, plan trips).*	**Appetizers 4 A; 4 (Measurement)**		

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	Spatial Relationships and Geometry			
4.0	**To solve problems, communicate, and make connections within and beyond the field of mathematics, students will identify, represent, verify, and apply spatial relationships and geometric properties.**			
4.7.1	• *Identify, describe by properties, classify, compare, and draw regular and irregular polygons; find the sum of the interior angles.*	**Appetizers 3 A;** **3 (Geometry)**		
4.7.2	• *Use ratio and proportions to create scale drawings.*	**Appetizers 2 C;** **2 (Mathematical Relations)**		
4.7.3	• *Use coordinate geometry and models to demonstrate geometric transformations including rotate/turn, translate/slide, reflect/flip by finding the ordered pairs that describe the locations of the original and the transformed figures.*	**Appetizers 3 B & H;** **3 (Geometry)**		
4.7.4	• *Make a model of a three-dimensional figure from a two-dimensional drawing and make a two-dimensional drawing of a three-dimensional object.*	**Appetizers 3 A & G;** **3 (Geometry)**		
4.7.5	• *Use coordinate geometry to represent slope, midpoint, and horizontal and vertical distance.*			
4.7.6	• *Describe the properties of geometric relationships including parallel lines, perpendicular lines, bisectors, triangles, and quadrilaterals (e.g., properties of angles formed by a transversal of parallel lines).*	**Appetizers 3 E;** **3 (Geometry)**		
4.7.7	• *Model the Pythagorean Theorem; solve for the hypotenuse using the theorem.*			
4.7.8	• *Construct and verify congruent angles, and parallel and perpendicular lines using hand tools.*	**Appetizers 3 D;** **3 (Geometry)**		

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	Data Analysis			
5.0	**To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections.**			
5.7.1	• *Organize, display, read, and analyze data, with and without technology, using a variety of displays including frequency distributions and circle graphs.*	**Appetizers 4 D; 4 (Measurement)**		
5.7.4	• *Select, use, and graph (when possible) measures of variability including range, distribution and possible outliers.*	**Appetizers 5 D; 12 B; 5 (Probability/Statistics); 12 (Mathematical Representation)**		
5.7.6	• *Given a set of data, interpolate and extrapolate to make and explain predictions.*	**Appetizers 5 C & D; 15 A; 5 (Probability/Statistics); 15 (Make Conjectures and Verify Conclusions)**		
	Problem Solving			
6.0	**Students will develop their ability to solve problems by engaging in developmentally appropriate problem solving opportunities in which there is a need to use various approaches to investigate and understand mathematical concepts in order to: formulate their own problems; find solutions to problems from everyday situations; develop and apply strategies to solve a wide variety of problems; and integrate mathematical reasoning, communication and connections.**			
6.1	• *Select, modify, develop, and apply strategies to solve a variety of mathematical and practical problems and to investigate and understand mathematical concepts.*	**Appetizers 11 A, B, C, & D; 12 A; 11 (Problem Solving); 12 (Mathematical Representation)**		
6.2	• *Apply previous experience and knowledge to new problem-solving situations.*	**All Appetizers**		
6.5	• *Verify, interpret, and evaluate results with respect to the original problem situation, determining an efficient strategy for the given situation.*	**Appetizers 11 A, B, C, & D; 12 A; 15 B; 11 (Problem Solving); 12 (Mathematical Representation); 15 (Make Conjectures and Verify Conclusions)**		

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6.6	• *Try more than one strategy when the first strategy proves to be unproductive.*	**Appetizers 11 A, B, C, & D; 12 A; 11 (Problem Solving); 12 (Mathematical Representation)**		
6.7	• *Apply multi-step, integrated, mathematical problem-solving strategies, persisting until a solution is found or until it is clear that no solution exists.*	**All Appetizers**		
6.9	• *Generalize solutions and strategies from earlier problems to new problem situations.*	**Appetizers 15 A; 15 (Make Conjectures and Verify Conclusions)**		
6.10	• *Interpret and solve a variety of mathematical problems by paraphrasing, identifying necessary and extraneous information, selecting and justifying efficient methods and/or strategies, and ensuring the answer is reasonable.*	**All Appetizers**		
6.13	• *Use technology, including calculators, to solve problems and verify solutions.*			
6.14	• *Use technology, including calculators, to investigate, define, and describe quantitative relationships such as patterns and functions.*			

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	Mathematical Communication			
7.0	**Students will develop their ability to communicate mathematically by solving problems in which there is a need to obtain information from the real world through reading, listening, and observing in order to: translate this information into a mathematical language and symbols; process this information mathematically; and present results in written, oral and visual formats.**			
7.1	• *Discuss and exchange ideas about mathematics as a part of learning.*	**All Appetizers**		
7.2	• *Use inquiry techniques (e.g., discussion, questioning, research, data gathering) to solve mathematical problems.*	**Interactive discussions throughout Appetizers**		
7.3	• *Read expository text to learn about mathematics.*			
7.6	• *Interpret and solve word problems without the necessity of key words or phrases.*	**Appetizers 11 A, B, C, & D; 11 (Problem Solving)**		
7.9	• *Model and explain mathematical relationships using oral, written, graphical, and algebraic methods.*	**All Appetizers require justification**		
7.10	• *Evaluate the effectiveness of written and oral presentations of mathematics.*	**All Appetizers**		
7.11	• *Make conjectures and present arguments in discussions of mathematical ideas.*	**Interactive discussions throughout Appetizers**		
7.13	• *Make conjectures and present arguments in discussions of mathematics.*	**Appetizers 15 A; 15 (Make Conjectures and Verify Conclusions)**		

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7.15	• *Use everyday language to explain thinking about strategies and solutions to mathematical problems.*	**Interactive discussions and written justification of Appetizers**		
7.16	• *Express mathematical ideas and use them to define, compare, and solve problems orally and in writing.*	**Interactive discussions and written justification of Appetizers**		
7.17	• *Use mathematical notation to communicate and explain mathematical situations.*	**All Appetizers emphasized in 14 A & 15 B; 14 (Mathematical Language, Representations, and Models); 15 (Make Conjectures and Verify Conclusions)**		
	Mathematical Reasoning			
8.0	**Students will develop their ability to reason mathematically by solving problems in which there is a need to investigate significant mathematical ideas and construct their own learning in all content areas in order to justify their thinking; reinforce and extend their logical reasoning abilities; reflect on and clarify their own thinking; and ask questions to extend their thinking.**			
8.2	• *Justify answers and the steps taken to solve problems with and without manipulatives and physical models.*	**All Appetizers**		
8.4	• *Use patterns and relationships to analyze mathematical situations; draw logical conclusions about mathematical problems.*	**Appetizers 15 A & B; 15 (Make Conjectures and Verify Conclusions)**		
8.5	• *Follow a logical argument and judge its validity.*	**All Appetizers**		
8.7	• *Recognize and apply deductive and inductive reasoning in both concrete and abstract contexts.*	**All Appetizers**		

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8.8	• *Ask questions to reflect on, clarify, and extend thinking.*	**Interactive discussions throughout Appetizers**		
8.9	• *Review and refine the assumptions and steps used to derive conclusions in mathematical arguments.*	**Interactive discussions throughout Appetizers**		
8.11	• *Determine relevant, irrelevant, and/or sufficient information to solve mathematical problems.*	**All Appetizers**		
	Mathematical Connections			
9.0	**Students will develop their ability to make mathematical connections by solving problems in which there is a need to view mathematics as an integrated whole, identifying relationships between context standards strands, and integrating mathematics with other disciplines, allowing the flexibility to approach problems in a variety of ways within and beyond the field of mathematics.**			
9.1	• *Link new concepts to prior knowledge.*	**All Appetizers**		
9.2	• *Use mathematical ideas from one area of mathematics to explain an idea from another area of mathematics.*	**All Appetizers**		
9.3	• *Use models to explain the relationship of concepts to procedures.*	**Appetizers 14 A; 14 (Mathematical Language, Representations, and Models)**		
9.4	• *Use the connections among mathematical topics to develop multiple approaches to problems.*	**All Appetizers**		
9.6	• *Use and analyze the connections between Mathematics and other disciplines.*	**All Appetizers**		
9.7	• *Apply mathematical thinking and modeling to solve problems that arise in other disciplines (e.g., rhythm in music and motion in science).*			
9.8	• *Identify, explain, and use mathematics in everyday life.*	**All Appetizers**		