



Alignment Document  
State of Wisconsin and Aventa Learning

**Math 8**

Strand	Common Curriculum Goal	Standard	Lesson Name		
A.8 Mathematical Processes	A.8.1 Use reasoning abilities to	A.8.1.a evaluate information	Lesson 2 Variables and Expressions Lesson 3 Properties and Numbers		
		A.8.1.b perceive patterns	Lesson 16 Arithmetic and Geometric Sequences		
		A.8.1.c identify relationships	Lesson 3 Properties of Numbers Lesson 4 Equations Lesson 8 Fractions Lesson 9, Equations with Fractions and Decimals		
		A.8.1.d formulate questions for further exploration	Lesson 4 Equations Lesson 11 Similarity and Scales,		
		A.8.1.e evaluate strategies	Lesson 13 Solving Multi-Step Equations, Lesson 14 Solving Multi-Step Inequalities,		
		A.8.1.f justify statements	Lesson 35 Sampling Lesson 36 Inferential Statistics		
		A.8.1.g test reasonableness of results	Lesson 36 Inferential Statistics Lesson 35 Sampling		
		A.8.1.h defend work	Lesson 17 Data Analysis Lesson 35 Sampling Lesson 36 Inferential Statistics		
		A.8 Mathematical Processes	A.8.2 Communicate logical arguments clearly to show why a result makes sense	A.8.2	Lesson 35 Sampling Lesson 36 Inferential Statistics
				A.8.3 Analyze non-routine problems by modeling, illustrating, guessing, simplifying, generalizing, shifting to another point of view, etc.	Lesson 3 Properties of Numbers Lesson 4 Equations Lesson 16 Arithmetic and Geometric Sequences
A.8.4 Develop effective oral and written presentations that include	A.8.4.a appropriate use of technology	A.8.4.a	Lesson 36 Inferential Statistics Lesson 23 Graphs		
		A.8.4.b the conventions of mathematical discourse (e.g., symbols, definitions, labeled drawings)	Lesson 1 Number Sense Lesson 5 Inequalities,		
		A.8.4.c mathematical language	Lesson 1 Number Sense Lesson 2 Variables and Expressions		
		A.8.4.d clear organization of ideas and procedures	Lesson 13 Solving Multi-Step Equations Lesson 14 Solving Multi-Step Inequalities		

		<b>A.8.4.e</b> understanding of purpose and audience	<b>Lesson 6</b> Exponents <b>Lesson 23</b> Graphs
	<b>A.8</b> Mathematical Processes	<b>A.8.5</b> Explain mathematical concepts, procedures, and ideas to others who may not be familiar with them	<b>Lesson 35</b> Sampling <b>Lesson 36</b> Inferential Statistics
		<b>A.8.6</b> Read and understand mathematical texts and other instructional materials and recognize mathematical ideas as they appear in other contexts	<b>Lesson 24</b> Polygons <b>Lesson 26</b> Circles and Pi
<b>B.8</b> Number Operations and Relationships	<b>B.8</b> Number Operations and Relationships	<b>B.8.1</b> Read, represent, and interpret various rational numbers (whole numbers, integers, decimals, fractions, and percents) with verbal descriptions, geometric models, and mathematical notation (e.g., expanded, scientific, exponential)	<b>Lesson 1</b> Number Sense <b>Lesson 6</b> Exponents <b>Lesson 7</b> Scientific Notation <b>Lesson 8</b> Fractions <b>Lesson 10</b> Ratios, Proportions, Percents
		<b>B.8.2</b> Perform and explain operations on rational numbers (add, subtract, multiply, divide, raise to a power, extract a root, take opposites and reciprocals, determine absolute value)	<b>Lesson 1</b> Number Sense <b>Lesson 6</b> Exponents
		<b>B.8.3</b> Generate and explain equivalencies among fractions, decimals, and percents	<b>Lesson 8</b> Fractions <b>Lesson 9</b> Equations with Fractions and Decimals <b>Lesson 10</b> Ratios, Proportions, Percents
		<b>B.8.4</b> Express order relationships among rational numbers using appropriate symbols ( $>$ ,	<b>Lesson 3</b> Properties of Numbers <b>Lesson 5</b> Inequalities
	<b>B.8.5</b> Apply proportional thinking in a variety of problem situations that include, but are not limited to	<b>B.8.5.a</b> ratios and proportions (e.g., rates, scale drawings, similarity)	<b>Lesson 10</b> Ratios, Proportions, Percents <b>Lesson 11</b> Similarity and Scale
		<b>B.8.5.b</b> percents, including those greater than 100 and less than one (e.g., discounts, rate of increase or decrease, sales tax)	<b>Lesson 12</b> Percents and Equations
	<b>B.8.6</b> Model and solve problems involving number-theory concepts such as	<b>B.8.6.a</b> prime and composite numbers	<b>Lesson 6</b> Exponents
		<b>B.8.6.b</b> divisibility and remainders	<b>Lesson 8</b> Fractions
		<b>B.8.6.c</b> greatest common factors	<b>Lesson 8</b> Fractions
		<b>B.8.6.d</b> least common multiples	<b>Lesson 8</b> Fractions
	<b>B.8.7</b> In problem-solving situations, select and use appropriate computational procedures with rational numbers such as	<b>B.8.7.a</b> calculating mentally	<b>Lesson 1</b> Number Sense <b>Lesson 3</b> Properties of Numbers
		<b>B.8.7.b</b> estimating	<b>Lesson 1</b> Number Sense <b>Lesson 3</b> Properties of Numbers
		<b>B.8.7.c</b> creating, using, and explaining algorithms	<b>Lesson 2</b> Variables and Expressions <b>Lesson 4</b> Equations
		<b>B.8.7.d</b> using technology (e.g., scientific calculators, spreadsheets)	<b>Lesson 36</b> Inferential Statistics

<b>C.8</b> Geometry	<b>C.8.1</b> Describe special and complex two- and three-dimensional figures (e.g., rhombus, polyhedron, cylinder) and their component parts (e.g., base, altitude, and slant height) by	<b>C.8.1.a</b> naming, defining, and giving examples	<b>Lesson 24</b> Polygons
		<b>C.8.1.b</b> comparing, sorting, and classifying them	<b>Lesson 24</b> Polygons
		<b>C.8.1.c</b> identifying and contrasting their properties (e.g., symmetrical, isosceles, regular)	<b>Lesson 27</b> Symmetry and Translations
		<b>C.8.1.d</b> drawing and constructing physical models to specifications	<b>Lesson 32</b> Triangles and Triangular Prisms
		<b>C.8.1.e</b> explaining how these figures are related to objects in the environment	<b>Lesson 24</b> Polygon <b>Lesson 27</b> Symmetry and Translations
	<b>C.8</b> Geometry	<b>C.8.2</b> Identify and use relationships among the component parts of special and complex two- and three-dimensional figures (e.g., parallel sides, congruent faces).	<b>Lesson 24</b> Polygons <b>Lesson 28</b> Parallelograms
		<b>C.8.3</b> Identify three-dimensional shapes from two-dimensional perspectives and draw two-dimensional sketches of three-dimensional objects preserving their significant features	<b>Lesson 30</b> Surface Area
		<b>C.8.4</b> Perform transformations on two-dimensional figures and describe and analyze the effects of the transformations on the figures	<b>Lesson 27</b> Symmetry and Translations
		<b>C.8.5</b> Locate objects using the rectangular coordinate system	<b>Lesson 21</b> Coordinate Plane
<b>D.8</b> Measurement	<b>D.8</b> Measurement	<b>D.8.1</b> Identify and describe attributes in situations where they are not directly or easily measurable (e.g., distance, area of an irregular figure, likelihood of occurrence)	<b>Lesson 29</b> Measurement Systems
	<b>D.8.2</b> Demonstrate understanding of basic measurement facts, principles, and techniques including the following	<b>D.8.2.a</b> approximate comparisons between metric and US Customary units (e.g., a liter and a quart are about the same; a kilometer is about six-tenths of a mile)	<b>Lesson 29</b> Measurement Systems
		<b>D.8.2.b</b> knowledge that direct measurement produces approximate, not exact, measures	<b>Lesson 29</b> Measurement Systems
		<b>D.8.2.c</b> the use of smaller units to produce more precise measures	<b>Lesson 29</b> Measurement Systems
	<b>D.8.3</b> Determine measurement directly using standard units (metric and US Customary) with these suggested degrees of accuracy	<b>D.8.3.a</b> lengths to the nearest mm or 1/16 of an inch	<b>Lesson 29</b> Measurement Systems
		<b>D.8.3.b</b> weight (mass) to the nearest 0.1 g or 0.5 ounce	<b>Lesson 29</b> Measurement Systems
		<b>D.8.3.c</b> liquid capacity to the nearest ml	<b>Lesson 29</b> Measurement Systems
		<b>D.8.3.d</b> angles to the nearest degree	<b>Lesson 25</b> Angles

		<b>D.8.3.e</b> temperature to the nearest C° or F°	<b>Lesson 18</b> Transforming Formulas
		<b>D.8.3.f</b> elapsed time to the nearest second	<b>Lesson 18</b> Transforming Formulas
	<b>D.8.4</b> Determine measurements indirectly using	<b>D.8.4.a</b> estimation	<b>Lesson 29</b> Measurement Systems
		<b>D.8.4.b</b> conversion of units within a system (e.g., quarts to cups, millimeters to centimeters)	<b>Lesson 29</b> Measurement Systems
		<b>D.8.4.c</b> ratio and proportion (e.g., similarity, scale drawings)	<b>Lesson 10</b> Ratios, Proportions, Percents <b>Lesson 11</b> Similarity and Scale
		<b>D.8.4.d</b> geometric formulas to derive lengths, areas, volumes of common figures (e.g., perimeter, circumference, surface area)	<b>Lesson 30</b> Surface Area <b>Lesson 31</b> Volume <b>Lesson 26</b> Circles and Pi
		<b>D.8.4.e</b> the Pythagorean relationship	<b>Lesson 34</b> Pythagorean Theorem
		<b>D.8.4.f</b> geometric relationships and properties for angle size (e.g., parallel lines and transversals; sum of angles of a triangle; vertical angles)	<b>Lesson 25</b> Angles
<b>E.8</b> Statistics and Probability	<b>E.8.1</b> Work with data in the context of real-world situations by	<b>E.8.1.a</b> formulating questions that lead to data collection and analysis	<b>Lesson 35</b> Sampling <b>Lesson 36</b> Inferential Statistics
		<b>E.8.1.b</b> designing and conducting a statistical investigation	<b>Lesson 35</b> Sampling <b>Lesson 36</b> Inferential Statistics
		<b>E.8.1.c</b> using technology to generate displays, summary statistics, and presentations	<b>Lesson 36</b> Inferential Statistics
	<b>E.8.2</b> Organize and display data from statistical investigations using	<b>E.8.2.a</b> appropriate tables, graphs, and/or charts (e.g., circle, bar or line for multiple sets of data)	<b>Lesson 35</b> Sampling <b>Lesson 36</b> Inferential Statistics
		<b>E.8.2.b</b> appropriate plots (e.g., line, stem-and-leaf, box, scatter)	<b>Lesson 36</b> Inferential Statistics
	<b>E.8.3</b> Extract, interpret, and analyze information from organized and displayed data by using	<b>E.8.3.a</b> frequency and distribution, including mode and range	<b>Lesson 35</b> Sampling
		<b>E.8.3.b</b> central tendencies of data (mean and median)	<b>Lesson 35</b> Sampling
		<b>E.8.3.c</b> indicators of dispersion (e.g., outliers)	<b>Lesson 36</b> Inferential Statistics
	<b>E.8.4</b> Use the results of data analysis to	<b>E.8.4.a</b> make predictions	<b>Lesson 36</b> Inferential Statistics
		<b>E.8.4.b</b> develop convincing arguments	<b>Lesson 35</b> Sampling <b>Lesson 36</b> Inferential Statistics
		<b>E.8.4.c</b> draw conclusions	<b>Lesson 35</b> Sampling <b>Lesson 36</b> Inferential Statistics
	<b>E.8</b> Statistics and Probability	<b>E.8.5</b> Compare several sets of data to generate, test, and, as the data dictate, confirm or deny hypotheses	<b>Lesson 35</b> Sampling <b>Lesson 36</b> Inferential Statistics

	<b>E.8.6</b> Evaluate presentations and statistical analyses from a variety of sources for	<b>E.8.6.a</b> credibility of the source	<b>Lesson 35</b> Sampling
		<b>E.8.6.b</b> techniques of collection, organization, and presentation of data	<b>Lesson 35</b> Sampling <b>Lesson 36</b> Inferential Statistics
		<b>E.8.6.c</b> missing or incorrect data	<b>Lesson 35</b> Sampling
		<b>E.8.6.d</b> inferences	<b>Lesson 36</b> Inferential Statistics
		<b>E.8.6.e</b> possible sources of bias	<b>Lesson 35</b> Sampling <b>Lesson 36</b> Inferential Statistics
	<b>E.8.7</b> Determine the likelihood of occurrence of simple events by	<b>E.8.7.a</b> using a variety of strategies to identify possible outcomes (e.g., lists, tables, tree diagrams)	<b>Lesson 19</b> Probability <b>Lesson 20</b> Counting Theory
		<b>E.8.7.b</b> conducting an experiment	<b>Lesson 19</b> Probability
		<b>E.8.7.c</b> designing and conducting simulations	<b>Lesson 19</b> Probability <b>Lesson 20</b> Counting Theory
		<b>E.8.7.d</b> applying theoretical notions of probability (e.g., that four equally likely events have a 25% chance of happening)	<b>Lesson 19</b> Probability
<b>F.8 Algebraic Relationships</b>	<b>F.8.1</b> Work with algebraic expressions in a variety of ways, including	<b>F.8.1.a</b> using appropriate symbolism, including exponents and variables	<b>Lesson 2</b> Variables and Expressions <b>Lesson 6</b> Exponents
		<b>F.8.1.b</b> evaluating expressions through numerical substitution	<b>Lesson 2</b> Variables and Expressions <b>Lesson 3</b> Properties of Numbers
		<b>F.8.1.c</b> generating equivalent expressions	<b>Lesson 4</b> Equations
		<b>F.8.1.d</b> adding and subtracting expressions	<b>Lesson 4</b> Equations
	<b>F.8.2</b> Work with linear and nonlinear patterns and relationships in a variety of ways, including	<b>F.8.2.a</b> representing them with tables, with graphs, and with algebraic expressions, equations, and inequalities	<b>Lesson 22</b> Functions
		<b>F.8.2.b</b> describing and interpreting their graphical representations (e.g., slope, rate of change, intercepts)	<b>Lesson 23</b> Graphing Linear Equations
		<b>F.8.2.c</b> using them as models of real-world phenomena	<b>Lesson 16</b> Arithmetic and Geometric Sequences
		<b>F.8.2.d</b> describing a real-world phenomenon that a given graph might represent	<b>Lesson 23</b> Graphing Linear Equations
	<b>F.8</b> Algebraic Relationships	<b>F.8.3</b> Recognize, describe, and analyze functional relationships by generalizing a rule that characterizes the pattern of change among variables. These functional relationships include exponential growth and decay (e.g., cell division, depreciation)	<b>Lesson 16</b> Arithmetic and Geometric Sequences
	<b>F.8.4</b> Use linear equations and inequalities in a variety of ways, including	<b>F.8.4.a</b> writing them to represent problem situations and to express generalizations	<b>Lesson 4</b> Equations <b>Lesson 5</b> Inequalities
		<b>F.8.4.b</b> solving them by different methods (e.g., informally, graphically, with formal properties, with technology)	<b>Lesson 4</b> Equations <b>Lesson 5</b> Inequalities

		<b>F.8.4.c</b> writing and evaluating formulas (including solving for a specified variable)	<b>Lesson 4</b> Equations <b>Lesson 13</b> Solving Multi-Step Equations
		<b>F.8.4.d</b> using them to record and describe solution strategies	<b>Lesson 4</b> Equations
	<b>F.8.5</b> Recognize and use generalized properties and relations, including	<b>F.8.5.a</b> additive and multiplicative property of equations and inequalities	<b>Lesson 3</b> Properties of Numbers <b>Lesson 4</b> Equations <b>Lesson 13</b> Solving Multi-Step Equations <b>Lesson 14</b> Solving Multi-Step Inequalities
		<b>F.8.5.b</b> commutativity and associativity of addition and multiplication	<b>Lesson 3</b> Properties of Numbers <b>Lesson 4</b> Equations <b>Lesson 13</b> Solving Multi-Step Equations <b>Lesson 14</b> Solving Multi-Step Inequalities
		<b>F.8.5.c</b> distributive property	<b>Lesson 3</b> Properties of Numbers <b>Lesson 4</b> Equations <b>Lesson 13</b> Solving Multi-Step Equations <b>Lesson 14</b> Solving Multi-Step Inequalities
		<b>F.8.5.d</b> inverses and identities for addition and multiplication	<b>Lesson 3</b> Properties of Numbers <b>Lesson 4</b> Equations <b>Lesson 13</b> Solving Multi-Step Equations <b>Lesson 14</b> Solving Multi-Step Inequalities
		<b>F.8.5.e</b> transitive property	<b>Lesson 3</b> Properties of Numbers <b>Lesson 4</b> Equations <b>Lesson 13</b> Solving Multi-Step Equations <b>Lesson 14</b> Solving Multi-Step Inequalities