



Alignment Document  
State of Wisconsin and Aventa Learning

**Math 7**

| 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 16: Percent of Change<br>Lesson 19: Mean, Median, Mode, Range<br>Lesson 21: Combinations/Permutations<br>Lesson 30: Graphs and Data Analysis |
|                            |                                  | A.8.1.b perceive patterns                           | Lesson 34: Patterns   |
|                            |                                  | A.8.1.c identify relationships                      | Lesson 14: Connect Fractions, Decimals, Percents<br>Lesson 34: Patterns   |
|                            |                                  | A.8.1.d formulate questions for further exploration |   |
|                            |                                  | A.8.1.e evaluate strategies                         |   |
|                            |                                  | A.8.1.f justify statements                          | Lesson 8: Solving Equations with Fractions<br>Lesson 13: Solving Equations with Decimals<br>Lesson 18: Solve Equations with Percents                |
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|  |  | <b>A.8.1.g</b> test reasonableness of results   | Lesson 8: Solving Equations with Fractions<br>Lesson 13: Solving Equations with Decimals<br>Lesson 18: Solving Equations with Percents              |
|  |  | <b>A.8.1.h</b> defend work  | Open-ended questions throughout course  |
|  |  | <b>A.8.2</b> Communicate logical arguments clearly to show why a result makes sense   | Lesson 4: Compare/Order Fractions<br><br>Lesson 16: Percent of Change<br>Lesson 24: Quadrilaterals and Other Polygons<br>Lesson 32: Number Concepts |
|  |  | <b>A.8.3</b> Analyze non-routine problems by modeling, illustrating, guessing, simplifying, generalizing, shifting to another point of view, etc.       |   |
|  | <b>A.8.4</b> Develop effective oral and written presentations that include | <b>A.8.4.a</b> appropriate use of technology  | Lesson 34: Patterns   |
|  |  | <b>A.8.4.b</b> the conventions of mathematical discourse (e.g., symbols, definitions, labeled drawings)   | Lesson 34: Patterns   |
|  |  | <b>A.8.4.c</b> mathematical language  | Lesson 34: Patterns   |
|  |  | <b>A.8.4.d</b> clear organization of ideas and procedures   | Lesson 34: Patterns   |
|  |  | <b>A.8.4.e</b> understanding of purpose and audience  | Lesson 34: Patterns   |
|  |  | <b>A.8.5</b> Explain mathematical concepts, procedures, and ideas to others who may not be familiar with them   | Lesson 34: Patterns   |
|  |  | <b>A.8.6</b> Read and understand mathematical texts and other instructional materials and recognize mathematical ideas as they appear in other contexts |   |

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| <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) | Lesson 1: Integers<br>Lesson 2: Exponents and Square Roots<br>Lesson 4: Compare/ Order Fractions<br>Lesson 9: Place Value, Round, Compare, Order Decimals<br><br>Lesson 14: Connect Fractions, Decimals, Percents<br>Lesson 15: Percent of a Number<br>Lesson 32: Number Concepts  |
|  |  | <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)   | Lesson 1: Integers<br>Lesson 2: Exponents and Square Roots<br>Lesson 3: Order of Operations<br>Lesson 5: Addition/Subtraction of Fractions<br>Lesson 6: Multiplication/Division of Fractions<br>Lesson 7: Mixed Numbers<br>Lesson 11: Addition/Subtraction of Decimals<br>Lesson 12: Multiplication/Division of Decimals<br>Lesson 15: Percent of a Number |
|  |  | <b>B.8.3</b> Generate and explain equivalencies among fractions, decimals, and percents   | Lesson 14: Connect Fractions, Decimals, Percents   |
|  |  | <b>B.8.4</b> Express order relationships among rational numbers using appropriate symbols (>, <, ≥, ≤, ≠)   | Lesson 1: Integers<br>Lesson 4: Compare/ Order Fractions<br><br>Lesson 9: Place Value, Round, Compare, Order Decimals  |
|  | <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)   | Lesson 31: Ratios and Proportions  |

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|  |   | <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) | Lesson 16: Percent of Change  |
|  | <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   | Lesson 1: Integers  |
|  |   | <b>B.8.6.b</b> divisibility and remainders   | Lesson 1: Integers  |
|  |   | <b>B.8.6.c</b> greatest common factors   | Lesson 4: Compare/ Order Fractions  |
|  |   | <b>B.8.6.d</b> least common multiples  | Lesson 4: Compare/ Order 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  | Lesson 1: Integers<br>Lesson 2: Exponents and Square Roots<br>Lesson 5: Addition/Subtraction of Fractions<br>Lesson 6: Multiplication/Division of Fractions<br>Lesson 11: Addition/Subtraction of Decimals<br>Lesson 15: Percent of a Number                              |
|  |   | <b>B.8.7.b</b> estimating  | Lesson 2: Exponents and Square Roots<br>Lesson 5: Addition/ Subtraction of Fractions<br>Lesson 8: Solving Equations with Fractions<br>Lesson 9: Place Value, Round, Compare, Order Decimals<br>Lesson 13: Solving Equations with Decimals<br>Lesson 15: Percent of Number |
|  |   | <b>B.8.7.c</b> creating, using, and explaining algorithms  | Lesson 33: Properties of Numbers and Variable Expressions<br>Lesson 35: Functions, Graphs, and Linear Equations<br>Lesson 36: Inequalities  |
|  |   | <b>B.8.7.d</b> using technology (e.g., scientific calculators, spreadsheets)   |   |

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| C.8 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., | <b>C.8.1.a</b> naming, defining, and giving examples  | Lesson 23: Triangles<br>Lesson 24: Quadrilaterals and Other Polygons<br>Lesson 27: Volumes and Surface Areas                            |
|              |   | <b>C.8.1.b</b> comparing, sorting, and classifying them   | Lesson 23: Triangles<br>Lesson 24: Quadrilaterals and Other Polygons<br>Lesson 27: Volumes and Surface Areas                            |
|              |   | <b>C.8.1.c</b> identifying and contrasting their properties (e.g., symmetrical, isosceles, regular)   | Lesson 23: Triangles<br>Lesson 24: Quadrilaterals and Other Polygons  |
|              |   | <b>C.8.1.d</b> drawing and constructing physical models to specifications   |   |
|              |   | <b>C.8.1.e</b> explaining how these figures are related to objects in the environment   | Lesson 22: Lines/Angles<br>Lesson 23: Triangles<br>Lesson 24: Quadrilaterals and Other Polygons<br>Lesson 27: Volumes and Surface Areas |
|              |   | <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).              | Lesson 23: Triangles<br>Lesson 24: Quadrilaterals and Other Polygons<br>Lesson 27: Volumes and Surface Areas                            |
|              |   | <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>C.8.4</b> Perform transformations on two-dimensional figures and describe and analyze the effects of the transformations on the figures  | Lesson 28: Transformations  |
|              |   | <b>C.8.5</b> Locate objects using the rectangular coordinate system   | Lesson 35: Functions, Graphs and Linear Equations   |

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| D.8 Measurement | D.8 Measurement  | D.8.1 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) | Lesson 20: Probability<br>Lesson 25: Perimeter and Area |
|                 | D.8.2 Demonstrate understanding of basic measurement facts, principles, and techniques including the following               | D.8.2.a approximate comparisons between metric and US Customary units (e.g., <b>a liter and a quart are about the same</b> ; a kilometer is about six-tenths of a mile)       | Lesson 29: Measurement                                  |
|                 |  | D.8.2.b knowledge that direct measurement produces approximate, not exact, measures   |   |
|                 |  | D.8.2.c the use of smaller units to produce more precise measures   | Lesson 29: Measurement                                  |
|                 | D.8.3 Determine measurement directly using standard units (metric and US Customary) with these suggested degrees of accuracy | D.8.3.a lengths to the nearest mm or 1/16 of an inch  |   |
|                 |  | D.8.3.b weight (mass) to the nearest 0.1 g or 0.5 ounce   |   |
|                 |  | D.8.3.c liquid capacity to the nearest ml   |   |
|                 |  | D.8.3.d angles to the nearest degree  | Lesson 22: Lines/Angles                                 |
|                 |  | D.8.3.e temperature to the nearest C° or F°   |   |
|                 |  | D.8.3.f elapsed time to the nearest second  |   |
|                 | D.8.4 Determine measurements indirectly using  | D.8.4.a estimation  |   |
|                 |  | D.8.4.b conversion of units within a system (e.g., quarts to cups, millimeters to centimeters)  | Lesson 29: Measurement                                  |
|                 |  | D.8.4.c ratio and proportion (e.g., similarity, scale drawings)   | Lesson 31: Ratios and Proportions                       |

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|                                       |   | <b>D.8.4.d</b> geometric formulas to derive lengths, areas, volumes of common figures (e.g., perimeter, circumference, surface area)                       | Lesson 25: Perimeter and Area<br>Lesson 26: Circles<br>Lesson 27: Volumes and Surface Areas |
|                                       |   | <b>D.8.4.e</b> the Pythagorean relationship  | Lesson 23: Triangles  |
|                                       |   | <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) | Lesson 22: Lines/Angles<br>Lesson 23: Triangles   |
| <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>E.8.1.b</b> designing and conducting a statistical investigation  |   |
|                                       |   | <b>E.8.1.c</b> using technology to generate displays, summary statistics, and presentations  |   |
|                                       | <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)   | Lesson 30: Graphs and Data Analysis   |
|                                       |   | <b>E.8.2.b</b> appropriate plots (e.g., line, stem-and-leaf, box, scatter)   | Lesson 30: Graphs and Data Analysis   |
|                                       | <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  | Lesson 19: Mean, Median, Mode, Range  |
|                                       |   | <b>E.8.3.b</b> central tendencies of data (mean and median)  | Lesson 19: Mean, Median, Mode, Range  |
|                                       |   | <b>E.8.3.c</b> indicators of dispersion (e.g., outliers)   | Lesson 19: Mean, Median, Mode, Range  |
|                                       | <b>E.8.4</b> Use the results of data analysis to  | <b>E.8.4.a</b> make predictions  | Lesson 19: Mean, Median, Mode, Range  |
|                                       |   | <b>E.8.4.b</b> develop convincing arguments  |   |
|                                       |   | <b>E.8.4.c</b> draw conclusions  | Lesson 30: Graphs and Data Analysis   |
|                                       | <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  |   |

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|                                    | <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>E.8.6.b</b> techniques of collection, organization, and presentation of data   | Lesson 30: Graphs and Data Analysis  |
|                                    |  | <b>E.8.6.c</b> missing or incorrect data  |  |
|                                    |  | <b>E.8.6.d</b> inferences   |  |
|                                    |  | <b>E.8.6.e</b> possible sources of bias   |  |
|                                    | <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)                   | Lesson 20: Probability   |
|                                    |  | <b>E.8.7.b</b> conducting an experiment   |  |
|                                    |  | <b>E.8.7.c</b> designing and conducting simulations   |  |
|                                    |  | <b>E.8.7.d</b> applying theoretical notions of probability (e.g., that four equally likely events have a 25% chance of happening) | Lesson 20: Probability   |
| <b>F.8</b> Algebraic Relationships | <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   | Lesson 2: Exponents and Square Roots<br>Lesson 8: Solving Equations with Fractions<br>Lesson 13: Solving Equations with Decimals<br>Lesson 17: Simple Interest<br>Lesson 18: Solving Equations with Percents<br>Lesson 33: Properties of Numbers and Variable Expressions<br>Lesson 36: Inequalities |

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|  |  | <b>F.8.1.b</b> evaluating expressions through numerical substitution  | Lesson 32: Number Concepts<br>Lesson 33: Properties of Numbers and Variable Expressions<br>Lesson 35: Functions, Graphs and Linear Equations |
|  |  | <b>F.8.1.c</b> generating equivalent expressions  | Lesson 33: Properties of Numbers and Variable Expressions  |
|  |  | <b>F.8.1.d</b> adding and subtracting expressions   | Lesson 33: Properties of Numbers and Variable Expressions<br>Lesson 36: Inequalities   |
|  | <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  | Lesson 34: Patterns<br>Lesson 35: Functions, Graphs and Linear Equations<br>Lesson 36: Inequalities  |
|  |  | <b>F.8.2.b</b> describing and interpreting their graphical representations (e.g., slope, rate of change, intercepts)  | Lesson 35: Functions, Graphs and Linear Equations  |
|  |  | <b>F.8.2.c</b> using them as models of real-world phenomena   |  |
|  |  | <b>F.8.2.d</b> describing a real-world phenomenon that a given graph might represent  | Lesson 30: Graphs and Data Analysis  |
|  | <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) | Lesson 34: Patterns  |
|  | <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  | Lesson 35: Functions, Graphs and Linear Equations<br>Lesson 36: Inequalities   |
|  |  | <b>F.8.4.b</b> solving them by different methods (e.g., informally, graphically, with formal properties, with technology)   | Lesson 35: Functions, Graphs and Linear Equations<br>Lesson 36: Inequalities   |

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|  |  | <b>F.8.4.c</b> writing and evaluating formulas (including solving for a specified variable) | Lesson 35: Functions, Graphs and Linear Equations<br>Lesson 36: Inequalities               |
|  |  | <b>F.8.4.d</b> using them to record and describe solution strategies                        | Lesson 35: Functions, Graphs and Linear Equations<br>Lesson 36: Inequalities               |
|  | <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           | Lesson 35: Functions, Graphs and Linear Equations<br>Lesson 36: Inequalities               |
|  |  | <b>F.8.5.b</b> commutativity and associativity of addition and multiplication               | Lesson 3: Order of Operations  |
|  |  | <b>F.8.5.c</b> distributive property  | Lesson 3: Order of Operations<br>Lesson 33: Properties of Numbers and Variable Expressions |
|  |  | <b>F.8.5.d</b> inverses and identities for addition and multiplication                      | Lesson 3: Order of Operations  |
|  |  | <b>F.8.5.e</b> transitive property  |  |