Math Grade 8

ORExt Standard Code	Equivalent OR Standard Code	2021 Oregon Mathematics Standards	Oregon Alternate Academic Achievement Standard (Essentialized Standard)	Low (L), Medium (M), High (H) Parameters
M08EXE1.1	8.AEE.A.1	Apply the properties of integer exponents using powers of 10 to generate equivalent numerical expressions.	Identify equivalent expressions using powers 1-3.	**L:** Identify the number that matches a first power expression (1-20). **M:** Identify the number that matches a second power expression. **H:** Identify the number that matches a 3rd power expression.
M08EXE1.3	8.AEE.A.3	Estimate very large or very small quantities using scientific notation with a single digit times an integer power of ten.	Identify a number written as a power of ten that matches a given number provided, when given a model.	**L:** Identify 1-4 x 10 to the first power. **M:** Identify 4-6 x 10 to the second power. **H:** Identify 7-9 x 10 to the second power.
M08EXE1.4	8.AEE.A.4	Perform operations with numbers expressed in scientific notation.	Identify whether power makes a number larger, smaller, or the same.	**L:** Identify powers of 1 as not changing a number's value (1-20). **M:** Identify positive powers as making a number larger (21-50). **H:** Identify negative powers, -1, -2, and -3 as making a number smaller (51-100).
M08EXE2.5	8.AEE.B.5	Graph proportional relationships in authentic contexts. Interpret the unit rate as the slope of the graph, and compare two different proportional relationships represented in different ways.	Interpret linear graphs to determine the slope (0-20, -1 to -5).	**L:** Interpret linear slopes (0-5). **M:** Interpret linear slopes (6-10). **H:** Interpret linear slopes (11-20) and (-1 to -5).

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M08EXE2.6	8.AEE.B.6	Write the equation for a line in slope intercept form y = mx + b, where m and b are rational numbers, and explain in context why the slope m is the same between any two distinct points.	Identify lines with the same slopes in similar triangles.	**L:** Determine lines with the same slope when triangles are oriented the same way (45-45-90). **M:** Determine lines with the same slope when triangles are rotated 90 degrees (30-60-90). **H:** Determine lines with the same slopes when triangles are rotated 180 degrees (acute or obtuse, non-isosceles triangles).
M08EXE3.7A	8.AEE.C.7, 8.AFN.A.3	Solve linear equations with one variable including equations with rational number coefficients, with the variable on both sides, or whose solutions require using the distributive property and/or combining like terms.	Solve linear equations with one variable (0-20).	**L:** Solve equations with one A/S operation. **M:** Solve equations with 1 M/D operation. **H:** Solve equations with 1 A/S and 1 MD operation.
M08FUN1.1	8.AFN.A.1	Understand in authentic contexts, that the graph of a function is the set of ordered pairs consisting of an input and a corresponding output.	Identify missing numbers in function output tables.	**L:** Identify missing multiples of 2-5. **M:** Identify missing multiples of 6-10. **H:** Identify missing multiples of 11-20.

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M08FUN1.2	8.AFN.A.2	Compare the properties of two functions represented algebraically, graphically, numerically in tables, or verbally by description.	Identify the output table that matches a line graph.	**L:** Match graph of line with slope (1-3) to output table. **M:** Match graph of line with slope (4-10) to output table. **H:** Match graph of line with slope (11-20, 1/2, 1/4, or -1/2, -1/4, -1 to -5) to output table.
M08FUN2.4	8.AFN.B.4	Construct a function to model a linear relationship in authentic contexts between two quantities.	Identify the graph that matches an output table.	**L:** Match output table to graph of line with slope (1-3). **M:** Match output table to graph of line with slope (4-10) to output table. **H:** Match output table to graph of line with slope (11-20 and/or -1 to -5) to output table.
M08FUN2.5	8.AFN.B.5	Describe qualitatively the functional relationship between two quantities in authentic contexts by analyzing a graph.	Identify slope as positive, negative, zero, or undefined.	**L:** Identify positive slopes 1-3. **M:** Identify negative slopes 4-10. **H:** Identify zero or undefined slopes.

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M08GEO1.2	8.GM.A.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations.	Identify congruent triangles that have been rotated 0-270 degrees.	**L:** Identify congruent equilateral triangles with 0, 30, 45, 60, or 90 degree rotation. **M:** Identify congruent 30-60-90 or 45-45-90 triangles with 120,135,150, or 80 degree rotation. **H:** Identify congruent acute, obtuse, or isosceles triangle with 210, 225, 240, or 270 degree rotation.
M08GEO1.4	8.GM.A.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and/or dilations.	Identify similar triangles.	**L:** Identify similar equilateral triangles. **M:** Identify similar 30-60-90 or 45-45-90 triangles. **H:** Identify similar acute, obtuse, or isosceles triangles.
M08GEO2.6	8.GM.B.6, 8.GM.B.7, 8.GM.B.8	Distinguish between applications of the Pythagorean Theorem and its converse in authentic contexts.	Identify the right angle and hypotenuse of a triangle; identify the hypotenuse given the side lengths and the formula.	**L:** Identify the right angle of a right triangle. **M:** Identify the hypotenuse in a right triangle. **H**: Identify the appropriate hypotenuse length given the side lengths and the formula.

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M08GEO3.9	8.GM.C.9	Choose and use the appropriate formula for the volume of cones, cylinders, and spheres to solve problems in authentic contexts.	Find the volume of a prism given a formula and example (V= l x w x h) using cubic inches, feet, and yards.	**L:** Solve problems involving volumes 1-20. **M:** Molve problems involving volumes 21-50. **H:** Solve problems involving volumes 51-100.
M08STP1.1	8.DR.B.2, 8.DR.C.3	Analyze patterns of association between two quantitative or categorical variables and reason about distributions to compare groups.	Identify the line of best fit for a scatter plot.	**L:** Identify lines of best fit for scatter plots that are widely different with data that have tight variance (+/- 1 to 3). **M:** Identify lines of best fit for scatter plots that are moderately different and data that have wider variance (+/- 1 to 5). **H:** Identify lines of best fit for scatter plots that differ slightly with data that have the widest variance. (+/- 1 to 10).
M08STP1.3	8.DR.D.4	Interpret scatter plots for bivariate quantitative data to investigate patterns of association between two quantities to answer investigative questions.	Compare rates using slower/less, faster/more, same (mph, beats per second, $ per hour, $ per lb).	**L:** Identify faster rate using 0-20. **M:** Identify slower, faster, or same rate using 21-50. **H:** Identify slower, faster, or same rate using 51-100.

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M08STP1.4	8.DR.A.1	Formulate statistical investigative questions to articulate research topics and uncover patterns of association seen in bivariate categorical data.	Interpret trend in line developed from real-world data.	**L:** Identify positive trends in data with slopes 1-5. **M:** Identify positive slopes 6-10. **H:** Identify negative trends -1 to -10, zero, or undefined slopes.
M08TNS1.1	8.NS.A.1	Know that real numbers that are not rational are called irrational.	Perform math operations with rational numbers.	**L:** Perform A/S operations with 1/2 and .5. **M:** Perform A/S and M/D operations with 1/4, 1/3, .25, .75. **H:** Perform A/S and M/D with tenths, 1/10 to 5/10, .10 to .50, and mixed numbers with 1/2 and 1/4.
M08TNS1.2	8.AEE.A.2, 8.NS.A.2	Use rational approximations of irrational numbers to compare size and locate on a number line.	Identify square roots of perfect squares up to 100; locate irrational numbers on a number line.	**L:** Identify square roots of 1, 4, 9, and 16. **M:** Identify square roots of 25, 36, 49, and 64 on a number line. **H:** Locate square roots (81, 100), as well as pi and the square root of 2 on a number line.

Standards not Essentialized:
Please refer to Oregon's published content standards for the full description and context of these codes.
8.AEE.C.8 8.GM.A.1
8.GM.A.3
8.GM.A.5