

North Dakota Mathematics Content Standards

Grade 8 Prioritized Standards

Northeast Education Services Cooperative (NESC) - 2017



How to Read This Document

Example: 8.NS.1

“8.NS.1” references the grade level followed by the domain and then the standard. This coding is taken directly from the North Dakota Department of Public Instruction’s standards document.

Prioritized Standards

The Number System

Know that there are numbers that are not rational, and approximate them by rational numbers:

Code	Standard	Endurance	Leverage	Readiness	Assessment	Teacher Judgement	Total Score
8.NS.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually. Convert a decimal expansion which repeats eventually into a rational number.	✓		✓	✓	✓	4
8.NS.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (such as π^2).	✓		✓	✓	✓	4

For more information about this document or the prioritization process please contact the NESC:

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Expressions and Equations

Work with radicals and integer exponents:

Code	Standard	Endurance	Leverage	Readiness	Assessment	Teacher Judgement	Total Score
8.EE.1	Develop, know and apply the properties of integer exponents to generate equivalent numeric and algebraic expressions.	✓	✓	✓	✓	✓	5
8.EE.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Classify radicals as rational or irrational.	✓		✓	✓	✓	4
8.EE.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (such as use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	✓	✓	✓	✓	✓	5

Understand the connections between proportional relationships, lines, and linear equations:

Code	Standard	Endurance	Leverage	Readiness	Assessment	Teacher Judgement	Total Score
8.EE.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.	✓	✓	✓	✓	✓	5

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Analyze and solve linear equations and pairs of simultaneous linear equations:

Code	Standard	Endurance	Leverage	Readiness	Assessment	Teacher Judgement	Total Score
8.EE.7	Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	✓	✓	✓	✓	✓	5

Functions

Define, evaluate, and compare functions:

Code	Standard	Endurance	Leverage	Readiness	Assessment	Teacher Judgement	Total Score
8.F.3	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line. Give examples of functions that are not linear.	✓	✓	✓	✓	✓	5

Use functions to model relationships between quantities:

Code	Standard	Endurance	Leverage	Readiness	Assessment	Teacher Judgement	Total Score
8.F.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	✓	✓	✓	✓	✓	5

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8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (may include where the function is increasing or decreasing, linear or nonlinear, etc.). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	✓	✓	✓	✓		4
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Geometry

Understand congruence and similarity using physical models, transparencies, or geometry software:

Code	Standard	Endurance	Leverage	Readiness	Assessment	Teacher Judgement	Total Score
8.G.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. Given two congruent figures, describe a sequence of transformations that exhibits the congruence between them.	✓		✓	✓	✓	4
8.G.5	Use informal arguments to establish facts about: a. the angle sum and exterior angles of triangles. b. the angles created when parallel lines are cut by a transversal. c. the angle-angle criterion for similarity of triangles. (NESC note: Part “c” is not priority in grade 8.)	✓	✓	✓	✓	✓	5

Understand and apply the Pythagorean Theorem:

Code	Standard	Endurance	Leverage	Readiness	Assessment	Teacher Judgement	Total Score
8.G.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real world and mathematical problems in two and three dimensions.	✓	✓	✓	✓	✓	5
8.G.8	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real world and mathematical problems in two and three dimensions.	✓	✓	✓	✓	✓	5

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Solve real world and mathematical problems involving volume of cylinders, cones, and spheres:

Code	Standard	Endurance	Leverage	Readiness	Assessment	Teacher Judgement	Total Score
8.G.9	Know the formulas for the volume of cones, cylinders and spheres. Use the formulas to solve real world and mathematical problems.		✓	✓	✓	✓	4

Statistics and Probability

Investigate patterns of association in bivariate data:

Code	Standard	Endurance	Leverage	Readiness	Assessment	Teacher Judgement	Total Score
8.SP.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	✓	✓	✓	✓	✓	5

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