

Northpoint Horizons

Math Elevations™ (Comprehensive Intervention System)
Correlated to
Alaska Content and Performance Standards

This document provides a sampling of the extensive math directives offered throughout the *Math Elevations* program that meet **Alaska Content and Performance Standards**.

Alaska Content and Performance Standards Grade 8	Math Elevations Level H Teacher's Guide Examples/Lessons
Numeration: Understand and use numeration	
Understanding Numbers	
• of real numbers by [8] N-1 ordering real numbers (M1.3.1)	Unit 1 – Lesson 1: <i>Integers and Absolute Value</i> pp. 18-20
• of real numbers by [8] N-2 distinguishing between a whole number in scientific notation and real numbers in standard form (M1.3.1)	Unit 2 – Lesson 8: <i>Scientific Notation</i> pp. 68-70
• of real numbers by [8] N-3 converting between expanded notation (multiples of ten with exponents) and standard form (M1.3.3)	Unit 2 – Lesson 6: <i>Rules of Exponents</i> pp. 62-64 Unit 2 – Lesson 8: <i>Scientific Notation</i> pp. 68-70
• of rational numbers (fractions, decimals, or percents including integers) by [8] N-4 identifying, describing, or illustrating equivalent representations (M1.3.4 & M3.3.5)	Unit 4 – Lesson 4: <i>Fractions, Decimals, and Percents</i> pp. 114-116
• of rational numbers (fractions, decimals, or percents including integers) by [8] N-5 expressing products of numbers using exponents (M1.3.1 & M1.3.3)	Unit 2 – Lesson 6: <i>Rules of Exponents</i> pp. 62-64 Unit 2 – Lesson 7: <i>Negative and Zero Exponents</i> pp. 65-67 Unit 2 – Lesson 8: <i>Scientific Notation</i> pp. 68-70
Understanding Meaning of Operations	
[8] N-6 [using models, explanations, number lines, real-life situations L] describing or illustrating the effects of arithmetic operations on rational numbers (percents) (M1.2.3)	Unit 4 – Lesson 7: <i>Percent of Change</i> pp. 124-126 Unit 4 – Lesson 8: <i>Percent Applications</i> pp. 127-129

[8] N-7 using models, explanations, number lines, real-life situations, describing, or illustrating the use of inverse operations (addition/subtraction or multiplication/division) (M1.2.3)	Unit 1 – Lesson 2: <i>Adding Integers Using a Number Line</i> pp. 21-23
Number Theory	
[8] N-8 applying the rules for order of operations to rational numbers (M1.3.5)	Unit 3 – Lesson 2: <i>Order of Operations</i> pp. 78-80
[8] N-9 identifying or writing the prime factorization of a number using exponents (M1.3.5)	Unit 2 – Lesson 1: <i>Factors and Prime Factorization</i> pp. 46-48
[8] N-10 [using distributive property with real numbers (L)] (M1.3.6)	Unit 3 – Lesson 1: <i>Commutative, Associative, and Distributive Properties</i> pp. 74-77
Measurement: Select and use systems, units, and tools of measurement	
Measurable Attributes	
[8] MEA-1 converting measurements within the same system (English or metric) (M2.3.2)	Unit 4 – Lesson 2: <i>Writing and Solving Proportions</i> pp. 108-110
Measurement Techniques	
[8] MEA-2 using scale drawings involving indirect measurement (determining the scale factor and applying it to find missing dimension) (M2.3.4)	Unit 4 – Lesson 3: <i>Scale Drawings and Models</i> pp. 111-113
[8] MEA-3 [modeling the conversion within the same system L] (M2.3.2)	Unit 4 – Lesson 3: <i>Scale Drawings and Models</i> pp. 111-113
Estimation and Computation: Perform basic arithmetic functions, make reasoned estimates, and select and use appropriate methods or tools	
Estimation	
[8] E&C-1 applying and assessing the appropriateness of a variety of estimation strategies (L) (M3.3.1)	Unit 8 – Lesson 2: <i>Making Predictions</i> pp. 220-223
Computation	
[8] E&C-2 adding, subtracting, multiplying or dividing integers or positive rational numbers (M3.3.3 & M3.3.4)	Unit 1 – Lesson 2: <i>Adding Integers Using a Number Line</i> pp. 21-23 Unit 1 – Lesson 3: <i>Adding Integers Using Absolute Value</i> pp. 24-27 Unit 1 – Lesson 4: <i>Subtracting Integers</i> pp. 28-30 Unit 1 – Lesson 5: <i>Multiplying Integers</i> pp. 31-33 Unit 1 – Lesson 6: <i>Dividing Integers</i> pp. 34-36

[8] E&C-3 using percents and percentages (e.g., tax, discount) (M3.3.3 & M3.3.4)	Unit 4 – Lesson 4: <i>Fractions, Decimals, and Percents</i> pp. 114-116 Unit 4 – Lesson 5: <i>Solving Percent Problems Using a Proportion</i> pp. 117-119 Unit 4 – Lesson 6: <i>Using Proportions to Solve other Percent Problems</i> pp. 120-123 Unit 4 – Lesson 7: <i>Percent of Change</i> pp. 124-126 Unit 4 – Lesson 8: <i>Percent Applications</i> pp. 127-129
[8] E&C-4 converting between equivalent fractions, decimals, or percents (M3.3.5)	Unit 4 – Lesson 4: <i>Fractions, Decimals, and Percents</i> pp. 114-116
[8] E&C-5 using ratio and proportion (M3.3.6)	Unit 4 – Lesson 1: <i>Ratios and Rates</i> pp. 104-107 Unit 4 – Lesson 5: <i>Solving Percent Problems Using a Proportion</i> pp. 117-119 Unit 4 – Lesson 6: <i>Using Proportions to Solve other Percent Problems</i> pp. 120-123
Functions and Relationships: Represent, analyze, and use patterns, relations, and functions	
Describing Patterns and Functions	
[8] F&R-1 describing or extending patterns (linear) up to the nth term, represented in tables, sequences, graphs, or in problem situations (M4.3.1)	Unit 5 – Lesson 4: <i>Relations and Functions</i> pp. 141-143
[8] F&R-2 generalizing relationships (linear) using a table of ordered pairs, a graph, or an equation (M4.3.4)	Unit 5 – Lesson 4: <i>Relations and Functions</i> pp. 141-143
[8] F&R-3 describing in words how a change in one variable in a formula affects the remaining variables (how changing the length affects the area of quadrilaterals or volume of a rectangular prism) (M4.3.2)	Unit 5 – Lesson 4: <i>Relations and Functions</i> pp. 141-143
[8] F&R-4 using a calculator as a tool when describing, extending, or representing patterns (L) (M4.3.3)	Unit 5 – Lesson 4: <i>Relations and Functions</i> pp. 141-143
Modeling and Solving Equations and Inequalities	
[8] F&R-5 translating a written phrase to an algebraic expression (M4.3.5)	Unit 5 – Lesson 3: <i>Translating and Solving Word Problems</i> pp. 138-140
[8] F&R-6 solving or identifying solutions to two-step linear equations of the	Unit 5 –

form $ax \pm b = c$, where a , b , and c are rational numbers, and $a \neq 0$; translating a story problem into an equation of similar form; or translating a story problem into an equation of similar form and solving it (M4.3.5)	Lesson 1: <i>Solving Two-Step Equations</i> pp. 132-134 Unit 5 – Lesson 2: <i>Solving Multi-Step Equations</i> pp. 135-137
Geometry: Construct, transform, and analyze geometric figures	
Geometric Relationships	
[8] G-1 using the attributes and properties of regular polygons to sketch regular or irregular polygons (L) (M5.3.1)	Unit 6 – Lesson 3: <i>Polygons</i> pp. 167-170
[8] G-2 using the attributes and properties of solid figures (vertices, length and alignment of edges, shape and number of bases) to identify and describe cylinders and cones (M5.3.2)	Unit 7 – Lesson 5: <i>Surface Area of a Cylinder</i> pp. 202-204 Unit 7 – Lesson 6: <i>Surface Area of a Pyramid and a Cone</i> pp. 205-207
[8] G-3 using 2-dimensional nets to create 3-dimensional objects (prisms and cylinders) (M5.3.2)	Unit 7 – Lesson 7: <i>Volume of a Prism and a Cylinder</i> pp. 208-210
Similarity, Congruence, Symmetry, and Transformation of Shapes	
[8] G-4 using proportionality to solve real-world problems involving similar shapes (e.g., two real-world objects casting shadows) (M5.3.3)	Unit 6 – Lesson 5: <i>Congruent Triangles</i> pp. 174-176 Unit 6 – Lesson 6: <i>Similarity and Dilations</i> pp. 177-179 Unit 6 – Lesson 7: <i>Reflections and Translations in the Coordinate Plane</i> pp. 180-183
[8] G-5 identifying the results of applying transformations (translations, rotations, reflections, dilations) to figures on a coordinate plane (M5.3.5)	Unit 6 – Lesson 6: <i>Similarity and Dilations</i> pp. 177-179 Unit 6 – Lesson 7: <i>Reflections and Translations in the Coordinate Plane</i> pp. 180-183
Perimeter, Area, Volume, and Surface Area	
[8] G-6 determining the volume of right triangular prisms or cylinders (M5.3.4)	Unit 7 – Lesson 7: <i>Volume of a Prism and a Cylinder</i> pp. 208-210
[8] G-7 determining the surface area of cylinders or triangular prisms (M5.3.4)	Unit 7 – Lesson 5: <i>Surface Area of a Cylinder</i> pp. 202-204
[8] G-8 determining the circumference and area of a circle (M5.3.4)	Unit 7 – Lesson 2: <i>Circumference of a Circle</i> pp. 193-195 Unit 7 – Lesson 3: <i>Area of a Circle</i> pp. 196-198
Position and Direction	

[8] G-9 graphing or identifying relationships of variables on a coordinate plane (e.g., length/width, area/diameter, cost/pound) (M5.3.6) Construction	Unit 6 – Lesson 7: <i>Reflections and Translations in the Coordinate Plane</i> pp. 180-183 Unit 6 – Lesson 8: <i>Rotations in the Coordinate Plane</i> pp. 184-186
[8] G-10 drawing, measuring, or constructing geometric figures (polygons, perpendicular bisectors, or perpendicular or parallel lines) (L) (M5.3.7)	Unit 6 – Lesson 2: <i>Angles in Parallel Lines Cut by a Transversal</i> pp. 164-166 Unit 6 – Lesson 3: <i>Polygons</i> pp. 167-170
Statistics and Probability: Formulate questions, gather and interpret data, and make predictions Statistics	
Data Display	
[8] S&P-1 [designing, collecting L], organizing, displaying, or explaining the classification of data in real world problems (e.g., science or humanities, peers or community), using histograms, scatter plots, or box and whisker plots with appropriate scale [or with technology L] (M6.3.1)	Unit 8 – Lesson 4: <i>Scatter Plots</i> pp. 227-229 Unit 8 – Lesson 5: <i>Box-and-Whiskers Plots</i> pp. 230-233 Unit 8 – Lesson 6: <i>Line Graphs</i> pp. 234-237 Unit 8 – Lesson 7: <i>Circle Graphs</i> pp. 238-240
Analysis and Central Tendency	
[8] S&P-2 using information from a variety of displays or analyzing the validity of statistical conclusions found in the media (M6.3.2)	Unit 8 – Lesson 8: <i>Appropriate Graphs</i> pp. 241-243
[8] S&P-3 determining or justifying a choice of range, mean, median, or mode as the best representation of data for a practical situation (M6.3.3)	Unit 8 – Lesson 3: <i>Mean, Median, and Mode</i> pp. 224-226
Probability	
[8] S&P-4 determining or comparing the experimental and/or theoretical probability of simple events (M6.3.5)	Unit 8 – Lesson 2: <i>Making Predictions</i> pp. 220-223
[8] S&P-5 using a systematic approach to finding sample spaces or to making predictions about the probability of independent events and using the information to solve real-world problems (M6.3.5)	Unit 8 – Lesson 1: <i>Counting Methods</i> pp. 216-219
[8] S&P-6 designing and conducting a simulation to study a problem and communicate the results (L) (M6.3.6)	Unit 8 – Lesson 2: <i>Making Predictions</i> pp. 220-223
Problem Solving: Understand and be able to select and use a variety of problem-solving strategies	
[8] PS-1 selecting, modifying, and applying a variety of problem-solving strategies (e.g., inductive and deductive reasoning, Venn diagrams, making a	Unit 8 – Lesson 2: <i>Making Predictions</i> pp. 220-223

simpler problem) and verifying the results (M7.3.2)	
[8] PS-2 evaluating, interpreting, and justifying solutions to problems (M7.3.3)	Unit 5 – Lesson 3: <i>Translating and Solving Word Problems</i> pp. 138-140
Communication: Form and use appropriate methods to define and explain mathematical relationships	
[8] PS-3 representing mathematical problems numerically, graphically, and/or symbolically, translating among these alternative representations; or using appropriate vocabulary, symbols, or technology to explain, justify, and defend strategies and solutions (M8.3.1, M8.3.2, & M8.3.3)	Unit 5 – Lesson 4: <i>Relations and Functions</i> pp. 141-143 Unit 8 – Lesson 6: <i>Line Graphs</i> pp. 234-237 Unit 8 – Lesson 7: <i>Circle Graphs</i> pp. 238-240 Unit 8 – Lesson 8: <i>Appropriate Graphs</i> pp. 241-243
Reasoning: Use logic and reason to solve mathematical problems	
[8] PS-4 generalizing from patterns of observations (inductive reasoning) about mathematical problems and testing using a logical verification (deductive reasoning); or justifying and defending the validity of mathematical strategies and solutions using examples and counterexamples (M9.3.1, M9.3.2, & M9.3.3)	Unit 5 – Lesson 3: <i>Translating and Solving Word Problems</i> pp. 138-140
Connections: Apply mathematical concepts and processes to situations within and outside of school	
[8] PS-5 using real-world contexts such as science, humanities, peers, community, and careers (M10.3.1 & M10.4.2)	Unit 8 – Lesson 3: <i>Mean, Median, and Mode</i> pp. 224-226