

## Northpoint Horizons

### *Math Elevations™ (Comprehensive Intervention System)* Correlated to the Grade 7 Colorado Model Content Standards for Mathematics

This document provides a sampling of the extensive math directives offered throughout the *Math Elevations* program that meet the **Colorado Model Content Standards for Mathematics**.

Grade 7

Content Standards	<i>Math Elevations</i> Teacher's Guide Level G (Grade 7) Lesson Examples
<b>Standard 1: Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.</b>	
1. demonstrate meanings for integers, rational numbers, percents, exponents, square roots, and pi ( $\pi$ ) use physical materials and technology in problem-solving situations;	Unit 1 – Lesson 1: <i>Decimal Place Value</i> pp. 18-21 Lesson 2: <i>Exponents</i> pp. 22-24 Lesson 3: <i>Square Roots</i> pp. 25-27 Lesson 4: <i>Scientific Notation</i> pp. 28-31
2. read, write, and order integers, rational numbers, and common irrational numbers such as $\sqrt{2}$ , $\sqrt{5}$ , and $\pi$ ;	Unit 1 – Lesson 1: <i>Decimal Place Value</i> pp. 18-21 Lesson 2: <i>Exponents</i> pp. 22-24 Lesson 3: <i>Square Roots</i> pp. 25-27 Lesson 4: <i>Scientific Notation</i> pp. 28-31
3. apply number theory concepts (for example, primes, factors, multiples) to represent numbers in various ways;	Unit 1 – Lesson 5: <i>Prime Factorization</i> pp. 31-33 Lesson 6: <i>Greatest Common Factor</i> pp. 34-36 Lesson 7: <i>Least Common Multiple</i> pp. 37-39
4. use the relationships among fractions, decimals, and percents, include the concepts of ratio and proportion, in problem-solving situations;	Unit 1 – Lesson 8: <i>Fractions and Mixed Numbers</i> pp. 40-43 Unit 2 – Lesson 8: <i>Fractions and Decimals</i> pp. 68-71
5. develop, test, and explain conjectures about properties of integers and rational numbers; and	Unit 3 – Lesson 1: <i>Introduction to Integers</i> pp. 74-76 Lesson 2: <i>Adding Integers</i> pp. 77-79

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	Lesson 3: <i>Subtracting Integers</i> pp. 80-82 Lesson 4: <i>Absolute Value</i> pp. 83-85 Lesson 5: <i>Multiplying Integers</i> pp. 86-88 Lesson 6: <i>Dividing Integers</i> pp. 89-91 Lesson 7: <i>Commutative and Associative Properties</i> pp. 92-94 Lesson 8: <i>Distributive Property</i> pp. 95-97
6. use number sense to estimate and justify the reasonableness of solutions to problems involving integers, rational numbers, and common irrational numbers such as $\sqrt{2}$ , $\sqrt{5}$ , and $\pi$ .	Unit 1 – Lesson 3: <i>Square Roots</i> pp. 25-27 Unit 2 – Lesson 3: <i>Multiplying Fractions and Mixed Numbers</i> pp. 52-54 Lesson 4: <i>Dividing Fractions and Mixed Numbers</i> pp. 55-57 Lesson 5: <i>Adding and Subtracting Decimals</i> pp. 58-60 Lesson 6: <i>Multiplying by Decimals</i> pp. 61-63 Lesson 7: <i>Dividing Decimals</i> pp. 64-67 Unit 4 – Lesson 5: <i>Simplifying Expressions</i> pp. 112-114 Unit 5 – Lesson 5: <i>Fractions, Decimals, and Percents</i> pp. 141-143
<b>Standard 2: Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems.</b>	
1. represent, describe, and analyze patterns and relationships using tables, graphs, verbal rules, and standard algebraic notation;	Unit 4 – Lesson 2: <i>Evaluating Algebraic Expressions</i> pp. 103-105 Lesson 3: <i>Writing and Evaluating Expressions</i> pp. 106-108 Lesson 4: <i>Graphing Functions</i> pp. 109-111 Lesson 5: <i>Simplifying Expressions</i> pp. 112-114 Lesson 6: <i>Solving One-Step Equations Using Addition and Subtraction</i> pp. 115-117 Lesson 7: <i>Solving One-Step Equations Using Multiplication and Division</i> pp. 118-120
2. describe patterns using variables, expressions, equations, and inequalities in problem-solving situations;	Unit 4 – Lesson 3: <i>Writing and Evaluating Expressions</i> pp. 106-108 Lesson 4: <i>Graphing Functions</i> pp. 109-111 Unit 5 – Lesson 1: <i>Ratios</i> pp. 128-131 Lesson 3: <i>Writing and Solving Proportions</i> pp. 135-137

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3. analyze functional relationships to explain how a change in one quantity results in a change in another (for example, how the area of a circle changes as the radius increases, or how a person's height changes over time);	Unit 4 – Lesson 4: <i>Graphing Functions</i> pp. 109-111
5. solve simple linear equations in problem-solving situations using a variety of methods (informal, formal, graphical) and a variety of tools (physical materials, calculators, computers).	Unit 4 – Lesson 2: <i>Evaluating Algebraic Expressions</i> pp. 103-105 Lesson 3: <i>Writing and Evaluating Expressions</i> pp. 106-108 Lesson 4: <i>Graphing Functions</i> pp. 109-111 Lesson 5: <i>Simplifying Expressions</i> pp. 112-114 Lesson 6: <i>Solving One-Step Equations Using Addition and Subtraction</i> pp. 115-117 Lesson 7: <i>Solving One-Step Equations Using Multiplication and Division</i> pp. 118-120
<b>Standard 3: Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems.</b>	
1. read and construct displays of data using appropriate techniques (for example, line graphs, circle graphs, scatter plots, box plots, stem-and-leaf plots) and appropriate technology;	Unit 8 – Lesson 7: <i>Bar Graphs and Line Graphs</i> pp. 233-236 Lesson 8: <i>Circle Graphs</i> pp. 237-240
2. display and use measures of central tendency, such as mean, median, and mode, and measures of variability, such as range and quartiles;	Unit 8 – Lesson 6: <i>Mean, Median, and Mode</i> pp. 229-232
3. evaluate arguments that are based on statistical claims;	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 212-214
4. formulate hypotheses, draw conclusions, and make convincing arguments based on data analysis;	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 212-214
5. determine probabilities through experiments or simulations;	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 212-214
6. make predictions and compare results using both experimental and theoretical probability drawn from real-world problems; and	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 212-214 Lesson 2: <i>Permutations</i> pp. 215-217 Lesson 3: <i>Combinations</i> pp. 218-220
7. use counting strategies to determine all the possible outcomes from an experiment (for example, the number of ways students can line up to have their picture taken).	Unit 8 – Lesson 2: <i>Permutations</i> pp. 215-217 Lesson 3: <i>Combinations</i> pp. 218-220
<b>Standard 4: Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems.</b>	

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1. construct two- and three-dimensional models using a variety of materials and tools;	Unit 7 – Lesson 6: <i>Surface Area of a Prism</i> pp. 200-202 Lesson 7: <i>Surface Area of a Cylinder</i> pp. 203-205
2. describe, analyze, and reason informally about the properties (for example, parallelism, perpendicularity, congruence) of two- and three-dimensional figures;	Unit 6 – Lesson 3: <i>Polygons</i> pp. 163-165 Lesson 4: <i>Congruent Polygons</i> pp. 166-168 Lesson 5: <i>Similar Polygons</i> pp. 169-171 Lesson 6: <i>Translations in the Coordinate Plane</i> pp. 172-174 Lesson 7: <i>Reflections and Rotations in the Coordinate Plane</i> pp. 175-178 Lesson 8: <i>Solid Figures</i> pp. 179-181
3. apply the concepts of ratio, proportion, and similarity in problem-solving situations;	Unit 5 – Lesson 1: <i>Ratios</i> pp. 128-131 Lesson 3: <i>Writing and Solving Proportions</i> pp. 135-137 Lesson 4: <i>Scale Drawings and Models</i> pp. 138-140
4. solve problems using coordinate geometry;	Unit 6 – Lesson 6: <i>Translations in the Coordinate Plane</i> pp. 172-174 Lesson 7: <i>Reflections and Rotations in the Coordinate Plane</i> pp. 175-178
5. solve problems involving perimeter and area in two dimensions, and involving surface area and volume in three dimensions; and	Unit 7 – Lesson 5: <i>Area of a Circle</i> pp. 197-199 Lesson 6: <i>Surface Area of a Prism</i> pp. 200-202 Lesson 7: <i>Surface Area of a Cylinder</i> pp. 203-205 Lesson 8: <i>Volume of a Prism</i> pp. 206-209
6. transform geometric figures using reflections, translations, and rotations to explore congruence.	Unit 6 – Lesson 6: <i>Translations in the Coordinate Plane</i> pp. 172-174 Lesson 7: <i>Reflections and Rotations in the Coordinate Plane</i> pp. 175-178
<b>Standard 5: Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems.</b>	
1. estimate, use, and describe measures of distance, perimeter, area, volume, capacity, weight, mass, and angle comparison;	Unit 7 – Lesson 2: <i>Area of Parallelograms and Triangles</i> pp. 187-190 Lesson 3: <i>Irregular Figures</i> pp. 191-193 Lesson 4: <i>Circumference of a Circle</i> pp. 194-196 Lesson 5: <i>Area of a Circle</i> pp. 197-199

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	Lesson 6: <i>Surface Area of a Prism</i> pp. 200-202 Lesson 7: <i>Surface Area of a Cylinder</i> pp. 203-205 Lesson 8: <i>Volume of a Prism</i> pp. 206-208
2. estimate, make, and use direct and indirect measurements to describe and make comparisons;	Unit 7 – Lesson 2: <i>Area of Parallelograms and Triangles</i> pp. 187-190 Lesson 3: <i>Irregular Figures</i> pp. 191-193 Lesson 4: <i>Circumference of a Circle</i> pp. 194-196 Lesson 5: <i>Area of a Circle</i> pp. 197-199 Lesson 6: <i>Surface Area of a Prism</i> pp. 200-202 Lesson 7: <i>Surface Area of a Cylinder</i> pp. 203-205 Lesson 8: <i>Volume of a Prism</i> pp. 206-208
3. read and interpret various scales including those based on number lines, graphs, and maps;	Unit 5 – Lesson 4: <i>Scale Drawings and Models</i> pp. 138-140
4. develop and use formulas and procedures to solve problems involving measurement;	Unit 7 – Lesson 2: <i>Area of Parallelograms and Triangles</i> pp. 187-190 Lesson 3: <i>Irregular Figures</i> pp. 191-193 Lesson 4: <i>Circumference of a Circle</i> pp. 194-196 Lesson 5: <i>Area of a Circle</i> pp. 197-199 Lesson 6: <i>Surface Area of a Prism</i> pp. 200-202 Lesson 7: <i>Surface Area of a Cylinder</i> pp. 203-205 Lesson 8: <i>Volume of a Prism</i> pp. 206-208
5. describe how a change in an object's linear dimensions affects its perimeter, area, and volume; and	Unit 7 – Lesson 2: <i>Area of Parallelograms and Triangles</i> pp. 187-190 Lesson 3: <i>Irregular Figures</i> pp. 191-193 Lesson 4: <i>Circumference of a Circle</i> pp. 194-196 Lesson 5: <i>Area of a Circle</i> pp. 197-199 Lesson 6: <i>Surface Area of a Prism</i> pp. 200-202 Lesson 7: <i>Surface Area of a Cylinder</i> pp. 203-205 Lesson 8: <i>Volume of a Prism</i> pp. 206-208
6. select and use appropriate units and tools to measure to the degree of accuracy required in a particular problem-solving situation.	Unit 7 – Lesson 2: <i>Area of Parallelograms and Triangles</i> pp. 187-190 Lesson 7: <i>Surface Area of a Cylinder</i> pp. 203-205 Lesson 8: <i>Volume of a Prism</i> pp. 206-208
<b>Standard 6: Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving</b>	

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<b>these problems.</b>	
1. use models to explain how ratios, proportions, and percents can be used to solve real-world problems;	Unit 5 – Lesson 1: <i>Ratios</i> pp. 128-131 Lesson 3: <i>Writing and Solving Proportions</i> pp. 135-137 Lesson 4: <i>Scale Drawings and Models</i> pp. 138-140
2. construct, use, and explain procedures to compute and estimate with whole numbers, fractions, decimals, and integers;	Unit 2 – Lesson 1: <i>Adding and Subtracting Fractions</i> pp. 46-48 Lesson 2: <i>Adding and Subtracting Mixed Numbers</i> pp. 49-51 Lesson 3: <i>Multiplying Fractions and Mixed Numbers</i> pp. 52-54 Lesson 4: <i>Dividing Fractions and Mixed Numbers</i> pp. 55-57 Lesson 5: <i>Adding and Subtracting Decimals</i> pp. 58-60 Lesson 6: <i>Multiplying by Decimals</i> pp. 61-63 Lesson 7: <i>Dividing Decimals</i> pp. 64-67 Unit 3 – Lesson 2: <i>Adding Integers</i> pp. 77-79 Lesson 3: <i>Subtracting Integers</i> pp. 80-82 Lesson 5: <i>Multiplying Integers</i> pp. 86-88 Lesson 6: <i>Dividing Integers</i> pp. 89-91
3. develop, apply, and explain a variety of different estimation strategies in problem-solving situations, and explain why an estimate may be acceptable in place of an exact answer; and	Unit 1 – Lesson 3: <i>Square Roots</i> pp. 25-27 Unit 2 – Lesson 3: <i>Multiplying Fractions and Mixed Numbers</i> pp. 52-54 Lesson 4: <i>Dividing Fractions and Mixed Numbers</i> pp. 55-57 Lesson 5: <i>Adding and Subtracting Decimals</i> pp. 58-60 Lesson 6: <i>Multiplying by Decimals</i> pp. 61-63 Lesson 7: <i>Dividing Decimals</i> pp. 64-67 Unit 4 – Lesson 5: <i>Simplifying Expressions</i> pp. 112-114 Unit 5 – Lesson 5: <i>Fractions, Decimals, and Percents</i> pp. 141-143
4. select and use appropriate algorithms for computing with commonly used fractions and decimals, percents, and integers in problem-solving and determine whether the results are reasonable.	Unit 2 – Lesson 1: <i>Adding and Subtracting Fractions</i> pp. 46-48 Lesson 2: <i>Adding and Subtracting Mixed Numbers</i> pp. 49-51 Lesson 3: <i>Multiplying Fractions and Mixed Numbers</i> pp. 52-54 Lesson 4: <i>Dividing Fractions and Mixed Numbers</i> pp. 55-57

Content Standards	<b>Math Elevations Teacher's Guide Level G (Grade 7)</b> <b>Lesson Examples</b>
	Lesson 5: <i>Adding and Subtracting Decimals</i> pp. 58-60 Lesson 6: <i>Multiplying Decimals</i> pp. 61-63 Lesson 7: <i>Dividing Decimals</i> pp. 64-67 Unit 3 – Lesson 2: <i>Adding Integers</i> pp. 77-79 Lesson 3: <i>Subtracting Integers</i> pp. 80-82 Lesson 5: <i>Multiplying Integers</i> pp. 86-88 Lesson 6: <i>Dividing Integers</i> pp. 89-91 Unit 5 – Lesson 6: <i>Percent of a Number</i> pp. 144-146 Lesson 7: <i>Percent Problems</i> pp. 147-150 Lesson 8: <i>Percent of Change</i> pp. 151-153