

Northpoint Horizons

Math Elevations™ (Comprehensive Intervention System) Correlated to the Grade 6 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 6

Content Standards	<i>Math Elevations</i> Teacher's Guide Level F (Grade 6) Lesson Examples
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.	
1. demonstrate meanings for integers, rational numbers, percents, exponents, square roots, and pi (π) use physical materials and technology in problem-solving situations;	Unit 1 – Lesson 1: <i>Decimals</i> pp. 18-19 Lesson 2: <i>Understanding Exponents</i> pp. 20-21 Lesson 3: <i>Powers of 10</i> pp. 22-23 Lesson 4: <i>Introduction to Integers</i> pp. 24-25 Unit 2 – Lesson 4: <i>Multiplying and Dividing by Powers of 10</i> pp. 42-43 Unit 3 – Lesson 4: <i>Understanding Percents</i> pp. 60-61
2. read, write, and order integers, rational numbers, and common irrational numbers such as $\sqrt{2}$, $\sqrt{5}$, and π ;	Unit 1 – Lesson 1: <i>Decimals</i> pp. 18-19 Lesson 2: <i>Understanding Exponents</i> pp. 20-21 Lesson 3: <i>Powers of 10</i> pp. 22-23 Unit 2 – Lesson 2: <i>Rounding Numbers</i> pp. 38-39 Unit 3 – Lesson 2: <i>Comparing and Ordering Fractions</i> pp. 56-57 Lesson 3: <i>Converting Fractions to Decimals</i> pp. 58-59 Lesson 4: <i>Understanding Percents</i> pp. 60-61 Lesson 5: <i>Converting Between Percents, Fractions, and Decimals</i> pp. 62-63 Lesson 6: <i>More Converting Fractions</i> pp. 64-65

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3. apply number theory concepts (for example, primes, factors, multiples) to represent numbers in various ways;	Unit 1 – Lesson 5: <i>Primes and Composites</i> pp. 26-27 Lesson 6: <i>Divisibility</i> pp. 28-29 Lesson 7: <i>Greatest Common Factor (GCF)</i> pp. 30-31 Lesson 8: <i>Least Common Multiple (LCM)</i> pp. 32-33
4. use the relationships among fractions, decimals, and percents, include the concepts of ratio and proportion, in problem-solving situations;	Unit 3 – Lesson 1: <i>Simplest Form</i> pp. 54-55 Lesson 2: <i>Comparing and Ordering Fractions</i> pp. 56-57 Lesson 3: <i>Converting Fractions to Decimals</i> pp. 58-59 Lesson 4: <i>Understanding Percents</i> pp. 60-61 Lesson 5: <i>Converting Between Percents, Fractions, and Decimals</i> pp. 62-63 Lesson 6: <i>More Converting Fractions</i> pp. 64-65 Lesson 7: <i>Ratios and Proportions</i> pp. 66-67 Lesson 8: <i>Solving Proportions</i> pp. 68-69 Unit 4 – Lesson 1: <i>Addition and Subtraction of Fractions</i> pp. 72-73 Lesson 2: <i>Adding Mixed Numbers</i> pp. 74-75 Lesson 3: <i>Subtracting Mixed Numbers</i> pp. 76-77 Lesson 4: <i>Multiplying Fractions</i> pp. 78-79 Lesson 5: <i>Multiplying Mixed Numbers</i> pp. 80-81 Lesson 6: <i>Dividing Fractions by Whole Numbers</i> pp. 82-83 Lesson 7: <i>Dividing Fractions by Fractions</i> pp. 84-85 Unit 4 – Lesson 8: <i>Dividing Mixed Numbers</i> pp. 86-87
5. develop, test, and explain conjectures about properties of integers and rational numbers; and	Unit 1 – Lesson 4: <i>Introduction to Integers</i> pp. 24-25 Unit 2 – Lesson 1: <i>Adding Integers</i> pp. 36-37
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 π .	Unit 2 – Lesson 3: <i>Addition and Subtraction</i> pp. 40-41
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.	
1. represent, describe, and analyze patterns and relationships using tables,	Unit 5 –

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graphs, verbal rules, and standard algebraic notation;	Lesson 2: <i>Patterns</i> pp. 92-93 Lesson 7: <i>Graphing Algebraic Equations</i> pp. 102-103
2. describe patterns using variables, expressions, equations, and inequalities in problem-solving situations;	Unit 5 – Lesson 2: <i>Patterns</i> pp. 92-93
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 5 – Lesson 7: <i>Graphing Algebraic Equations</i> pp. 102-103
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 5 – Lesson 3: <i>One-Step Algebraic Expressions</i> pp. 94-95 Lesson 4: <i>Two-Step Algebraic Expressions</i> pp. 96-97 Lesson 5: <i>Solving Equations</i> pp. 98-99 Lesson 7: <i>Graphing Algebraic Equations</i> pp. 102-103
Standard 3: Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems.	
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 2: <i>Line Plots and Stem-and-Leaf Plots</i> pp. 146-147 Lesson 3: <i>Scales and Bar Graphs</i> pp. 148-149 Lesson 5: <i>Displaying Data</i> pp. 152-153 Lesson 6: <i>Line Graphs</i> pp. 154-155
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 1: <i>Mean, Mode, and Median</i> pp. 144-145
3. evaluate arguments that are based on statistical claims;	Unit 8 – Lesson 1: <i>Mean, Mode, and Median</i> pp. 144-145
4. formulate hypotheses, draw conclusions, and make convincing arguments based on data analysis;	Unit 8 – Lesson 7: <i>Probability</i> pp. 156-157
5. determine probabilities through experiments or simulations;	Unit 8 – Lesson 8: <i>Probability Experiments</i> pp. 158-159
6. make predictions and compare results using both experimental and theoretical probability drawn from real-world problems; and	Unit 8 – Lesson 7: <i>Probability</i> pp. 156-157 Lesson 8: <i>Probability Experiments</i> pp. 158-159
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 7: <i>Probability</i> pp. 156-157
Standard 4: Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the	

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reasoning used in solving these problems.	
1. construct two- and three-dimensional models using a variety of materials and tools;	Unit 6 – Lesson 1: <i>Properties of Polygons</i> pp. 108-109 Lesson 3: <i>Solid Figures</i> pp. 112-113
2. describe, analyze, and reason informally about the properties (for example, parallelism, perpendicularity, congruence) of two- and three-dimensional figures;	Unit 6 – Lesson 6: <i>Translation</i> pp. 118-119 Lesson 7: <i>Reflection</i> pp. 120-121 Lesson 8: <i>Rotation</i> pp. 122-123
3. apply the concepts of ratio, proportion, and similarity in problem-solving situations;	Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66-67 Lesson 8: <i>Solving Proportions</i> pp. 68-69
4. solve problems using coordinate geometry;	Unit 6 – Lesson 5: <i>The Coordinate Plane</i> pp. 116-117
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>Areas of Rectangles and Parallelograms</i> pp. 134-135 Lesson 6: <i>Area of Triangles</i> pp. 136-137 Lesson 7: <i>Area of Irregular Figures</i> pp. 138-139 Lesson 8: <i>Volume</i> pp. 140-141
6. transform geometric figures using reflections, translations, and rotations to explore congruence.	Unit 6 – Lesson 6: <i>Translation</i> pp. 118-119 Lesson 7: <i>Reflection</i> pp. 120-121 Lesson 8: <i>Rotation</i> pp. 122-123
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.	
1. estimate, use, and describe measures of distance, perimeter, area, volume, capacity, weight, mass, and angle comparison;	Unit 7 – Lesson 3: <i>Angles</i> pp. 130-131 Lesson 4: <i>Angles in a Triangle</i> pp. 132-133 Lesson 5: <i>Areas of Rectangles and Parallelograms</i> pp. 134-135 Lesson 6: <i>Area of Triangles</i> pp. 136-137 Lesson 7: <i>Area of Irregular Figures</i> pp. 138-139 Lesson 8: <i>Volume</i> pp. 140-141
2. estimate, make, and use direct and indirect measurements to describe and make comparisons;	Unit 7 – Lesson 5: <i>Areas of Rectangles and Parallelograms</i> pp. 134-135 Lesson 6: <i>Area of Triangles</i> pp. 136-137 Lesson 7: <i>Area of Irregular Figures</i> pp. 138-139

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	Lesson 8: <i>Volume</i> pp. 140-141
3. read and interpret various scales including those based on number lines, graphs, and maps;	Unit 8 – Lesson 2: <i>Line Plots and Stem-and-Leaf Plots</i> pp. 146-147 Lesson 3: <i>Scales and Bar Graphs</i> pp. 148-149
4. develop and use formulas and procedures to solve problems involving measurement;	Unit 7 – Lesson 5: <i>Areas of Rectangles and Parallelograms</i> pp. 134-135 Lesson 6: <i>Area of Triangles</i> pp. 136-137 Lesson 7: <i>Area of Irregular Figures</i> pp. 138-139 Lesson 8: <i>Volume</i> pp. 140-141
5. describe how a change in an object's linear dimensions affects its perimeter, area, and volume; and	Unit 7 – Lesson 5: <i>Areas of Rectangles and Parallelograms</i> pp. 134-135
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 5: <i>Areas of Rectangles and Parallelograms</i> pp. 134-135 Lesson 6: <i>Area of Triangles</i> pp. 136-137 Lesson 7: <i>Area of Irregular Figures</i> pp. 138-139 Lesson 8: <i>Volume</i> pp. 140-141
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 these problems.	
1. use models to explain how ratios, proportions, and percents can be used to solve real-world problems;	Unit 3 – Lesson 4: <i>Understanding Percents</i> pp. 60-61 Lesson 7: <i>Ratios and Proportions</i> pp. 66-67 Lesson 8: <i>Solving Proportions</i> pp. 68-69
2. construct, use, and explain procedures to compute and estimate with whole numbers, fractions, decimals, and integers;	Unit 2 – Lesson 1: <i>Adding Integers</i> pp. 36-37 Lesson 2: <i>Rounding Numbers</i> pp. 38-39 Lesson 3: <i>Addition and Subtraction</i> pp. 40-41 Lesson 4: <i>Multiplying and Dividing by Powers of 10</i> pp. 42-43 Lesson 5: <i>Multiplication of Whole Numbers</i> pp. 44-45 Lesson 6: <i>Multiplying by Decimals</i> pp. 46-47 Lesson 7: <i>Division</i> pp. 48-49 Lesson 8: <i>Word Problems</i> pp. 50-51 Unit 4 – Lesson 1: <i>Addition and Subtraction of Fractions</i> pp. 72-73 Lesson 2: <i>Adding Mixed Numbers</i> pp. 74-75

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	Lesson 3: <i>Subtracting Mixed Numbers</i> pp. 76-77 Lesson 4: <i>Multiplying Fractions</i> pp. 78-79 Lesson 5: <i>Multiplying Mixed Numbers</i> pp. 80-81 Lesson 6: <i>Dividing Fractions by Whole Numbers</i> pp. 82-83 Lesson 7: <i>Dividing Fractions by Fractions</i> pp. 84-85 Lesson 8: <i>Dividing Mixed Numbers</i> pp. 86-87
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 2 – Lesson 2: <i>Rounding Numbers</i> pp. 38-39
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 Integers</i> pp. 36-37 Lesson 2: <i>Rounding Numbers</i> pp. 38-39 Lesson 3: <i>Addition and Subtraction</i> pp. 40-41 Lesson 4: <i>Multiplying and Dividing by Powers of 10</i> pp. 42-43 Lesson 5: <i>Multiplication of Whole Numbers</i> pp. 44-45 Lesson 6: <i>Multiplying by Decimals</i> pp. 46-47 Lesson 7: <i>Division</i> pp. 48-49 Lesson 8: <i>Word Problems</i> pp. 50-51 Unit 3 – Lesson 5: <i>Converting Between Percents, Fractions, and Decimals</i> pp. 62-63 Unit 4 – Lesson 1: <i>Addition and Subtraction of Fractions</i> pp. 72-73 Lesson 2: <i>Adding Mixed Numbers</i> pp. 74-75 Lesson 3: <i>Subtracting Mixed Numbers</i> pp. 76-77 Lesson 4: <i>Multiplying Fractions</i> pp. 78-79 Lesson 5: <i>Multiplying Mixed Numbers</i> pp. 80-81 Lesson 6: <i>Dividing Fractions by Whole Numbers</i> pp. 82-83 Lesson 7: <i>Dividing Fractions by Fractions</i> pp. 84-85 Lesson 8: <i>Dividing Mixed Numbers</i> pp. 86-87