

Northpoint Horizons

Math Elevations™ (Comprehensive Intervention System) Correlated to Grade 6 Ohio Academic Content Standards for Mathematics

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

Ohio Academic Content Standards Grade 6	Math Elevations Level F Teacher's Guide Examples/Lessons
Number, Number Sense and Operations Standard	
1. Decompose and recompose whole numbers using factors and exponents (e.g., $32 = 2 \times 2 \times 2 \times 2 \times 2 = 2^5$), and explain why “squared” means “second power” and “cubed” means “third power.”	Unit 1 – Lesson 2: <i>Understanding Exponents</i> pp. 20-21 Lesson 3: <i>Powers of 10</i> pp. 22-23
2. Find and use the prime factorization of composite numbers.	Unit 1 – Lesson 5: <i>Primes and Composites</i> pp. 26-27
3. Explain why a number is referred to as being “rational,” and recognize that the expression a/b can mean a parts of size $1/b$ each, a divided by b , or the ratio of a to b .	Unit 3 Lesson 7: <i>Ratios and Proportions</i> pp. 66-67 Lesson 8: <i>Solving Proportions</i> pp. 68-69
4. Describe what it means to find a specific percent of a number, using real-life examples.	Unit 3 – Lesson 4: <i>Understanding Percents</i> pp. 60-61 Unit 3 – Lesson 5: <i>Converting Between Percents, Fractions, and Decimals</i> pp. 62-63
5. Use models and pictures to relate concepts of ratio, proportion and percent, including percents less than 1 and greater than 100.	Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66-67 Unit 3 – Lesson 8: <i>Solving Proportions</i> pp. 68-69
6. Use the order of operations, including the use of exponents, decimals and rational numbers, to simplify numerical expressions.	Unit 5 – Lesson 1: <i>Order of Operations</i> pp. 90-91
7. Use simple expressions involving integers to represent and solve problems; e.g., if a running back loses 15 yards on the first carry but gains 8 yards on the second carry, what is the net gain/loss?	Unit 1 – Lesson 4: <i>Introduction to Integers</i> pp. 24-25
8. Represent multiplication and division situations involving fractions and decimals with models and visual representations.	Unit 2 – Lesson 6: <i>Multiplying by Decimals</i> pp. 46-47 Unit 4 –

	<p>Lesson 4: <i>Multiplying Fractions</i> pp. 78-79 Unit 4 – Lesson 5: <i>Multiplying Mixed Numbers</i> pp. 80-81 Unit 4 – Lesson 6: <i>Dividing Fractions by Whole Numbers</i> pp. 82-83 Unit 4 – Lesson 7: <i>Dividing Fractions by Fractions</i> pp. 84-85 Unit 4 – Lesson 8: <i>Dividing Mixed Numbers</i> pp. 86-87</p>
9. Give examples of how ratios are used to represent comparisons; e.g., part-to-part, part-to-whole, whole-to-part.	<p>Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66-67</p>
10. Recognize that a quotient may be larger than the dividend when the divisor is a fraction.	<p>Unit 4 – Lesson 7: <i>Dividing Fractions by Fractions</i> pp. 84-85 Unit 4 – Lesson 8: <i>Dividing Mixed Numbers</i> pp. 86-87</p>
11. Perform fraction and decimal computations and justify their solutions; e.g., using manipulatives, diagrams, mathematical reasoning.	<p>Unit 2 – Lesson 3: <i>Addition and Subtraction</i> pp. 40-41 Unit 2 – Lesson 5: <i>Multiplication of Whole Numbers</i> pp. 44-45 Unit 2 – Lesson 6: <i>Multiplying by Decimals</i> pp. 46-47 Unit 2 – Lesson 7: <i>Division</i> pp. 48-49 Unit 2 – Lesson 8: <i>Word Problems</i> pp. 50-51 Unit 3 – Lesson 3: <i>Converting Fractions to Decimals</i> pp. 58-59 Unit 4 – Lesson 1: <i>Addition and Subtraction of Fractions</i> pp. 72-73 Unit 4 – Lesson 2: <i>Adding Mixed Numbers</i> pp. 74-75 Unit 4 – Lesson 3: <i>Subtracting Mixed Numbers</i> pp. 76-77 Unit 4 – Lesson 4: <i>Multiplying Fractions</i> pp. 78-79 Unit 4 – Lesson 5: <i>Multiplying Mixed Numbers</i> pp. 80-81</p>

	Unit 4 – Lesson 6: <i>Dividing Fractions by Whole Numbers</i> pp. 82-83 Unit 4 – Lesson 7: <i>Dividing Fractions by Fractions</i> pp. 84-85 Unit 4 – Lesson 8: <i>Dividing Mixed Numbers</i> pp. 86-87
12. Develop and analyze algorithms for computing with fractions and decimals, and demonstrate fluency in their use.	Unit 2 – Lesson 3: <i>Addition and Subtraction</i> pp. 40-41 Unit 2 – Lesson 5: <i>Multiplication of Whole Numbers</i> pp. 44-45 Unit 2 – Lesson 6: <i>Multiplying by Decimals</i> pp. 46-47 Unit 2 – Lesson 7: <i>Division</i> pp. 48-49 Unit 2 – Lesson 8: <i>Word Problems</i> pp. 50-51 Unit 3 – Lesson 3: <i>Converting Fractions to Decimals</i> pp. 58-59 Unit 4 – Lesson 1: <i>Addition and Subtraction of Fractions</i> pp. 72-73 Unit 4 – Lesson 2: <i>Adding Mixed Numbers</i> pp. 74-75 Unit 4 – Lesson 3: <i>Subtracting Mixed Numbers</i> pp. 76-77 Unit 4 – Lesson 4: <i>Multiplying Fractions</i> pp. 78-79 Unit 4 – Lesson 5: <i>Multiplying Mixed Numbers</i> pp. 80-81 Unit 4 – Lesson 6: <i>Dividing Fractions by Whole Numbers</i> pp. 82-83 Unit 4 – Lesson 7: <i>Dividing Fractions by Fractions</i> pp. 84-85 Unit 4 – Lesson 8: <i>Dividing Mixed Numbers</i> pp. 86-87
13. Estimate reasonable solutions to problem situations involving fractions and decimals.	Unit 4 – Lesson 1: <i>Addition and Subtraction of Fractions</i> pp. 73-74

14. Use proportional reasoning, ratios and percents to represent problem situations and determine the reasonableness of solutions.	Unit 3 – Lesson 4: <i>Understanding Percents</i> pp. 60-61 Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66-67 Unit 3 – Lesson 8: <i>Solving Proportions</i> pp. 68-69
15. Determine the percent of a number and solve related problems; e.g., find the percent markdown if the original price was \$140, and the sale price is \$100.	Unit 3 – Lesson 4: <i>Understanding Percents</i> pp. 60-61
Measurement Standard	
1. Understand and describe the difference between surface area and volume.	Unit 7 – Lesson 8: <i>Volume</i> pp. 140-141
2. Use strategies to develop formulas for finding circumference and area of circles, and to determine the area of sectors.	Level G: Unit 7 – Lesson 4: <i>Circumference of a Circle</i> pp. 194-196
3. Estimate perimeter or circumference and area for circles, triangles and quadrilaterals, and surface area and volume for prisms and cylinders by:	Unit 7 – Lesson 2: <i>Perimeter</i> pp. 128-129 Unit 7 – Lesson 3: <i>Angles</i> pp. 130-131 Unit 7 – Lesson 4: <i>Angles in a Triangle</i> pp. 132-133 Unit 7 – Lesson 5: <i>Areas of Rectangles and Parallelograms</i> pp. 134-135 Unit 7 – Lesson 6: <i>Area of Triangles</i> pp. 136-137 Unit 7 – Lesson 7: <i>Area of Irregular Figures</i> pp. 138-139 Unit 7 – Lesson 8: <i>Volume</i> pp. 140-141
4. Determine which measure (perimeter, area, surface area, volume) matches the context for a problem situation; e.g., perimeter is the context for fencing a garden, surface area is the context for painting a room.	Unit 7 – Lesson 2: <i>Perimeter</i> pp. 128-129 Unit 7 – Lesson 5: <i>Areas of Rectangles and Parallelograms</i> pp. 134-135 Unit 7 – Lesson 6: <i>Area of Triangles</i> pp. 136-137 Unit 7 – Lesson 7: <i>Area of Irregular Figures</i> pp. 138-139

	Unit 7 – Lesson 8: <i>Volume</i> pp. 140-141
5. Understand the difference between perimeter and area, and demonstrate that two shapes may have the same perimeter, but different areas or may have the same area, but different perimeters.	
6. Describe what happens to the perimeter and area of a two-dimensional shape when the measurements of the shape are changed; e.g. length of sides are doubled.	Unit 7 – Lesson 2: <i>Perimeter</i> pp. 128-129 Lesson 5: <i>Areas of Rectangles and Parallelograms</i> pp. 134-135
Geometry and Spatial Sense Standard	
1. Classify and describe two-dimensional and three-dimensional geometric figures and objects by using their properties; e.g., interior angle measures, perpendicular/parallel sides, congruent angles/sides.	Unit 6 – Lesson 1: <i>Properties of Polygons</i> pp. 108-109 Unit 6 – Lesson 2: <i>Classifying Quadrilaterals</i> pp. 110-111 Unit 6 – Lesson 3: <i>Solid Figures</i> pp. 112-113 Unit 6 – Lesson 4: <i>Circles</i> pp. 114-115 Unit 7 – Lesson 1: <i>Triangles</i> pp. 126-127
2. Use standard language to define geometric vocabulary: vertex, face, altitude, diagonal, isosceles, equilateral, acute, obtuse and other vocabulary as appropriate.	Unit 6 – Lesson 1: <i>Properties of Polygons</i> pp. 108-109 Unit 6 – Lesson 2: <i>Classifying Quadrilaterals</i> pp. 110-111 Unit 6 – Lesson 3: <i>Solid Figures</i> pp. 112-113 Unit 6 – Lesson 4: <i>Circles</i> pp. 114-115 Unit 6 – Lesson 5: <i>The Coordinate Plane</i> pp. 116-117
3. Use multiple classification criteria to classify triangles; e.g., right scalene triangle.	Unit 7 – Lesson 1: <i>Triangles</i> pp. 126-127
4. Identify and define relationships between planes; i.e., parallel, perpendicular and intersecting.	Unit 7 – Lesson 5: <i>Areas of Rectangles and Parallelograms</i> pp. 134-135
5. Predict and describe sizes, positions and orientations of two-dimensional shapes after transformations such as reflections, rotations, translations and dilations.	Unit 6 – Lesson 6: <i>Translation</i> pp. 118-119 Unit 6 – Lesson 7: <i>Reflection</i> pp. 120-121

	Unit 6 – Lesson 8: <i>Rotation</i> pp. 122-123
6. Draw similar figures that model proportional relationships; e.g., model similar figures with a 1 to 2 relationship by sketching two of the same figure, one with corresponding sides twice the length of the other.	Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66-67 Unit 3 – Lesson 8: <i>Solving Proportions</i> pp. 68-69
7. Build three-dimensional objects with cubes, and sketch the two-dimensional representations of each side; i.e., projection sets.	Unit 6 – Lesson 3: <i>Solid Figures</i> pp. 112-113
Patterns, Functions and Algebra Standard	
1. Represent and analyze patterns, rules and functions, using physical materials, tables and graphs.	Unit 5 – Lesson 2: <i>Patterns</i> pp. 92-93
2. Use words and symbols to describe numerical and geometric patterns, rules and functions.	Unit 5 – Lesson 2: <i>Patterns</i> pp. 92-93
3. Recognize and generate equivalent forms of algebraic expressions, and explain how the commutative, associative and distributive properties can be used to generate equivalent forms; e.g., perimeter as $2(l + w)$ or $2l + 2w$.	Unit 5 – Lesson 3: <i>One-Step Algebraic Expressions</i> pp. 94-95 Unit 5 – Lesson 4: <i>Two-Step Algebraic Expressions</i> pp. 96-97
4. Solve simple linear equations and inequalities using physical models, paper and pencil, tables and graphs.	Unit 5 – Lesson 5: <i>Solving Equations</i> pp. 98-99
5. Produce and interpret graphs that represent the relationship between two variables.	Unit 5 – Lesson 7: <i>Graphing Algebraic Equations</i> pp. 102-103
6. Evaluate simple expressions by replacing variables with given values, and use formulas in problem-solving situations.	Unit 5 – Lesson 3: <i>One-Step Algebraic Expressions</i> pp. 94-95 Unit 5 – Lesson 4: <i>Two-Step Algebraic Expressions</i> pp. 96-97
7. Identify and describe situations with constant or varying rates of change, and compare them.	Level G – Unit 5 – Unit 2: <i>Rates</i> pp. 132-134
8. Use technology to analyze change; e.g., use computer applications or graphing calculators to display and interpret rate of change.	Level G – Unit 5 – Unit 2: <i>Rates</i> pp. 132-134
Data Analysis and Probability Standard	
1. Read, construct and interpret line graphs, circle graphs and histograms.	Unit 8 – Lesson 2: <i>Line Plots and Stem-and-Leaf Plots</i> pp. 146-147 Unit 8 – Lesson 6: <i>Line Graphs</i> pp. 154-155

2. Select, create and use graphical representations that are appropriate for the type of data collected.	Unit 8 – Lesson 5: <i>Displaying Data</i> pp. 152-153
3. Compare representations of the same data in different types of graphs, such as a bar graph and circle graph.	Unit 8 – Lesson 3: <i>Scales and Bar Graphs</i> pp. 148-149
4. Understand the different information provided by measures of center (mean, mode and median) and measures of spread (range).	Unit 8 – Lesson 1: <i>Mean, Mode, and Median</i> pp. 144-145
5. Describe the frequency distribution of a set of data, as shown in a histogram or frequency table, by general appearance or shape; e.g., number of modes, middle of data, level of symmetry, outliers.	Unit 8 – Lesson 1: <i>Mean, Mode, and Median</i> pp. 144-145
6. Make logical inferences from statistical data.	Unit 8 – Lesson 1: <i>Mean, Mode, and Median</i> pp. 144-145 Unit 8 – Lesson 7: <i>Probability</i> pp. 156-157 Unit 8 – Lesson 8: <i>Probability Experiments</i> pp. 158-159
7. Design an experiment to test a theoretical probability and explain how the results may vary.	Unit 8 – Lesson 7: <i>Probability</i> pp. 156-157 Unit 8 – Lesson 8: <i>Probability Experiments</i> pp. 158-159