

## Northpoint Horizons

### *Math Elevations™ (Comprehensive Intervention System)* Correlated to Grade 4 of The North Carolina Mathematics Standard Course of Study

This document provides a sampling of the extensive math directives offered throughout the *Math Elevations* program that meet **The North Carolina Mathematics Standard Course of Study**.

#### Grade 4

Math Content Standard	Math Elevations Level D (Grade 4) Teacher's Guide Examples/Lessons
<b>COMPETENCY GOAL 1: The learner will build an understanding of and compute with non-negative rational numbers (.01 to at least 100,000).</b>	
1.01 Develop number sense for rational numbers from .01 to at least 100,000.	
a) Demonstrate multiple ways to represent numbers using models, words and symbolic representations.	Unit 1 – Lesson 6: <i>Fractions as Decimals</i> pp. 28-29 Unit 4 – Lesson 1: <i>Comparing and Ordering Fractions</i> pp. 72-73 Lesson 2: <i>Equivalent Fractions</i> pp. 74-75 Lesson 3: <i>Converting Between Improper Fractions and Mixed Numbers</i> pp. 76-77
b) Identify the place and the value of a given digit in order to determine the magnitude of the number.	Unit 1 – Lesson 1: <i>Large Numbers</i> pp. 18-19 Lesson 2: <i>Comparing Numbers</i> pp. 20-21 Lesson 3: <i>Rounding</i> pp. 22-23
c) Compare and order (including the use of symbolic notation).	Unit 1 – Lesson 2: <i>Comparing Numbers</i> pp. 20-21 Lesson 7: <i>Comparing and Rounding Decimals</i> pp. 30-31 Unit 4 – Lesson 1: <i>Comparing and Ordering Fractions</i> pp. 72-73 Lesson 2: <i>Equivalent Fractions</i> pp. 74-75
1.02 Develop understanding of the meanings and uses of fractions and decimals.	
a) Use models, benchmarks (0, $\frac{1}{2}$ , 1, 1.5, 2 and so on), and reasoning to compare and order fractions and decimals.	Unit 1 – Lesson 7: <i>Comparing and Rounding Decimals</i> pp. 30-31 Unit 4 – Lesson 1: <i>Comparing and Ordering Fractions</i> pp. 72-73

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	Lesson 2: <i>Equivalent Fractions</i> pp. 74-75 Lesson 4: <i>Fractions and Mixed Numbers as Decimals</i> pp. 78-79
b) Model and describe common equivalents among: -halves, fourths, eighths, and mixed numbers; -thirds, sixths, twelfths, and mixed numbers; -fifths, tenths, hundredths, and mixed numbers.	Unit 4 – Lesson 1: <i>Comparing and Ordering Fractions</i> pp. 72-73 Lesson 2: <i>Equivalent Fractions</i> pp. 74-75
c) Understand and use mixed numbers and their equivalent fraction forms.	Unit 4 – Lesson 3: <i>Converting Between Improper Fractions and Mixed Numbers</i> pp. 76-7
d) Make connections between fractions and decimals.	Unit 4 – Lesson 4: <i>Fractions and Mixed Numbers as Decimals</i> pp. 78-79
1.03 Develop fluency and flexibility with multiplication and division involving:	
a) tables 0-12;	Unit 3 – Lesson 3: <i>Multiplication by One-Digit Numbers</i> pp. 58-59 Lesson 4: <i>Multiplication by Two-Digit Numbers</i> pp. 60-61
b) up to two-digit by one-digit multiplication;	Unit 3 – Lesson 3: <i>Multiplication by One-Digit Numbers</i> pp. 58-59 Lesson 4: <i>Multiplication by Two-Digit Numbers</i> pp. 60-61
c) strategies for two-digit by two-digit multiplication (larger numbers with calculator);	Unit 3 – Lesson 3: <i>Multiplication by One-Digit Numbers</i> pp. 58-59 Lesson 4: <i>Multiplication by Two-Digit Numbers</i> pp. 60-61
d) up to three-digit by one-digit division with and without remainders (larger numbers with calculator);	Unit 3 – Lesson 5: <i>Division with Remainders</i> pp. 62-63 Lesson 6: <i>Long Division (Two-Digit ÷ One-Digit Numbers)</i> pp. 64-65 Lesson 7: <i>Long Division (Three-Digit ÷ One-Digit Numbers)</i> pp. 66-67
e) estimation of products and quotients and justification of the reasonableness of solutions in meaningful contexts.	Unit 3 – Lesson 4: <i>Multiplication by Two-Digit Numbers</i> pp. 60-61 Lesson 6: <i>Long Division (Two-Digit ÷ One-Digit Numbers)</i> pp. 64-65 Lesson 7: <i>Long Division (Three-Digit ÷ One-Digit Numbers)</i> pp. 66-67

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	Lesson 8: <i>Word Problems</i> pp. 68-69
1.04 Develop fluency with addition and subtraction of decimals and fractions with like denominators.	
a) Develop and analyze strategies for adding and subtracting numbers.	Unit 4 – Lesson 5: <i>Addition of Fractions with Like Denominators</i> pp. 80-81 Lesson 6: <i>Subtraction of Fractions with Like Denominators</i> pp. 82-83
b) Estimate sums and differences and justify the reasonableness of the solutions in meaningful contexts.	Unit 4 – Lesson 5: <i>Addition of Fractions with Like Denominators</i> pp. 80-81 Lesson 6: <i>Subtraction of Fractions with Like Denominators</i> pp. 82-83
<b>COMPETENCY GOAL 2: The learner will apply the processes and components of measurement using metric units and make simple conversions within the same system (e.g. metric to metric or customary to customary).</b>	
2.01 Develop an understanding of and use the processes for measuring with metric units of measurement (length, mass, capacity, temperature) recognizing that:	
a) the type of unit used to measure depends on the attribute being measured,	Unit 6 – Lesson 8: <i>Appropriate Units</i> pp. 122-123
b) larger units can be subdivided into equivalent units (partitioning),	Unit 6 – Lesson 4: <i>Metric Measurement</i> pp. 114-115 Lesson 6: <i>Capacity Conversions</i> pp. 118-119
c) two objects can be compared in terms of a measurable quality using a third object (transitivity),	Unit 6 – Lesson 5: <i>Measuring Capacity</i> pp. 116-117
d) the same unit can be repeated to determine the measure (iteration), and	Unit 6 – Lesson 4: <i>Metric Measurement</i> pp. 114-115
e) the relationship between the size of the unit and the number of units needed (compensatory principle).	Unit 6 – Lesson 4: <i>Metric Measurement</i> pp. 114-115
2.03 Select attributes and appropriate standard units and tools (metric) to estimate and measure length, mass, capacity, and temperature.	Unit 6 – Lesson 4: <i>Metric Measurement</i> pp. 114-115 Lesson 5: <i>Measuring Capacity</i> pp. 116-117 Lesson 6: <i>Capacity Conversions</i> pp. 118-119 Lesson 7: <i>Weight</i> pp. 120-121

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	Lesson 8: <i>Appropriate Units</i> pp. 122-123
2.04 Make simple unit conversions within the same measurement system (metric and customary).	Unit 6 – Lesson 6: <i>Capacity Conversions</i> pp. 118-119
<b>COMPETENCY GOAL 3: The learner will demonstrate an understanding of symmetry, transformations, area and perimeter.</b>	
3.01 Identify and describe symmetry in two-dimensional shapes; create symmetrical shapes with line and/or rotational symmetry.	Unit 7 – Lesson 4: <i>Symmetry</i> pp. 132-133
3.02 Identify, predict, and describe the results of transformations of two-dimensional shapes using reflections, translations, and rotations.	Unit 7 – Lesson 5: <i>Flips and Slides</i> pp. 134-135 Lesson 6: <i>Turns</i> pp. 136-137
3.03 Solve problems involving area and perimeter.	Unit 6 – Lesson 1: <i>Perimeter of Squares and Rectangles</i> pp. 108-109 Lesson 2: <i>Area of Squares and Rectangles</i> pp. 110-111 Lesson 3: <i>Area and Perimeter of Irregular Polygons</i> pp. 112-113
<b>COMPETENCY GOAL 4: The learner will understand and use graphs, probability and data analysis.</b>	
4.01 Use the process of statistical investigation.	
a) Pose questions and design investigations that involve comparing two sets of related data each represented on the same type of graph using the same scale.	Unit 8 – Lesson 1: <i>Data Handling</i> pp. 144-145
b) Collect, organize, analyze and display data using various representations including line graphs.	Unit 8 – Lesson 3: <i>Pictographs</i> pp. 148-149 Lesson 4: <i>Bar Graphs</i> pp. 150-151 Lesson 5: <i>Line Graphs</i> pp. 152-153 Lesson 6: <i>Venn Diagrams</i> pp. 154-155
c) Analyze data presented in graphs, including circle graphs.	Unit 8 – Lesson 3: <i>Pictographs</i> pp. 148-149 Lesson 4: <i>Bar Graphs</i> pp. 150-151 Lesson 5: <i>Line Graphs</i> pp. 152-153 Lesson 6: <i>Venn Diagrams</i> pp. 154-155
d) Compare two distributions of data, including their shapes, measures of center (mode, median) and variability (minimum and maximum values, unusual data points, and range).	Unit 8 – Lesson 2: <i>Mode and Mean</i> pp. 146-147
4.02 Understand situations involving simple probability.	
a) Determine probability of an event from a context that includes a visual representation.	Unit 8 – Lesson 8: <i>Probability</i> pp. 158-159

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b) List all possible outcomes (sample space) of a situation or an event.	Unit 8 – Lesson 7: <i>Predicting Possible Outcomes</i> pp. 156-157
<b>COMPETENCY GOAL 5: The learner will demonstrate an understanding of mathematical relationships.</b>	
5.01 Analyze nonnumeric and numeric growing patterns.	
a) Use rules to describe these patterns as functional relationships (arithmetic sequences only).	Unit 5 – Lesson 4: <i>Functional Relationships</i> pp. 96-97 Lesson 5: <i>Linear Functions</i> pp. 98-99
b) Create, extend, and find missing terms.	Unit 5 – Lesson 4: <i>Functional Relationships</i> pp. 96-97 Lesson 5: <i>Linear Functions</i> pp. 98-99
5.02 Model, write and evaluate whole number equations.	
a) Solve problems, including using variables to represent unknown quantities.	Unit 5 – Lesson 2: <i>Solving Open Sentences (Addition and Subtraction)</i> pp. 92-93 Lesson 3: <i>Solving Open Sentences (Multiplication and Division)</i> pp. 94-95 Lesson 6: <i>Writing Simple Algebraic Equations</i> pp. 100-101
b) Demonstrate an understanding of equality and simple inequality.	Unit 5 – Lesson 2: <i>Solving Open Sentences (Addition and Subtraction)</i> pp. 92-93 Lesson 3: <i>Solving Open Sentences (Multiplication and Division)</i> pp. 94-95 Lesson 6: <i>Writing Simple Algebraic Equations</i> pp. 100-101
c) Find the value of variables.	Unit 5 – Lesson 2: <i>Solving Open Sentences (Addition and Subtraction)</i> pp. 92-93 Lesson 3: <i>Solving Open Sentences (Multiplication and Division)</i> pp. 94-95 Lesson 6: <i>Writing Simple Algebraic Equations</i> pp. 100-101
5.03 Develop an understanding of and apply order of operations in meaningful contexts.	
<b>COMPETENCY GOAL 6: The learner will make connections, solve problems and reason mathematically.</b>	
6.01 Recognize and apply connections among mathematical ideas.	
a) Connect concepts and skills from previous years to current objectives.	Unit 2 –

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	Lesson 3: <i>Making Change</i> pp. 40-41
b) Connect concepts and skills from multiple strands to solve problems.	Unit 5 – Lesson 7: <i>Ordered Pairs</i> pp. 102-103
6.02 Develop fluency in solving single and multi-step problems that arise in mathematics and in other contexts, building mathematical knowledge through problem solving.	Unit 3 – Lesson 8: <i>Word Problems</i> pp. 68-69 Unit 5 – Lesson 2: <i>Solving Open Sentences (Addition and Subtraction)</i> pp. 92-93 Lesson 3: <i>Solving Open Sentences (Multiplication and Division)</i> pp. 94-95 Lesson 6: <i>Writing Simple Algebraic Equations</i> pp. 100-101
6.03 Use reasoning to solve problems.	
a) Understand situations and communicate mathematical problem solving.	Unit 3 – Lesson 8: <i>Word Problems</i> pp. 68-69
b) Make estimates with appropriate ranges.	Unit 8 – Lesson 1: <i>Data Handling</i> pp. 144-145
c) Reflect, extend and refine thinking.	Unit 5 – Lesson 5: <i>Linear Functions</i> pp. 98-99
6.04 Use the language and symbols of mathematics and technology to:	
a) solve problems;	Unit 3 – Lesson 8: <i>Word Problems</i> pp. 68-69
b) communicate mathematical ideas;	Unit 8 – Lesson 3: <i>Pictographs</i> pp. 148-149 Lesson 4: <i>Bar Graphs</i> pp. 150-151
c) demonstrate understanding of problems and solutions through oral, pictorial, and written explanations.	Unit 8 – Lesson 3: <i>Pictographs</i> pp. 148-149 Lesson 4: <i>Bar Graphs</i> pp. 150-151 Lesson 5: <i>Line Graphs</i> pp. 152-153
6.05 Create and use representations to organize, record and communicate mathematical ideas.	Unit 3 – Lesson 8: <i>Word Problems</i> pp. 68-69 Unit 8 – Lesson 3: <i>Pictographs</i> pp. 148-149