

Northpoint Horizons

Math Elevations™ (Comprehensive Intervention System)
Correlated to the Grade 5
NYS Mathematics Core
Curriculum

This document provides a sampling of the extensive math directives offered throughout the *Math Elevations* program that meet the NYS Mathematics Core Curriculum.

Grade 5

Math Content Standard	Math Elevations Level E (Grade 5) Teacher's Guide Examples/Lessons
Problem Solving Strand	
<i>Students will build new mathematical knowledge through problem solving.</i>	
5.PS.1 Know the difference between relevant and irrelevant information when solving problems	Unit 8 – Lesson 3: <i>Probability Experiments</i> pp. 148-149
5.PS.2 Understand that some ways of representing a problem are more efficient than others	Unit 5 – Lesson 6: <i>Problem Solving</i> pp. 100-101
5.PS.3 Interpret information correctly, identify the problem, and generate possible strategies and solutions	Unit 5 – Lesson 6: <i>Problem Solving</i> pp. 100-101 Unit 8 – Lesson 5: <i>The Mean</i> pp. 152-153 Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159
<i>Students will solve problems that arise in mathematics and in other contexts.</i>	
5.PS.4 Act out or model with manipulatives activities involving mathematical content from literature	Unit 6 – Lesson 4: <i>Area of Parallelograms</i> pp. 114-115 Lesson 5: <i>Area of Triangles</i> pp. 116-117
5.PS.5 Formulate problems and solutions from everyday situations	Unit 5 – Lesson 6: <i>Problem Solving</i> pp. 100-101
5.PS.6 Translate from a picture/diagram to a numeric expression	Unit 5 – Lesson 2: <i>Investigating Patterns</i> pp. 92-93

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5.PS.7 Represent problem situations verbally, numerically, algebraically, and/or graphically	Unit 5 – Lesson 3: <i>Algebraic Expressions</i> pp. 94-95 Lesson 4: <i>Evaluating Expressions</i> pp. 96-97 Lesson 5: <i>Solving One-Step Equations</i> pp. 98-99 Lesson 6: <i>Problem Solving</i> pp. 100-101 Lesson 7: <i>Inequalities</i> pp. 102-103
5.PS.8 Select an appropriate representation of a problem	Unit 5 – Lesson 3: <i>Algebraic Expressions</i> pp. 94-95 Lesson 4: <i>Evaluating Expressions</i> pp. 96-97 Lesson 5: <i>Solving One-Step Equations</i> pp. 98-99 Lesson 6: <i>Problem Solving</i> pp. 100-101 Lesson 7: <i>Inequalities</i> pp. 102-103
5.PS.9 Understand the basic language of logic in mathematical situations (and, or, not)	Unit 5 – Lesson 6: <i>Problem Solving</i> pp. 100-101
<i>Students will apply and adapt a variety of appropriate strategies to solve problems.</i>	
5.PS.10 Work in collaboration with others to solve problems	Unit 5 – Lesson 7: <i>Inequalities</i> pp. 102-103
5.PS.11 Translate from a picture/diagram to a number or symbolic expression	Unit 5 – Lesson 6: <i>Problem Solving</i> pp. 100-101
5.PS.13 Model problems with pictures/diagrams or physical objects	Unit 5 – Lesson 6: <i>Problem Solving</i> pp. 100-101
5.PS.14 Analyze problems by observing patterns	Unit 5 – Lesson 2: <i>Investigating Patterns</i> pp. 92-93
5.PS.15 Make organized lists or charts to solve numerical problems	Unit 8 – Lesson 5: <i>The Mean</i> pp. 152-153 Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159
<i>Students will monitor and reflect on the process of mathematical problem solving.</i>	
5.PS.16 Discuss with peers to understand a problem situation	Unit 5 – Lesson 7: <i>Inequalities</i> pp. 102-103
5.PS.17 Determine what information is needed to solve problem	Unit 8 – Lesson 3: <i>Probability Experiments</i> pp. 148-149
5.PS.18 Determine the efficiency of different representations of a problem	Unit 8 –

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	Lesson 5: <i>The Mean</i> pp. 152-153 Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159
5.PS.19 Differentiate between valid and invalid approaches	Unit 5 – Lesson 6: <i>Problem Solving</i> pp. 100-101
5.PS.20 Understand valid counterexamples	Unit 5 – Lesson 6: <i>Problem Solving</i> pp. 100-101
5.PS.21 Explain the methods and reasoning behind the problem solving strategies used	Unit 5 – Lesson 6: <i>Problem Solving</i> pp. 100-101
5.PS.22 Discuss whether a solution is reasonable in the context of the original problem	Unit 5 – Lesson 6: <i>Problem Solving</i> pp. 100-101
5.PS.23 Verify results of a problem	Unit 5 – Lesson 5: <i>Solving One-Step Equations</i> pp. 98-99
Reasoning and Proof Strand	
<i>Students will recognize reasoning and proof as fundamental aspects of mathematics.</i>	
5.RP.1 Recognize that mathematical ideas can be supported using a variety of strategies	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 144-145 Lesson 2: <i>Evaluating Probability</i> pp. 146-147 Lesson 3: <i>Probability Experiments</i> pp. 148-149
5.RP.2 Understand that mathematical statements can be supported, using models, facts, and relationships to explain their thinking	Unit 8 – Lesson 3: <i>Probability Experiments</i> pp. 148-149
<i>Students will make and investigate mathematical conjectures.</i>	
5.RP.3 Investigate conjectures, using arguments and appropriate mathematical terms	Unit 8 – Lesson 3: <i>Probability Experiments</i> pp. 148-149
5.RP.4 Make and evaluate conjectures, using a variety of strategies	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 144-145
<i>Students will develop and evaluate mathematical arguments and proofs.</i>	
5.RP.5 Justify general claims or conjectures, using manipulatives, models, expressions, and mathematical relationships	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 144-145
5.RP.6 Develop and explain an argument verbally, numerically, and/or graphically	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 144-145
5.RP.7 Verify claims other students make, using examples and counterexamples when appropriate	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 144-145

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Communication Strand	
<i>Students will organize and consolidate their mathematical thinking through communication.</i>	
5.CM.1 Provide an organized thought process that is correct, complete, coherent, and clear	Unit 8 – Lesson 3: <i>Probability Experiments</i> pp. 148-149
5.CM.2 Explain a rationale for strategy selection	Unit 8 – Lesson 4: <i>Mode, Median, and Range</i> pp. 150-151
5.CM.3 Organize and accurately label work	Unit 8 – Lesson 6: <i>Bar Graphs</i> pp. 154-155
<i>Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others.</i>	
5.CM.4 Share organized mathematical ideas through the manipulation of objects, numerical tables, drawings, pictures, charts, graphs, tables, diagrams, models, and symbols in written and verbal form	Unit 8 – Lesson 5: <i>The Mean</i> pp. 152-153 Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159
<i>Students will analyze and evaluate the mathematical thinking and strategies of others.</i>	
5.CM.6 Understand mathematical solutions shared by other students	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 144-145
5.CM.7 Raise questions that elicit, extend, or challenge others' thinking	Unit 7 – Lesson 3: <i>Measuring and Classifying Angles</i> pp. 130-131
5.CM.8 Consider strategies used and solutions found by others in relation to their own work	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 144-145
<i>Students will use the language of mathematics to express mathematical ideas precisely.</i>	
5.CM.9 Increase their use of mathematical vocabulary and language when communicating with others	Unit 1 – Lesson 5: <i>Primes and Composites</i> pp. 26-27 Lesson 7: <i>Greatest Common Factor</i> pp. 30-31
5.CM.10 Use appropriate vocabulary when describing objects, relationships, mathematical solutions, and rationale	Unit 1 – Lesson 5: <i>Primes and Composites</i> pp. 26-27 Lesson 7: <i>Greatest Common Factor</i> pp. 30-31
5.CM.11 Decode and comprehend mathematical visuals and symbols to construct meaning	Unit 8 – Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159
Connections Strand	
<i>Students will recognize and use connections among mathematical ideas.</i>	

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5.CN.1 Understand and make connections and conjectures in their everyday experiences to mathematical ideas	Unit 5 – Lesson 6: <i>Problem Solving</i> pp. 100-101
5.CN.2 Explore and explain the relationship between mathematical ideas	Unit 8 – Lesson 4: <i>Mode, Median, and Range</i> pp. 150-151
5.CN.3 Connect and apply mathematical information to solve problems	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 144-145
<i>Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole.</i>	
5.CN.4 Understand multiple representations and how they are related	Unit 8 – Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159
5.CN.5 Model situations with objects and representations and be able to draw conclusions	Unit 8 – Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159
<i>Students will recognize and apply mathematics in contexts outside of mathematics.</i>	
5.CN.6 Recognize and provide examples of the presence of mathematics in their daily lives	Unit 8 – Lesson 3: <i>Probability Experiments</i> pp. 148-149
5.CN.7 Apply mathematics to problem situations that develop outside of mathematics	Unit 8 – Lesson 3: <i>Probability Experiments</i> pp. 148-149
Representation Strand	
<i>Students will create and use representations to organize, record, and communicate mathematical ideas.</i>	
5.R.1 Use physical objects, drawings, charts, tables, graphs, symbols, equations, or objects created using technology as representations	Unit 8 – Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159
5.R.2 Explain, describe, and defend mathematical ideas using representations	Unit 8 – Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159
5.R.3 Read, interpret, and extend external models	Unit 8 – Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159

Math Content Standard	Math Elevations Level E (Grade 5) Teacher's Guide Examples/Lessons
5.R.4 Use standard and nonstandard representations with accuracy and detail	
Students will select, apply, and translate among mathematical representations to solve problems.	
5.R.5 Use representations to explore problem situations	Unit 8 – Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159
5.R.6 Investigate relationships between different representations and their impact on a given problem	Unit 3 – Lesson 2: <i>Equivalent Fractions and Simplest Form</i> pp. 56-57 Lesson 3: <i>Mixed Numbers and Improper Fractions</i> pp. 58-59 Lesson 4: <i>Relating Decimals and Fractions</i> pp. 60-61 Lesson 5: <i>Comparing and Ordering Fractions</i> pp. 62-63
Students will use representations to model and interpret physical, social, and mathematical phenomena.	
5.R.7 Use mathematics to show and understand physical phenomena (e.g., determine the perimeter of a bulletin board)	Unit 6 – Lesson 1: <i>Area and Perimeter</i> pp. 108-109 Lesson 2: <i>Investigating Area and Perimeter</i> pp. 110-111 Lesson 3: <i>Perimeter of Irregular Shapes</i> pp. 112-113
5.R.8 Use mathematics to show and understand social phenomena (e.g., construct tables to organize data showing book sales)	Unit 8 – Lesson 4: <i>Mode, Median, and Range</i> pp. 150-151
5.R.9 Use mathematics to show and understand mathematical phenomena (e.g., find the missing value that makes the equation true: $(3 + 4) + 5 = 3 + (4 + \underline{\quad})$)	Unit 5 – Lesson 5: <i>Solving One-Step Equations</i> pp. 98-99
Number Sense and Operations Strand	
Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.	
5.N.1 Read and write whole numbers to millions	Unit 1 – Lesson 1: <i>Whole Number Place Value</i> pp. 18-19
5.N.2 Compare and order numbers to millions	Unit 1 – Lesson 3: <i>Working with Whole Numbers</i> pp. 22-23 Lesson 4: <i>Working with Decimal Numbers</i> pp. 24-25
5.N.3 Understand the place value structure of the base ten number system	Unit 1 – Lesson 2: <i>Place Value Through Thousandths</i> pp. 20-21
5.N.4 Create equivalent fractions, given a fraction	Unit 3 – Lesson 2: <i>Equivalent Fractions and Simplest Form</i> pp. 56-57
5.N.5 Compare and order fractions including unlike denominators (with and without the use of a number line) <i>Note: Commonly used fractions such as</i>	Unit 3 – Lesson 5: <i>Comparing and Ordering Fractions</i> pp. 62-63

Math Content Standard	Math Elevations Level E (Grade 5) Teacher's Guide Examples/Lessons
<i>those that might be indicated on ruler, measuring cup, etc.</i>	
5.N.8 Read, write, and order decimals to thousandths	Unit 1 – Lesson 2: <i>Place Value Through Thousandths</i> pp. 20-21 Lesson 4: <i>Working with Decimal Numbers</i> pp. 24-25
5.N.9 Compare fractions using $<$, $>$, or $=$	Unit 3 – Lesson 5: <i>Comparing and Ordering Fractions</i> pp. 62-63
5.N.10 Compare decimals using $<$, $>$, or $=$	Unit 1 – Lesson 4: <i>Working with Decimal Numbers</i> pp. 24-25
5.N.11 Understand that percent means part of 100, and write percents as fractions and decimals	Unit 4 – Lesson 6: <i>Understanding Percent</i> pp. 82-83 Lesson 8: <i>Percent of a Quantity</i> pp. 86-87
5.N.12 Recognize that some numbers are only divisible by one and themselves (prime) and others have multiple divisors (composite)	Unit 1 – Lesson 5: <i>Primes and Composites</i> pp. 26-27
5.N.13 Calculate multiples of a whole number and the least common multiple of two numbers	Unit 1 – Lesson 8: <i>Least Common Multiple</i> pp. 32-33
5.N.14 Identify the factors of a given number	Unit 1 – Lesson 7: <i>Greatest Common Factor</i> pp. 30-31
5.N.15 Find the common factors and the greatest common factor of two numbers	Unit 1 – Lesson 7: <i>Greatest Common Factor</i> pp. 30-31
5.N.16 Use a variety of strategies to multiply three-digit by three-digit numbers	Unit 2 – Lesson 3: <i>Multiplying by Multiples of 10, 100, and 1,000</i> pp. 40-41
5.N.17 Use a variety of strategies to divide three-digit numbers by one- and two-digit numbers	Unit 2 – Lesson 7: <i>Long Division</i> pp. 48-49
5.N.18 Evaluate an arithmetic expression using order of operations including multiplication, division, addition, subtraction and parentheses	Unit 5 – Lesson 1: <i>Order of Operations</i> pp. 90-91
5.N.19 Simplify fractions to lowest terms	Unit 3 – Lesson 2: <i>Equivalent Fractions and Simplest Form</i> pp. 56-57
5.N.20 Convert improper fractions to mixed numbers, and mixed numbers to improper fractions	Unit 3 – Lesson 3: <i>Mixed Numbers and Improper Fractions</i> pp. 58-59
5.N.21 Use a variety of strategies to add and subtract fractions with like denominators	Unit 4 – Lesson 1: <i>Addition and Subtraction of Fractions (Like Denominators)</i> pp. 72-73
5.N.22 Add and subtract mixed numbers with like denominators	Unit 4 –

Math Content Standard	Math Elevations Level E (Grade 5) Teacher's Guide Examples/Lessons
	Lesson 2: <i>Addition and Subtraction of Mixed Numbers (Like Denominators)</i> pp. 74-75
5.N.23 Use a variety of strategies to add, subtract, multiply, and divide decimals to thousandths	Unit 2 – Lesson 5: <i>Multiplying Decimals</i> pp. 44-45
5.N.24 Round numbers to the nearest hundredth and up to 10,000	Unit 1 – Lesson 3: <i>Working with Whole Numbers</i> pp. 22-23
5.N.27 Justify the reasonableness of answers using estimation	Unit 2 – Lesson 6: <i>Estimating Quotients</i> pp. 46-47
Algebra Strand	
5.A.1 Define and use appropriate terminology when referring to constants, variables, and algebraic expressions	Unit 5 – Lesson 3: <i>Algebraic Expressions</i> pp. 94-95
5.A.2 Translate simple verbal expressions into algebraic expressions	Unit 5 – Lesson 3: <i>Algebraic Expressions</i> pp. 94-95
5.A.3 Substitute assigned values into variable expressions and evaluate using order of operations	Unit 5 – Lesson 1: <i>Order of Operations</i> pp. 90-91 Unit 5 – Lesson 4: <i>Evaluating Expressions</i> pp. 96-97
5.A.4 Solve simple one-step equations using basic whole-number facts	Unit 5 – Lesson 5: <i>Solving One-Step Equations</i> pp. 98-99
5.A.5 Solve and explain simple one-step equations using inverse operations involving whole numbers	Unit 5 – Lesson 5: <i>Solving One-Step Equations</i> pp. 98-99
5.A.6 Evaluate the perimeter formula for given input values	Unit 6 – Lesson 1: <i>Area and Perimeter</i> pp. 108-109
5.A.7 Create and explain patterns and algebraic relationships (e.g., 2, 4, 6, 8...) algebraically: $2n$ (doubling)	Unit 5 – Lesson 2: <i>Investigating Patterns</i> pp. 92-93
5.A.8 Create algebraic or geometric patterns using concrete objects or visual drawings (e.g., rotate and shade geometric shapes)	Unit 5 – Lesson 2: <i>Investigating Patterns</i> pp. 92-93
Geometry Strand	
5.G.1 Calculate the perimeter of regular and irregular polygons	Unit 6 – Lesson 1: <i>Area and Perimeter</i> pp. 108-109
5.G.2 Identify pairs of similar triangles	Unit 7 – Lesson 4: <i>Classifying Triangles</i> pp. 132-133
5.G.3 Identify the ratio of corresponding sides of similar triangles	
5.G.4 Classify quadrilaterals by properties of their angles and sides	Unit 7 –

Math Content Standard	Math Elevations Level E (Grade 5) Teacher's Guide Examples/Lessons
	Lesson 7: <i>Classifying Quadrilaterals</i> pp. 138-139
5.G.6 Classify triangles by properties of their angles and sides	Unit 7 – Lesson 4: <i>Classifying Triangles</i> pp. 132-133
5.G.12 Identify and plot points in the first quadrant	Unit 5 – Lesson 8: <i>The Coordinate Plane</i> pp. 104-105
5.G.13 Plot points to form basic geometric shapes (identify and classify)	Unit 7 – Lesson 1: <i>Geometric Concepts</i> pp. 126-127 Lesson 2: <i>Lines</i> pp. 128-129
5.G.14 Calculate perimeter of basic geometric shapes drawn on a coordinate plane (rectangles and shapes composed of rectangles having sides with integer lengths and parallel to the axes)	Unit 6 – Lesson 1: <i>Area and Perimeter</i> pp. 108-109
Measurement Strand	
5.M.2 Identify customary equivalent units of length	Unit 6 – Lesson 8: <i>Converting Within the Customary System</i> pp. 122-123
5.M.4 Identify equivalent metric units of length	Unit 6 – Lesson 8: <i>Converting Within the Customary System</i> pp. 122-123
5.M.5 Convert measurement within a given system	Unit 6 – Lesson 7: <i>Converting Within the Metric System</i> pp. 120-121 Lesson 8: <i>Converting Within the Customary System</i> pp. 122-123
5.M.8 Measure and draw angles using a protractor	Unit 7 – Lesson 3: <i>Measuring and Classifying Angles</i> pp. 130-131
<i>Students will develop strategies for estimating measurements.</i>	
5.M.9 Determine personal references for customary units of length (e.g., your pace is approximately 3 feet, your height is approximately 5 feet, etc.)	Unit 6 – Lesson 8: <i>Converting Within the Customary System</i> pp. 122-123
5.M.10 Determine personal references for metric units of length	Unit 6 – Lesson 7: <i>Converting Within the Metric System</i> pp. 120-121
Statistics and Probability Strand	
<i>Students will collect, organize, display, and analyze data.</i>	

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5.S.1 Collect and record data from a variety of sources (e.g., newspapers, magazines, polls, charts, and surveys)	Unit 8 – Lesson 4: <i>Mode, Median, and Range</i> pp. 150-151 Lesson 5: <i>The Mean</i> pp. 152-153 Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159
5.S.2 Display data in a line graph to show an increase or decrease over time	Unit 8 – Lesson 7: <i>Line Graphs</i> pp. 156-157
5.S.3 Calculate the mean for a given set of data and use to describe a set of data	Unit 8 – Lesson 5: <i>The Mean</i> pp. 152-153
<i>Students will make predictions that are based upon data analysis.</i>	
5.S.4 Formulate conclusions and make predictions from graphs	Unit 8 – Lesson 6: <i>Bar Graphs</i> pp. 154-155 Lesson 7: <i>Line Graphs</i> pp. 156-157 Lesson 8: <i>Circle Graphs</i> pp. 158-159
<i>Students will understand and apply concepts of probability.</i>	
5.S.5 List the possible outcomes for a single-event experiment	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 144-145
5.S.6 Record experiment results using fractions/ratios	Unit 8 – Lesson 3: <i>Probability Experiments</i> pp. 148-149
5.S.7 Create a sample space and determine the probability of a single event, given a simple experiment (e.g., rolling a number cube)	Unit 8 – Lesson 1: <i>Possible Outcomes</i> pp. 144-145

