Northpoint Horizons
Math Elevations™ (Comprehensive Intervention System)
Correlated to the Grade 5
New Jersey Core Curriculum Content Standards

This document provides a sampling of the extensive math directives offered throughout the *Math Elevations* program that meet the New Jersey Core Curriculum Content Standards.

Math Content Standard	Math Elevations Level E (Grade 5) Teacher's Guide Examples/Lessons
STANDARD 4.1 (NUMBER AND NUMERICAL OPERATIONS)	
4.1.5 A. Number Sense	
1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 5 pertain to these sets of numbers as well).	
• All fractions as part of a whole, as subset of a set, as a location on a number line, and as divisions of whole numbers	Unit 3 – Lesson 1: *Understanding Fractions* pp. 54-55
• All decimals	Unit 1 – Lesson 4: *Working with Decimal Numbers* pp. 24-25
2. Recognize the decimal nature of United States currency and compute with money.	Unit 2 – Lesson 2: *Addition and Subtraction of Decimal Numbers* pp. 38-39
3. Demonstrate a sense of the relative magnitudes of numbers.	Unit 1 – Lesson 1: *Whole Number Place Value* pp. 18-19 Lesson 2: *Place Value Through Thousandths* pp. 20-21 Lesson 3: *Working with Whole Numbers* pp. 22-23 Lesson 4: *Working with Decimal Numbers* pp. 24-25 Unit 3 – Lesson 5: *Comparing and Ordering Fractions* pp. 62-63 Lesson 6: *Comparing Fractions Using the LCD* pp. 64-65 Lesson 8: *Comparing and Ordering Fractions and Decimals* pp. 68-69
4. Use whole numbers, fractions, and decimals to represent equivalent forms of the same number.	Unit 3 – Lesson 2: *Equivalent Fractions and Simplest Form* pp.

Math Content Standard	Math Elevations Level E (Grade 5) Teacher's Guide Examples/Lessons
	56-57 Lesson 3: *Mixed Numbers and Improper Fractions* pp. 58-59 Lesson 4: *Relating Decimals and Fractions* pp. 60-61 Lesson 7: *Converting Fractions to Decimals* pp. 66-67 Unit 4 – Lesson 7: *Converting Between Percents, Decimals, and Fractions* pp. 84-85
5. Develop and apply number theory concepts in problem solving situations.	
• Primes, factors, multiples	Unit 1 – Lesson 5: *Primes and Composites* pp. 26-27 Lesson 7: *Greatest Common Factor* pp. 30-31 Unit 1 – Lesson 8: *Least Common Multiple* pp. 32-33
6. Compare and order numbers.	Unit 1 – Lesson 1: *Whole Number Place Value* pp. 18-19 Lesson 2: *Place Value Through Thousandths* pp. 20-21 Lesson 3: *Working with Whole Numbers* pp. 22-23 Lesson 4: *Working with Decimal Numbers* pp. 24-25 Unit 3 – Lesson 5: *Comparing and Ordering Fractions* pp. 62-63 Lesson 6: *Comparing Fractions Using the LCD* pp. 64-65 Lesson 8: *Comparing and Ordering Fractions and Decimals* pp. 68-69
4.1.5 B. Numerical Operations	
1. Recognize the appropriate use of each arithmetic operation in problem situations.	Unit 5 – Lesson 3: *Algebraic Expressions* pp. 94-95 Lesson 4: *Evaluating Expressions* pp. 96-97 Lesson 5: *Solving One-Step Equations* pp. 98-99 Lesson 6: *Problem Solving* pp. 100-101
2. Construct, use, and explain procedures for performing addition and subtraction with fractions and decimals with:	
• Pencil-and-paper	Unit 2 – Lesson 2: *Addition and Subtraction of Decimal*

Math Content Standard	Math Elevations Level E (Grade 5) Teacher's Guide Examples/Lessons
	Numbers pp. 38-39 Unit 4 – Lesson 1: *Addition and Subtraction of Fractions (Like Denominators)* pp. 72-73 Lesson 2: *Addition and Subtraction of Mixed Numbers (Like Denominators)* pp. 74-75 Lesson 3: *Addition and Subtraction of Fractions (Unlike Denominators)* pp. 76-77 Lesson 4: *Addition of Mixed Numbers (Unlike Denominators)* pp. 78-79
• Mental math	Unit 2 – Lesson 2: *Addition and Subtraction of Decimal Numbers* pp. 38-39 Unit 4 – Lesson 1: *Addition and Subtraction of Fractions (Like Denominators)* pp. 72-73 Lesson 2: *Addition and Subtraction of Mixed Numbers (Like Denominators)* pp. 74-75 Lesson 3: *Addition and Subtraction of Fractions (Unlike Denominators)* pp. 76-77 Lesson 4: *Addition of Mixed Numbers (Unlike Denominators)* pp. 78-79
3. Use an efficient and accurate pencil-and-paper procedure for division of a 3-digit number by a 2-digit number.	Unit 2 – Lesson 7: *Long Division* pp. 48-49
5. Check the reasonableness of results of computations.	Unit 2 – Lesson 1: *Addition and Subtraction of Whole Numbers* pp. 36-37
6. Understand and use the various relationships among operations and properties of operations.	Unit 1 – Lesson 6: *Divisibility* pp. 28-29 Unit 2 – Lesson 1: *Addition and Subtraction of Whole Numbers* pp. 36-37
4.1.5 C. Estimation	
1. Use a variety of estimation strategies for both number and computation.	Unit 2 – Lesson 1: *Addition and Subtraction of Whole Numbers*

Math Content Standard	Math Elevations Level E (Grade 5) Teacher's Guide Examples/Lessons
	pp. 36-37
2. Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.	Unit 2 – Lesson 1: *Addition and Subtraction of Whole Numbers* pp. 36-37
3. Determine the reasonableness of an answer by estimating the result of operations.	Unit 2 – Lesson 1: *Addition and Subtraction of Whole Numbers* pp. 36-37
4. Determine whether a given estimate is an overestimate or an underestimate.	Unit 2 – Lesson 1: *Addition and Subtraction of Whole Numbers* pp. 36-37
STANDARD 4.2 (GEOMETRY AND MEASUREMENT)	
4.2.5 A. Geometric Properties	
1. Understand and apply concepts involving lines and angles.	
• Notation for line, ray, angle, line segment	Unit 7 – Lesson 1: *Geometric Concepts* pp. 126-127
• Properties of parallel, perpendicular, and intersecting lines	Unit 7 – Lesson 2: *Lines* pp. 128-129
2. Identify, describe, compare, and classify polygons.	
• Triangles by angles and sides	Unit 7 – Lesson 4: *Classifying Triangles* pp. 132-133
• Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi	Unit 7 – Lesson 7: *Classifying Quadrilaterals* pp. 138-139
• Polygons by number of sides.	Unit 7 – Lesson 7: *Classifying Quadrilaterals* pp. 138-139
4.2.5 B. Transforming Shapes	
1. Use a translation, a reflection, or a rotation to map one figure onto another congruent figure.	Unit 7 – Lesson 5: *Translations* pp. 134-135 Lesson 6: *Reflections and Rotations* pp. 136-137
2. Recognize, identify, and describe geometric relationships and properties as they exist in nature, art, and other real-world settings.	Unit 7 – Lesson 6: *Reflections and Rotations* pp. 136-137
4.2.5 C. Coordinate Geometry	
1. Create geometric shapes with specified properties in the first quadrant on a coordinate grid.	
4.2.5 D. Units of Measurement	

Math Content Standard	Math Elevations Level E (Grade 5) Teacher's Guide Examples/Lessons
1. Select and use appropriate units to measure angles and area.	Unit 6 – Lesson 1: *Area and Perimeter* pp. 108-109 Lesson 2: *Investigating Area and Perimeter* pp. 110-111 Lesson 4: *Area of Parallelograms* pp. 114-115 Lesson 5: *Area of Triangles* pp. 116-117 Unit 7 – Lesson 3: *Measuring and Classifying Angles* pp. 130-131
2. Convert measurement units within a system (e.g., 3 feet = ___ inches).	Unit 6 – Lesson 7: *Converting Within the Metric System* pp. 120-121 Lesson 8: *Converting Within the Customary System* pp. 122-123
4. Use measurements and estimates to describe and compare phenomena.	Unit 6 – Lesson 7: *Converting Within the Metric System* pp. 120-121 Lesson 8: *Converting Within the Customary System* pp. 122-123
4.2.5 E. Measuring Geometric Objects	
1. Use a protractor to measure angles.	Unit 7 – Lesson 3: *Measuring and Classifying Angles* pp. 130-131
2. Develop and apply strategies and formulas for finding perimeter and area.	Unit 6 – Lesson 1: *Area and Perimeter* pp. 108-109 Lesson 2: *Investigating Area and Perimeter* pp. 110-111 Lesson 3: *Perimeter of Irregular Shapes* pp. 112-113 Lesson 4: *Area of Parallelograms* pp. 114-115 Lesson 5: *Area of Triangles* pp. 116-117
3. Recognize that rectangles with the same perimeter do not necessarily have the same area and vice versa.	Unit 6 – Lesson 1: *Area and Perimeter* pp. 108-109
4. Develop informal ways of approximating the measures of familiar objects (e.g., use a grid to approximate the area of the bottom of one's foot).	Unit 6 – Lesson 3: *Perimeter of Irregular Shapes* pp. 112-113
STANDARD 4.3 (PATTERNS AND ALGEBRA)	

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4.3.5 A. Patterns	
1. Recognize, describe, extend, and create patterns involving whole numbers.	
• Descriptions using tables, verbal rules, simple equations, and graphs	Unit 5 – Lesson 2: *Investigating Patterns* pp. 92-93
4.3.5 B. Functions & Relationships	
1. Describe arithmetic operations as functions, including combining operations and reversing them.	Unit 5 – Lesson 5: *Solving One-Step Equations* pp. 98-99
4.3.5 C. Modeling	
1. Use number sentences to model situations.	
• Using variables to represent unknown quantities	Unit 5 – Lesson 4: *Evaluating Expressions* pp. 96-97
• Using concrete materials, tables, graphs, verbal rules, algebraic expressions/equations	Unit 5 – Lesson 3: *Algebraic Expressions* pp. 94-95 Lesson 4: *Evaluating Expressions* pp. 96-97 Lesson 5: *Solving One-Step Equations* pp. 98-99 Lesson 6: *Problem Solving* pp. 100-101 Lesson 7: *Inequalities* pp. 102-103
2. Draw freehand sketches of graphs that model real phenomena and use such graphs to predict and interpret events.	
• Changes over time	Unit 8 – Lesson 7: *Line Graphs* pp. 156-157
• Rates of change (e.g., when is plant growing slowly/rapidly, when is temperature dropping most rapidly/slowly)	Unit 8 – Lesson 7: *Line Graphs* pp. 156-157
4.3.5 D. Procedures	
1. Solve simple linear equations with manipulatives and informally	
• Whole-number coefficients only, answers also whole numbers	Unit 5 – Lesson 5: *Solving One-Step Equations* pp. 98-99
• Variables on one side of equation	Unit 5 – Lesson 5: *Solving One-Step Equations* pp. 98-99
STANDARD 4.4 (DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS)	
4.4.5 A. Data Analysis	
1. Collect, generate, organize, and display data.	
• Data generated from surveys	Unit 8 – Lesson 6: *Bar Graphs* pp. 154-155

Math Content Standard	Math Elevations Level E (Grade 5) Teacher's Guide Examples/Lessons
	Lesson 7: *Line Graphs* pp. 156-157 Lesson 8: *Circle Graphs* pp. 158-159
2. Read, interpret, select, construct, analyze, generate questions about, and draw inferences from displays of data.	
• Bar graph, line graph, circle graph, table	Unit 8 – Lesson 6: *Bar Graphs* pp. 154-155 Lesson 7: *Line Graphs* pp. 156-157 Lesson 8: *Circle Graphs* pp. 158-159
• Range, median, and mean	Unit 8 – Lesson 4: *Mode, Median, and Range* pp. 150-151 Lesson 5: *The Mean* pp. 152-153
3. Respond to questions about data and generate their own questions and hypotheses.	Unit 8 – Lesson 4: *Mode, Median, and Range* pp. 150-151 Lesson 5: *The Mean* pp. 152-153
4.4.5 B. Probability	
1. Determine probabilities of events.	
• Event, probability of an event	Unit 8 – Lesson 2: *Evaluating Probability* pp. 146-147
• Probability of certain event is 1 and of impossible event is 0	Unit 8 – Lesson 2: *Evaluating Probability* pp. 146-147
2. Determine probability using intuitive, experimental, and theoretical methods (e.g., using model of picking items of different colors from a bag).	
• Given numbers of various types of items in a bag, what is the probability that an item of one type will be picked	Unit 8 – Lesson 3: *Probability Experiments* pp. 148-149
• Given data obtained experimentally, what is the likely distribution of items in the bag	Unit 8 – Lesson 3: *Probability Experiments* pp. 148-149
3. Model situations involving probability using simulations (with spinners, dice) and theoretical models.	Unit 8 – Lesson 3: *Probability Experiments* pp. 148-149
4.4.5 C. Discrete Mathematics—Systematic Listing and Counting	
1. Solve counting problems and justify that all possibilities have been enumerated without duplication.	
• Organized lists, charts, tree diagrams, tables	Unit 8 – Lesson 1: *Possible Outcomes* pp. 144-145
2. Explore the multiplication principle of counting in simple situations by representing all	Unit 8 –

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possibilities in an organized way (e.g., you can make 3 x 4 = 12 outfits using 3 shirts and 4 skirts).	Lesson 1: *Possible Outcomes* pp. 144-145
4.4.5 D. Discrete Mathematics—Vertex-Edge Graphs and Algorithms	
1. Devise strategies for winning simple games (e.g., start with two piles of objects, each of two players in turn removes any number of objects from a single pile, and the person to take the last group of objects wins) and express those strategies as sets of directions.	Unit 8 – Lesson 2: *Evaluating Probability* pp. 146-147 Lesson 3: *Probability Experiments* pp. 148-149
STANDARD 4.5 (MATHEMATICAL PROCESSES)	
4.5 A. Problem Solving	
1. Learn mathematics through problem solving, inquiry, and discovery.	Unit 5 – Lesson 6: *Problem Solving* pp. 100-101
2. Solve problems that arise in mathematics and in other contexts.	
• Open-ended problems	Unit 5 – Lesson 6: *Problem Solving* pp. 100-101
• Non-routine problems	Unit 6 – Lesson 3: *Perimeter of Irregular Shapes* pp. 112-113
• Problems with multiple solutions	Unit 8 – Lesson 6: *Bar Graphs* pp. 154-155 Lesson 7: *Line Graphs* pp. 156-157 Lesson 8: *Circle Graphs* pp. 158-159
• Problems that can be solved in several ways	Unit 5 – Lesson 6: *Problem Solving* pp. 100-101
3. Select and apply a variety of appropriate problem-solving strategies (e.g., "try a simpler problem" or "make a diagram") to solve problems.	Unit 8 – Lesson 1: *Possible Outcomes* pp. 144-145
4. Pose problems of various types and levels of difficulty.	Unit 1 – Lesson 6: *Divisibility* pp. 28-29 Unit 2 – Lesson 7: *Long Division* pp. 48-49
5. Monitor their progress and reflect on the process of their problem solving activity.	Unit 5 – Lesson 6: *Problem Solving* pp. 100-101
6. Distinguish relevant from irrelevant information, and identify missing information.	Unit 5 – Lesson 6: *Problem Solving* pp. 100-101
4.5 B. Communication	
1. Use communication to organize and clarify their mathematical thinking.	
• Reading and writing	Unit 8 –

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	Lesson 6: *Bar Graphs* pp. 154-155
• Discussion, listening, and questioning	Unit 3 – Lesson 1: *Understanding Fractions* pp. 54-55
2. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	Unit 3 – Lesson 1: *Understanding Fractions* pp. 54-55
3. Analyze and evaluate the mathematical thinking and strategies of others.	Unit 3 – Lesson 5: *Comparing and Ordering Fractions* pp. 62-63
4. Use the language of mathematics to express mathematical ideas precisely.	Unit 1 – Lesson 5: *Primes and Composites* pp. 26-27 Lesson 7: *Greatest Common Factor* pp. 30-31 Lesson 8: *Least Common Multiple* pp. 32-33
4.5 C. Connections	
1. Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).	Unit 5 – Lesson 2: *Investigating Patterns* pp. 92-93
2. Use connections among mathematical ideas to explain concepts (e.g., two linear equations have a unique solution because the lines they represent intersect at a single point).	Unit 7 – Lesson 1: *Geometric Concepts* pp. 126-127
3. Recognize that mathematics is used in a variety of contexts outside of mathematics.	Unit 8 – Lesson 2: *Evaluating Probability* pp. 146-147
4. Apply mathematics in practical situations and in other disciplines.	Unit 8 – Lesson 5: *The Mean* pp. 152-153 Lesson 6: *Bar Graphs* pp. 154-155 Lesson 7: *Line Graphs* pp. 156-157 Lesson 8: *Circle Graphs* pp. 158-159
6. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	Unit 5 – Lesson 6: *Problem Solving* pp. 100-101
4.5 D. Reasoning	
1. Recognize that mathematical facts, procedures, and claims must be justified.	Unit 8 – Lesson 8: *Circle Graphs* pp. 158-159
2. Use reasoning to support their mathematical conclusions and problem solutions.	Unit 6 – Lesson 3: *Perimeter of Irregular Shapes* pp. 112-113
3. Select and use various types of reasoning and methods of proof.	Unit 5 – Lesson 6: *Problem Solving* pp. 100-101
4. Rely on reasoning, rather than answer keys, teachers, or peers, to check the	Unit 6 –

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correctness of their problem solutions.	Lesson 1: *Area and Perimeter* pp. 108-109
5. Make and investigate mathematical conjectures.	Unit 6 – Lesson 3: *Perimeter of Irregular Shapes* pp. 112-113
6. Evaluate examples of mathematical reasoning and determine whether they are valid.	Unit 6 – Lesson 3: *Perimeter of Irregular Shapes* pp. 112-113
4.5 E. Representations	
1. Create and use representations to organize, record, and communicate mathematical ideas.	Representations are used in every lesson in Math *Elevations.* Examples are cited below.
• Concrete representations (e.g., base-ten blocks or algebra tiles)	Unit 1 – Lesson 1: *Whole Number Place Value* pp. 18-19 Lesson 2: *Place Value Through Thousandths* pp. 20-21
• Pictorial representations (e.g., diagrams, charts, or tables)	Unit 8 – Lesson 1: *Possible Outcomes* pp. 144-145
• Symbolic representations (e.g., a formula)	Unit 6 – Lesson 4: *Area of Parallelograms* pp. 114-115 Lesson 5: *Area of Triangles* pp. 116-117
• Graphical representations (e.g., a line graph)	Unit 8 – Lesson 7: *Line Graphs* pp. 156-157
2. Select, apply, and translate among mathematical representations to solve problems.	Unit 8 – Lesson 6: *Bar Graphs* pp. 154-155 Lesson 7: *Line Graphs* pp. 156-157 Lesson 8: *Circle Graphs* pp. 158-159
3. Use representations to model and interpret physical, social, and mathematical phenomena.	Unit 8 – Lesson 6: *Bar Graphs* pp. 154-155 Lesson 7: *Line Graphs* pp. 156-157 Lesson 8: *Circle Graphs* pp. 158-159