Northpoint Horizons
Math Elevations™ (Comprehensive Intervention System)
Correlated to the Grade 7
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 G (Grade 7) Teacher's Guide Examples/Lessons
STANDARD 4.1 (NUMBER AND NUMERICAL OPERATIONS)	
4.1.7 A. Number Sense	
1. Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 7 pertain to these sets of numbers as well):	
• Rational numbers	Unit 1 – Lesson 3: *Square Roots* pp. 25-27 Unit 1 – Lesson 7: *Least Common Multiple* pp. 37-39
• Percents	Unit 5 – Lesson 5: *Fractions, Decimals, and Percents* pp. 141-143 Lesson 6: *Percent of a Number* pp. 144-146 Lesson 7: *Percent Problems* pp. 147-150 Lesson 8: *Percent of Change* pp. 151-153
• Whole numbers with exponents	Unit 1 – Lesson 2: *Exponents* pp. 22-24
2. Demonstrate a sense of the relative magnitudes of numbers.	Unit 1 – Lesson 1: *Decimal Place Value* pp. 18- 21 Lesson 8: *Fractions and Mixed Numbers* pp. 40-43
3. Understand and use ratios, proportions, and percents (including percents greater than 100 and less than 1) in a variety of situations.	Unit 5 – Lesson 1: *Ratios* pp. 128-131 Lesson 2: *Rates* pp. 132-134 Lesson 3: *Writing and Solving Proportions* pp. 135-137

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	Lesson 5: *Fractions, Decimals, and Percents* pp. 141-143 Lesson 6: *Percent of a Number* pp. 144-146 Lesson 7: *Percent Problems* pp. 147-150 Lesson 8: *Percent of Change* pp. 151-153
4. Compare and order numbers of all named types.	Unit 1 – Lesson 1: *Decimal Place Value* pp. 18-21 Lesson 8: *Fractions and Mixed Numbers* pp. 40-43
5. Use whole numbers, fractions, decimals, and percents to represent equivalent forms of the same number.	Unit 1 – Lesson 8: *Fractions and Mixed Numbers* pp. 40-43 Unit 2 – Lesson 8: *Fraction and Decimals* pp. 68-71 Unit 5 – Lesson 5: *Fractions, Decimals, and Percents* pp. 141-143
6. Understand that all fractions can be represented as repeating or terminating decimals.	Unit 2 – Lesson 8: *Fraction and Decimals* pp. 68-71
4.1.7 B. Numerical Operations	
1. Use and explain procedures for performing calculations with integers and all number types named above with:	
• Pencil-and-paper	Unit 2 – Lesson 1: *Adding and Subtracting Fractions* pp. 46-48 Lesson 2: *Adding and Subtracting Mixed Numbers* pp. 49-51 Lesson 3: *Multiplying Fractions and Mixed Numbers* pp. 52-54 Lesson 4: *Dividing Fractions and Mixed Numbers* pp. 55-57 Lesson 5: *Adding and Subtracting Decimals* pp. 58-60 Lesson 6: *Multiplying by Decimals* pp. 61-63 Lesson 7: *Dividing Decimals* pp. 64-67 Unit 3 – Lesson 2: *Adding Integers* pp. 77-79 Lesson 3: *Subtracting Integers* pp. 80-82 Unit 3 –

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	Lesson 5: *Multiplying Integers* pp. 86-88 Lesson 6: *Dividing Integers* pp. 89-91
• Mental math	Unit 2 – Lesson 1: *Adding and Subtracting Fractions* pp. 46-48 Lesson 2: *Adding and Subtracting Mixed Numbers* pp. 49-51 Lesson 3: *Multiplying Fractions and Mixed Numbers* pp. 52-54 Lesson 4: *Dividing Fractions and Mixed Numbers* pp. 55-57 Lesson 5: *Adding and Subtracting Decimals* pp. 58-60 Lesson 6: *Multiplying Decimals* pp. 61-63 Lesson 7: *Dividing Decimals* pp. 64-67 Unit 3 – Lesson 2: *Adding Integers* pp. 77-79 Lesson 3: *Subtracting Integers* pp. 80-82 Unit 3 – Lesson 5: *Multiplying Integers* pp. 86-88 Lesson 6: *Dividing Integers* pp. 89-91
• Calculator	Unit 2 – Lesson 8: *Fraction and Decimals* pp. 68-71
2. Use exponentiation to find whole number powers of numbers.	Unit 1 – Lesson 2: *Exponents* pp. 22-24
3. Understand and apply the standard algebraic order of operations, including appropriate use of parentheses.	Unit 4 – Lesson 1: *Order of Operations* pp. 100-102
4.1.7 C. Estimation	
1. Use equivalent representations of numbers such as fractions, decimals, and percents to facilitate estimation.	Unit 1 – Lesson 8: *Fractions and Mixed Numbers* pp. 40-43 Unit 2 – Lesson 8: *Fraction and Decimals* pp. 68-71 Unit 5 – Lesson 5: *Fractions, Decimals, and Percents* pp. 140-143
STANDARD 4.2 (GEOMETRY AND MEASUREMENT)	
4.2.7 A. Geometric Properties	

Math Content Standard	Math Elevations Level G (Grade 7) Teacher's Guide Examples/Lessons
1. Understand and apply properties of polygons.	
• Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi	Unit 6 – Lesson 3: *Polygons* pp. 163-165
• Regular polygons	Unit 6 – Lesson 3: *Polygons* pp. 163-165
2. Understand and apply the concept of similarity.	
• Using proportions to find missing measures	Unit 6 – Lesson 5: *Similar Polygons* pp. 169-171
• Scale drawings	Unit 5 – Lesson 4: *Scale Drawings and Models* pp. 138-140
• Models of 3D objects	Unit 5 – Lesson 4: *Scale Drawings and Models* pp. 138-140
3. Use logic and reasoning to make and support conjectures about geometric objects.	Unit 7 – Lesson 6: *Surface Area of a Prism* pp. 200-202
4.2.7 B. Transforming Shapes	
1. Understand and apply transformations.	
• Sequence of transformations needed to map one figure onto another	Unit 6 – Lesson 6: *Translations in the Coordinate Plane* pp. 172-174
• Reflections, rotations, and translations result in images congruent to the pre-image	Unit 6 – Lesson 7: *Reflections and Rotations in the Coordinate Plane* pp. 175-178
4.2.7 C. Coordinate Geometry	
1. Use coordinates in four quadrants to represent geometric concepts.	Unit 6 – Lesson 6: *Translations in the Coordinate Plane* pp. 172-174 Lesson 7: *Reflections and Rotations in the Coordinate Plane* pp. 175-178
2. Use a coordinate grid to model and quantify transformations (e.g., translate right 4 units).	Unit 6 – Lesson 6: *Translations in the Coordinate Plane* pp. 172-174 Lesson 7: *Reflections and Rotations in the Coordinate Plane* pp. 175-178
4.2.7 D. Units of Measurement	

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2. Select and use appropriate units and tools to measure quantities to the degree of precision needed in a particular problem-solving situation.	Unit 7 – Lesson 6: *Surface Area of a Prism* pp. 200-202 Lesson 7: *Surface Area of a Cylinder* pp. 203-205
3. Recognize that all measurements of continuous quantities are approximations.	Unit 7 – Lesson 5: *Area of a Circle* pp. 197-199
4.2.7 E. Measuring Geometric Objects	
1. Develop and apply strategies for finding perimeter and area.	
• Geometric figures made by combining triangles, rectangles and circles or parts of circles	Unit 7 – Lesson 3: *Irregular Figures* pp. 190-193
• Estimation of area using grids of various sizes	Unit 7 – Lesson 3: *Irregular Figures* pp. 191-193
2. Recognize that the volume of a pyramid or cone is one-third of the volume of the prism or cylinder with the same base and height (e.g., use rice to compare volumes of figures with same base and height).	Unit 7 – Lesson 8: *Volume of a Prism* pp. 206-209
STANDARD 4.3 (PATTERNS AND ALGEBRA)	
4.3.7 A. Patterns	
1. Recognize, describe, extend, and create patterns involving whole numbers, rational numbers, and integers.	
• Descriptions using tables, verbal and symbolic rules, graphs, simple equations or expressions	Unit 4 – Lesson 2: *Evaluating Algebraic Expressions* pp. 103-105 Lesson 3: *Writing and Evaluating Expressions* pp. 106-108 Lesson 4: *Graphing Functions* pp. 109-111 Lesson 5: *Simplifying Expressions* pp. 112-114 Lesson 6: *Solving One-Step Equations Using Addition and Subtraction* pp. 115-117 Lesson 7: *Solving One-Step Equations Using Multiplication and Division* pp. 118-120 Lesson 8: *Solving and Graphing Inequalities* pp. 121-124
4.3.7 B. Functions and Relationships	
1. Graph functions, and understand and describe their general behavior.	
• Equations involving two variables	Unit 4 –

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	Lesson 8: *Solving and Graphing Inequalities* pp. 121-124
4.3.7 C. Modeling	
1. Analyze functional relationships to explain how a change in one quantity can result in a change in another, using pictures, graphs, charts, and equations.	Unit 4 – Lesson 4: *Graphing Functions* pp. 109-111
2. Use patterns, relations, symbolic algebra, and linear functions to model situations.	
• Using manipulatives, tables, graphs, verbal rules, algebraic expressions/equations/inequalities	Unit 4 – Lesson 4: *Graphing Functions* pp. 109-111
4.3.7 D. Procedures	
1. Use graphing techniques on a number line.	
• Absolute value	Unit 3 – Lesson 4: *Absolute Value* pp. 83-85
2. Solve simple linear equations informally and graphically.	
• Multi-step, integer coefficients only (although answers may not be integers)	Unit 4 – Lesson 4: *Graphing Functions* pp. 109-111
• Using paper-and-pencil, calculators, graphing calculators, spreadsheets, and other technology	Unit 4 – Lesson 4: *Graphing Functions* pp. 109-111
3. Create, evaluate, and simplify algebraic expressions involving variables.	
• Order of operations, including appropriate use of parentheses	Unit 4 – Lesson 1: *Order of Operations* pp. 100-102
• Substitution of a number for a variable	Unit 4 – Lesson 2: *Evaluating Algebraic Expressions* pp. 103-105
4. Understand and apply the properties of operations, numbers, equations, and inequalities.	
• Additive inverse	Unit 4 – Lesson 6: *Solving One-Step Equations Using Addition and Subtraction* pp. 115-117
• Multiplicative inverse	Unit 4 – Lesson 7: *Solving One-Step Equations Using Multiplication and Division* pp. 118-120
STANDARD 4.4 (DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS)	
4.4.7 A. Data Analysis	
1. Select and use appropriate representations for sets of data, and measures of central	Unit 8 –

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tendency (mean, median, and mode).	Lesson 6, Mean, Median, and Mode
2. Make inferences and formulate and evaluate arguments based on displays and analysis of data.	Unit 8 – Lesson 7: *Bar Graphs and Line Graphs* pp. 233-236 Lesson 8: *Circle Graphs* pp. 237-239
4.4.7 B. Probability	
1. Interpret probabilities as ratios, percents, and decimals.	Unit 8 – Lesson 4: *Disjoint, Overlapping, and Complementary Events* pp. 221-224 Lesson 5: *Dependent and Independent Events* pp. 225-228
2. Model situations involving probability with simulations (using spinners, dice, calculators and computers) and theoretical models.	Unit 8 – Lesson 4: *Disjoint, Overlapping, and Complementary Events* pp. 221-224 Lesson 5: *Dependent and Independent Events* pp. 225-228
3. Estimate probabilities and make predictions based on experimental and theoretical probabilities.	Unit 8 – Lesson 4: *Disjoint, Overlapping, and Complementary Events* pp. 221-224 Lesson 5: *Dependent and Independent Events* pp. 225-228
4. Play and analyze probability-based games, and discuss the concepts of fairness and expected value.	Unit 8 – Lesson 4: *Disjoint, Overlapping, and Complementary Events* pp. 221-224 Lesson 5: *Dependent and Independent Events* pp. 225-228
4.4.7 C. Discrete Mathematics—Systematic Listing and Counting	
1. Apply the multiplication principle of counting.	
• Permutations: ordered situations with replacement (e.g., number of possible license plates) vs. ordered situations without replacement (e.g., number of possible slates of 3 class officers from a 23 student class)	Unit 8 – Lesson 2: *Permutations* pp. 215-217
3. Apply techniques of systematic listing, counting, and reasoning in a variety of different contexts.	Unit 8 – Lesson 3: *Combinations* pp. 218-220
STANDARD 4.5 (MATHEMATICAL PROCESSES)	
4.5 A. Problem Solving	

Math Content Standard	Math Elevations Level G (Grade 7) Teacher's Guide Examples/Lessons
1. Learn mathematics through problem solving, inquiry, and discovery.	Unit 8 – Lesson 1: *Possible Outcomes* pp. 212-214 Lesson 3: *Combinations* pp. 218-220
2. Solve problems that arise in mathematics and in other contexts.	
• Non-routine problems	Unit 7 – Lesson 3: *Irregular Figures* pp. 190-193
• Problems with multiple solutions	Unit 8 – Lesson 7: *Bar Graphs and Line Graphs* pp. 233-236 Lesson 8: *Circle Graphs* pp. 237-240
• Problems that can be solved in several ways	Unit 8 – Lesson 7: *Bar Graphs and Line Graphs* pp. 233-236 Lesson 8: *Circle Graphs* pp. 237-240
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 3: *Combinations* pp. 218-220
4. Pose problems of various types and levels of difficulty.	Unit 2 – Lesson 1: *Adding and Subtracting Fractions* pp. 46-48 Lesson 2: *Adding and Subtracting Mixed Numbers* pp. 49-51
5. Monitor their progress and reflect on the process of their problem solving activity.	Unit 8 – Lesson 5: *Dependent and Independent Events* pp. 225-228
6. Distinguish relevant from irrelevant information, and identify missing information.	Unit 8 – Lesson 6: *Mean, Median, and Mode* pp. 229-232
4.5 B. Communication	
1. Use communication to organize and clarify their mathematical thinking.	
• Reading and writing	Unit 8 – Lesson 8: *Circle Graphs* pp. 237-240
• Discussion, listening, and questioning	Unit 8 – Lesson 6: *Mean, Median, and Mode* pp. 229-232
2. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	Unit 1 – Lesson 3: *Square Roots* pp. 25-27
3. Analyze and evaluate the mathematical thinking and strategies of others.	Unit 1 – Lesson 8: *Fractions and Mixed Numbers* pp. 40-43
4. Use the language of mathematics to express mathematical ideas precisely.	Unit 1 –

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	Lesson 6: *Greatest Common Factor* pp. 34-36 Lesson 7: *Least Common Multiple* pp. 37-39
4.5 C. Connections	
1. Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).	Unit 8 – Lesson 6: *Mean, Median, and Mode* pp. 229-232
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 6 – Lesson 7: *Reflections and Rotations in the Coordinate Plane* pp. 175-178
3. Recognize that mathematics is used in a variety of contexts outside of mathematics.	Unit 8 – Lesson 6: *Mean, Median, and Mode* pp. 229-232
4. Apply mathematics in practical situations and in other disciplines.	Unit 8 – Lesson 8: *Circle Graphs* pp. 237-239
6. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	Unit 2 – Lesson 1: *Adding and Subtracting Fractions* pp. 46-48 Lesson 2: *Adding and Subtracting Mixed Numbers* pp. 49-51
4.5 D. Reasoning	
1. Recognize that mathematical facts, procedures, and claims must be justified.	Unit 8 – Lesson 3: *Combinations* pp. 218-220
2. Use reasoning to support their mathematical conclusions and problem solutions.	Unit 4 – Lesson 6: *Solving One-Step Equations Using Addition and Subtraction* pp. 115-117
3. Select and use various types of reasoning and methods of proof.	Unit 4 – Lesson 6: *Solving One-Step Equations Using Addition and Subtraction* pp. 115-117
6. Evaluate examples of mathematical reasoning and determine whether they are valid.	Unit 8 – Lesson 4: *Disjoint, Overlapping, and Complementary Events* pp. 221-224
4.5 E. Representations	
1. Create and use representations to organize, record, and communicate mathematical ideas.	Unit 8 – Lesson 7: *Bar Graphs and Line Graphs* pp. 233-236 Lesson 8: *Circle Graphs* pp. 237-239
• Concrete representations (e.g., base-ten blocks or algebra tiles)	Unit 2 – Lesson 5: *Adding and Subtracting Decimals* pp. 58-60

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	Lesson 6: *Multiplying Decimals* pp. 61-63
• Pictorial representations (e.g., diagrams, charts, or tables)	Unit 8 – Lesson 3: *Combinations* pp. 218-220
• Symbolic representations (e.g., a formula)	Unit 7 – Lesson 2: *Area of Parallelograms and Triangles* pp. 187-190
• Graphical representations (e.g., a line graph)	Unit 8 – Lesson 7: *Bar Graphs and Line Graphs* pp. 233-236 Lesson 8: *Circle Graphs* pp. 237-239
2. Select, apply, and translate among mathematical representations to solve problems.	Unit 5 – Lesson 5: *Fractions, Decimals, and Percents* pp. 140-143
3. Use representations to model and interpret physical, social, and mathematical phenomena.	Unit 8 – Lesson 7: *Bar Graphs and Line Graphs* pp. 233-236 Lesson 8: *Circle Graphs* pp. 237-239
4.5 F. Technology	
1. Use technology to gather, analyze, and communicate mathematical information.	Unit 2 – Lesson 1: *Adding and Subtracting Fractions* pp. 46-48 Lesson 2: *Adding and Subtracting Mixed Numbers* pp. 49-51
2. Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information.	Unit 6 – Lesson 7: *Reflections and Rotations in the Coordinate Plane* pp. 175-178
4. Use calculators as problem-solving tools (e.g., to explore patterns, to validate solutions).	Unit 2 – Lesson 1: *Adding and Subtracting Fractions* pp. 46-48 Lesson 2: *Adding and Subtracting Mixed Numbers* pp. 49-51
5. Use computer software to make and verify conjectures about geometric objects.	Unit 6 – Lesson 7: *Reflections and Rotations in the Coordinate Plane* pp. 175-178
6. Use computer-based laboratory technology for mathematical applications in the sciences (cf. science standards).	Unit 6 – Lesson 7: *Reflections and Rotations in the Coordinate Plane* pp. 175-178