

Northpoint Horizons

Math Elevations™ (Comprehensive Intervention System) Correlated to the Grade 3 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 C (Grade 3) Teacher's Guide Examples/Lessons
STANDARD 4.1 (NUMBER AND NUMERICAL OPERATIONS)	
4.1.3 A. Number Sense	
1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 3 pertain to these sets of numbers as well).	
<ul style="list-style-type: none"> • Whole numbers through hundred thousands 	Unit 1 – Lesson 1: <i>Four-Digit Numbers</i> pp. 18-19 Lesson 8: <i>Reading and Writing Numbers Through 999,999</i> pp. 32-33
<ul style="list-style-type: none"> • Commonly used fractions (denominators of 2, 3, 4, 5, 6, 8, 10) as part of a whole, as a subset of a set, and as a location on a number line 	Unit 1- Lesson 5: <i>Fractions as Part of a Whole</i> pp. 26-27 Lesson 6 <i>Fractions as Part of a Set</i> pp. 28-29
2. Demonstrate an understanding of whole number place value concepts.	Unit 1 – Lesson 1: <i>Four-Digit Numbers</i> pp. 18-19 Lesson 8: <i>Reading and Writing Numbers Through 999,999</i> pp. 32-33
3. Identify whether any whole number is odd or even.	Unit 1- Lesson 4: <i>Odd and Even Numbers</i> pp. 24-25
4. Explore the extension of the place value system to decimals through hundredths.	Unit 4- Lesson 1: <i>Tenths</i> pp. 72-73 Lesson 2: <i>Hundredths</i> pp.74-75
5. Understand the various uses of numbers.	
<ul style="list-style-type: none"> • Counting, measuring, labeling (e.g., numbers on baseball uniforms) 	Unit 1- Lesson 2: <i>Comparing and Ordering Numbers</i> pp.20-21

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	Unit 7- Lesson 2: <i>Length (Customary Units)</i> pp.128-129 Lesson 3: <i>Length (Metric)</i> pp. 130-131
6. Compare and order numbers.	Unit 1- Lesson 2: <i>Comparing and Ordering Numbers</i> pp. 20-21
4.1.3 B. Numerical Operations	
1. Develop the meanings of the four basic arithmetic operations by modeling and discussing a large variety of problems.	
• Addition and subtraction: joining, separating, comparing	Unit 2- Lesson 1: <i>Addition and Subtraction Families</i> pp. 36-37
• Multiplication: repeated addition, area/array	Unit 3- Lesson 1: <i>Meaning of Multiplication</i> pp. 54-55
• Division: repeated subtraction, sharing	Unit 3- Lesson 6: <i>Division as Equal Grouping and Sharing Equally</i> pp. 64-65 Lesson 7: <i>Dividing Using Inverse Operations</i> pp. 66-67
2. Develop proficiency with basic multiplication and division number facts using a variety of fact strategies (such as “skip counting” and “repeated subtraction”).	Unit 3- Lesson 2: <i>Multiplication Facts of 2, 5, and 10</i> pp.56-57 Lesson 3: <i>Multiplication Facts of 3 and 6</i> pp. 58-59 Lesson 4: <i>Multiplication Facts of 4 and 8</i> pp. 60-61 Lesson 5: <i>Multiplication Facts of 7 and 9</i> pp. 62-63
4. Use efficient and accurate pencil-and-paper procedures for computation with whole numbers.	
• Addition of 3-digit numbers	Unit 2- Lesson 4: <i>Adding Three- and Four-Digit Numbers</i> pp. 42-43
• Subtraction of 3-digit numbers	Unit 2- Lesson 6: <i>Subtraction of Three- and Four-Digit Numbers</i> pp. 46-47
• Multiplication of 2-digit numbers by 1-digit numbers	Unit 3- Lesson 8: <i>Multiplication and Division Word Problems</i> pp. 68-69
5. Count and perform simple computations with money.	
• Cents notation (¢)	Unit 4-

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	Lesson 3: <i>Dollars, Dimes, and Pennies</i> pp. 76-77 Lesson 4: <i>Nickels and Quarters</i> pp. 78-79 Lesson 5: <i>Bills and Coins</i> pp. 80-81 Lesson 6: <i>Making Change</i> pp. 82-83 Lesson 7: <i>Addition and Subtraction of Money</i> pp. 84-85 Lesson 8: <i>Money Word Problems</i> pp. 86-87
4.1.3 C. Estimation	
1. Judge without counting whether a set of objects has less than, more than, or the same number of objects as a reference set.	Unit 1- Lesson 6: <i>Fractions as Part of a Set</i> pp. 28-29
2. Construct and use a variety of estimation strategies (e.g., rounding and mental math) for estimating both quantities and the result of computations.	Unit 1- Lesson 3: <i>Rounding</i> pp. 22-23 Unit 4 Lesson 8: <i>Money Word Problems</i> pp. 86-87
3. Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.	Unit 7- Lesson 2: <i>Length (Customary Units)</i> pp. 128-129 Lesson 3: <i>Length (Metric)</i> pp. 130-131
4. Use estimation to determine whether the result of a computation (either by calculator or by hand) is reasonable.	Unit 4- Lesson 6: <i>Making Change</i> pp. 82-83
STANDARD 4.2 (GEOMETRY AND MEASUREMENT)	
4.2.3 A. Geometric Properties	
1. Identify and describe spatial relationships of two or more objects in space.	Unit 6- Lesson 1: <i>Lines and Angles</i> pp. 108-109 Lesson 2: <i>Types of Lines</i> pp. 110-111
2. Use properties of standard three-dimensional and two-dimensional shapes to identify, classify, and describe them.	
• Vertex, edge, face, side, angle	Unit 6- Lesson 6: <i>Solid Figures</i> pp. 118-119
• 3D figures – cube, rectangular prism, sphere, cone, cylinder, and pyramid	Unit 6- Lesson 6: <i>Solid Figures</i> pp. 118-119
• 2D figures – square, rectangle, circle, triangle, pentagon, hexagon, octagon	Unit 6- Lesson 3: <i>Plane Figures</i> pp. 112-113
3. Identify and describe relationships among two-dimensional shapes.	
• Same size, same shape	Unit 6- Lesson 4: <i>Congruent Figures</i> pp. 114-115

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<ul style="list-style-type: none"> • Lines of symmetry 	Unit 6- Lesson 5: <i>Lines of Symmetry</i> pp. 116-117
4. Understand and apply concepts involving lines, angles, and circles.	
<ul style="list-style-type: none"> • Line, line segment, endpoint 	Unit 6- Lesson 1: <i>Lines and Angles</i> pp. 108-109
5. Recognize, describe, extend, and create space-filling patterns.	Unit 5 – Lesson 4: <i>Number Patterns</i> pp. 96-97 Lesson 6: <i>Picture Patterns</i> pp. 100-101 Lesson 7: <i>Pattern Puzzles</i> pp. 102-103 Lesson 8: <i>Word Problem Patterns</i> pp. 104-105
4.2.3 D. Units of Measurement	
1. Understand that everyday objects have a variety of attributes, each of which can be measured in many ways.	Unit 7- Lesson 2: <i>Length (Customary Units)</i> pp. 128-193 Lesson 3: <i>Length (Metric)</i> pp. 130-131
2. Select and use appropriate standard units of measure and measurement tools to solve real-life problems.	
<ul style="list-style-type: none"> • Length – fractions of an inch (1/4, 1/2), mile, decimeter, kilometer 	Unit 7- Lesson 2: <i>Length (Customary Units)</i> pp. 128-129 Lesson 3: <i>Length (Metric)</i> pp. 130-131 Lesson 8: <i>Appropriate Units</i> pp. 140-141
<ul style="list-style-type: none"> • Area – square inch, square centimeter 	Unit 7- Lesson 5: <i>Area</i> pp. 134-135
<ul style="list-style-type: none"> • Weight – ounce 	Unit 7- Lesson 6: <i>Weight</i> pp. 136-137 Lesson 8: <i>Appropriate Units</i> pp. 140-141
<ul style="list-style-type: none"> • Capacity – fluid ounce, cup, gallon, milliliter 	Unit 7- Lesson 7: <i>Capacity</i> pp. 136-137 Lesson 8: <i>Appropriate Units</i> pp. 140-141
4.2.3 E. Measuring Geometric Objects	
1. Determine the area of simple two-dimensional shapes on a square grid.	Unit 7- Lesson 5: <i>Area</i> pp. 134-135
2. Determine the perimeter of simple shapes by measuring all of the sides.	Unit 7- Lesson 4: <i>Perimeter</i> pp. 132-133
3. Measure and compare the volume of three-dimensional objects using materials such	Unit 6-

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as rice or cubes.	Lesson 8: <i>Volume</i> pp. 122-123
STANDARD 4.3 (PATTERNS AND ALGEBRA)	
4.3.3 A. Patterns	
1. Recognize, describe, extend, and create patterns.	
<ul style="list-style-type: none"> Whole number patterns that grow or shrink as a result of repeatedly adding, subtracting, multiplying by, or dividing by a fixed number (e.g., 5, 8, 11, . . . or 800, 400, 200, . . .) 	Unit 5 – Lesson 4: <i>Number Patterns</i> pp. 96-97
4.3.3 B. Functions and Relationships	
1. Use concrete and pictorial models to explore the basic concept of a function.	
<ul style="list-style-type: none"> Input/output tables, T-charts 	Unit 5 – Lesson 5: <i>Number Machines</i> pp. 98-99
4.3.3 C. Modeling	
1. Recognize and describe change in quantities.	
<ul style="list-style-type: none"> Graphs representing change over time (e.g., temperature, height) 	Unit 5 – Lesson 4: <i>Number Patterns</i> pp. 96-97
2. Construct and solve simple open sentences involving addition or subtraction (e.g., $3 + 6 = \underline{\quad}$, $n = 15 - 3$, $3 + \underline{\quad} = 3$, $16 - c = 7$).	
Unit 5 – Lesson 1: <i>Missing Addends and Subtrahends</i> pp. 90-91	
STANDARD 4.4 (DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS)	
4.4.3 A. Data Analysis	
1. Collect, generate, organize, and display data in response to questions, claims, or curiosity.	
<ul style="list-style-type: none"> Data collected from the classroom environment 	Unit 8 – Lesson 1: <i>Tally Charts</i> pp. 144-145 Lesson 2: <i>Reading Charts and Tables</i> pp. 146-147 Lesson 3: <i>Pictographs</i> pp. 148-149 Lesson 4: <i>Simple Bar Graphs</i> pp. 150-151 Lesson 5: <i>Bar Graphs with a Scale</i> pp. 152-153
2. Read, interpret, construct, analyze, generate questions about, and draw inferences from displays of data.	
<ul style="list-style-type: none"> Pictograph, bar graph, table 	Unit 8 – Lesson 2: <i>Reading Charts and Tables</i> pp. 146-147 Lesson 3: <i>Pictographs</i> pp. 148-149 Lesson 4: <i>Simple Bar Graphs</i> pp. 150-151 Lesson 5: <i>Bar Graphs with a Scale</i> pp. 152-153

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4.4.3 B. Probability	
1. Use everyday events and chance devices, such as dice, coins, and unevenly divided spinners, to explore concepts of probability.	
• Likely, unlikely, certain, impossible	Unit 8 – Lesson 7: <i>Probability</i> pp. 156-157
• More likely, less likely, equally likely	Unit 8 – Lesson 6: <i>Likelihood</i> pp. 154-155
2. Predict probabilities in a variety of situations (e.g., given the number of items of each color in a bag, what is the probability that an item picked will have a particular color).	
• What students think will happen (intuitive)	Unit 8 – Lesson 6: <i>Likelihood</i> pp. 154-155 Lesson 7: <i>Probability</i> pp. 156-157 Lesson 8: <i>Fair and Unfair Games</i> pp. 158-159
• Collect data and use that data to predict the probability (experimental)	Unit 8 – Lesson 7: <i>Probability</i> pp. 156-157
STANDARD 4.5 (MATHEMATICAL PROCESSES)	
4.5 A. Problem Solving	
1. Learn mathematics through problem solving, inquiry, and discovery.	Unit 4 – Lesson 8: <i>Money Word Problems</i> pp. 86-87 Unit 5 – Lesson 8: <i>Word Problem Patterns</i> pp. 104-105
2. Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3).	Unit 4 – Lesson 7: <i>Addition and Subtraction of Money</i> pp. 84-85 Lesson 8: <i>Money Word Problems</i> pp. 86-87
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 4 – Lesson 7: <i>Addition and Subtraction of Money</i> pp. 84-85 Lesson 8: <i>Money Word Problems</i> pp. 86-87
4. Pose problems of various types and levels of difficulty.	Unit 2 – Lesson 2: <i>Adding Two-Digit Numbers</i> pp. 38-39
5. Monitor their progress and reflect on the process of their problem solving activity.	Unit 4 – Lesson 8: <i>Money Word Problems</i> pp. 86-87
4.5 B. Communication	
1. Use communication to organize and clarify their mathematical thinking.	
• Reading and writing	Unit 8 –

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	Lesson 1: <i>Tally Charts</i> pp. 144-145 Lesson 2: <i>Reading Charts and Tables</i> pp. 146-147 Lesson 3: <i>Pictographs</i> pp. 148-149 Lesson 4: <i>Simple Bar Graphs</i> pp. 150-151 Lesson 5: <i>Bar Graphs with a Scale</i> pp. 152-153
2. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	Unit 1 – Lesson 8: <i>Reading and Writing Numbers Through 999,999</i> pp. 32-33
3. Analyze and evaluate the mathematical thinking and strategies of others.	Unit 2 – Lesson 6: <i>Subtraction of Three-and Four-Digit Numbers</i> pp. 46-47 Lesson 7: <i>Subtraction with Zeros</i> pp. 48-49
4. Use the language of mathematics to express mathematical ideas precisely.	Unit 1 – Lesson 4: <i>Odd and Even Numbers</i> pp.24-25
4.5 C. Connections	
1. Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).	Unit 5 – Lesson 3: <i>Skip Counting</i> pp. 94-95 Lesson 4: <i>Number Patterns</i> pp. 96-97 Lesson 5: <i>Number Machines</i> pp. 98-99
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 1: <i>Lines and Angles</i> pp. 108-109
3. Recognize that mathematics is used in a variety of contexts outside of mathematics.	Unit 8 – Lesson 6: <i>Likelihood</i> pp. 154-155 Lesson 7: <i>Probability</i> pp. 156-157 Lesson 8: <i>Fair and Unfair Games</i> pp. 158-159
4. Apply mathematics in practical situations and in other disciplines.	Unit 8 – Lesson 6: <i>Likelihood</i> pp. 154-155 Lesson 7: <i>Probability</i> pp. 156-157 Lesson 8: <i>Fair and Unfair Games</i> pp. 158-159
4.5 D. Reasoning	
1. Recognize that mathematical facts, procedures, and claims must be justified.	Unit 7 – Lesson 8: <i>Appropriate Units</i> pp. 140-141
2. Use reasoning to support their mathematical conclusions and problem solutions.	Unit 5 –

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	Lesson 5: <i>Number Machines</i> pp. 98-99
3. Select and use various types of reasoning and methods of proof.	Unit 3 – Lesson 2: <i>Multiplication Facts of 2, 5, and 10</i> pp. 56-57 Lesson 3: <i>Multiplication Facts of 3 and 6</i> pp. 58-59
4. Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions.	Unit 3 – Lesson 7: <i>Dividing Using Inverse Operations</i> pp. 66-67
5. Make and investigate mathematical conjectures.	Unit 5 – Lesson 5: <i>Number Machines</i> pp. 98-99
6. Evaluate examples of mathematical reasoning and determine whether they are valid.	Unit 8 – Lesson 8: <i>Fair and Unfair Games</i> pp. 158-159
4.5 E. Representations	
1. Create and use representations to organize, record, and communicate mathematical ideas.	Unit 8 – Lesson 1: <i>Tally Charts</i> pp. 144-145 Lesson 2: <i>Reading Charts and Tables</i> pp. 146-147 Lesson 3: <i>Pictographs</i> pp. 148-149 Lesson 4: <i>Simple Bar Graphs</i> pp. 150-151 Lesson 5: <i>Bar Graphs with a Scale</i> pp. 152-153
2. Select, apply, and translate among mathematical representations to solve problems.	Unit 7 – Lesson 8: <i>Appropriate Units</i> pp. 140-141
3. Use representations to model and interpret physical, social, and mathematical phenomena.	Unit 7 – Lesson 8: <i>Appropriate Units</i> pp. 140-141 Unit 8 – Lesson 1: <i>Tally Charts</i> pp. 144-145 Lesson 2: <i>Reading Charts and Tables</i> pp. 146-147 Lesson 3: <i>Pictographs</i> pp. 148-149 Lesson 4: <i>Simple Bar Graphs</i> pp. 150-151 Lesson 5: <i>Bar Graphs with a Scale</i> pp. 152-153
4.5 F. Technology	Technology is used throughout the <i>Math Elevations</i> program. Students used software in conjunction with their written material to reinforce concepts presented in the program.
1. Use technology to gather, analyze, and communicate mathematical information.	

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2. Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information.	