

Northpoint Horizons
Math Elevations™ (Comprehensive Intervention System)
Correlated to the Grade 8
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 H (Grade 8) Teacher's Guide Examples/Lessons
STANDARD 4.1 (NUMBER AND NUMERICAL OPERATIONS)	
4.1.8 A. Number Sense	
1. Extend understanding of the number system by constructing meanings for the following:	
• Rational numbers	Unit 1 – Lesson 1: <i>Integers and Absolute Value</i> pp. 18-20 Unit 4 – Lesson 4: <i>Fractions, Decimals, and Percents</i> pp. 114-116
• Percents	Unit 4 – Lesson 4: <i>Fractions, Decimals, and Percents</i> pp. 114-116 Lesson 5: <i>Solving Percent Problems Using a Proportion</i> pp. 117-119 Lesson 6: <i>Using Proportions to Solve other Percent Problems</i> pp. 120-123 Lesson 7: <i>Percent of Change</i> pp. 124-126 Lesson 8: <i>Percent Applications</i> pp. 127-129
• Exponents	Unit 1 – Lesson 7: <i>Exponents</i> pp. 37-39
• Roots	Unit 1 – Lesson 8: <i>Square Roots</i> pp. 40-42
• Absolute values	Unit 1 – Lesson 1: <i>Integers and Absolute Value</i> pp. 18-20 Lesson 3: <i>Adding Integers Using Absolute Value</i> pp.

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<ul style="list-style-type: none"> • Numbers represented in scientific notation 	Unit 2 – Lesson 8: <i>Scientific Notation</i> pp. 68-70
2. Demonstrate a sense of the relative magnitudes of numbers.	Unit 1 – Lesson 1: <i>Integers and Absolute Value</i> pp. 18-20
3. Understand and use ratios, rates, proportions, and percents (including percents greater than 100 and less than 1) in a variety of situations.	Unit 4 – Lesson 1: <i>Ratios and Rates</i> pp. 104-107 Lesson 2: <i>Writing and Solving Proportions</i> pp. 108-110 Lesson 4: <i>Fractions, Decimals, and Percents</i> pp. 114-116 Lesson 5: <i>Solving Percent Problems Using a Proportion</i> pp. 117-119 Lesson 6: <i>Using Proportions to Solve other Percent Problems</i> pp. 120-123 Lesson 7: <i>Percent of Change</i> pp. 124-126 Lesson 8: <i>Percent Applications</i> pp. 127-129
4. Compare and order numbers of all named types.	Unit 1 – Lesson 1: <i>Integers and Absolute Value</i> pp. 18-20
5. Use whole numbers, fractions, decimals, and percents to represent equivalent forms of the same number.	Unit 4 – Lesson 4: <i>Fractions, Decimals, and Percents</i> pp. 114-116
6. Recognize that repeating decimals correspond to fractions and determine their fractional equivalents.	
<ul style="list-style-type: none"> • $5/7 = 0.714285714285\dots = 0.714285$ 	Unit 7 – Lesson 2: <i>Circumference of a Circle</i> pp. 193-195
7. Construct meanings for common irrational numbers, such as π (π) and the square root of 2.	Unit 1 – Lesson 8: <i>Square Roots</i> pp. 40-42
4.1.8 B. Numerical Operations	
1. Use and explain procedures for performing calculations involving addition, subtraction, multiplication, division, and exponentiation with integers and all number types named above with:	
<ul style="list-style-type: none"> • Pencil-and-paper 	Unit 1 – Lesson 2: <i>Adding Integers Using a Number Line</i> pp. 21-23

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	Lesson 3: <i>Adding Integers Using Absolute Value</i> pp. 24-27 Lesson 4: <i>Subtracting Integers</i> pp. 28-30 Lesson 5: <i>Multiplying Integers</i> pp. 31-33 Lesson 6: <i>Dividing Integers</i> pp. 34-36 Unit 2 – Lesson 4: <i>Adding and Subtracting Fractions</i> pp. 55-57 Lesson 5: <i>Multiplying and Dividing Fractions and Mixed Numbers</i> pp. 58-61
<ul style="list-style-type: none"> • Mental math 	Unit 1 – Lesson 2: <i>Adding Integers Using a Number Line</i> pp. 21-23 Lesson 3: <i>Adding Integers Using Absolute Value</i> pp. 24-27 Lesson 4: <i>Subtracting Integers</i> pp. 28-30 Lesson 5: <i>Multiplying Integers</i> pp. 31-33 Lesson 6: <i>Dividing Integers</i> pp. 34-36 Unit 2 – Lesson 4: <i>Adding and Subtracting Fractions</i> pp. 55-57 Lesson 5: <i>Multiplying and Dividing Fractions and Mixed Numbers</i> pp. 58-61
<ul style="list-style-type: none"> • Calculator 	Unit 7 – Lesson 2: <i>Circumference of a Circle</i> pp. 193-195 Unit 7 – Lesson 3: <i>Area of a Circle</i> pp. 196-198
2. Use exponentiation to find whole number powers of numbers.	Unit 2 – Lesson 6: <i>Rules of Exponents</i> pp. 62-64 Lesson 7: <i>Negative and Zero Exponents</i> pp. 65-67
3. Find square and cube roots of numbers and understand the inverse nature of powers and roots.	Unit 1 – Lesson 8: <i>Square Roots</i> pp. 40-42
4. Solve problems involving proportions and percents.	Unit 4 – Lesson 2: <i>Writing and Solving Proportions</i> pp. 108-110 Lesson 4: <i>Fractions, Decimals, and Percents</i> pp. 114-116 Lesson 5: <i>Solving Percent Problems Using a</i>

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	<i>Proportion</i> pp. 117-119 Lesson 6: <i>Using Proportions to Solve other Percent Problems</i> pp. 120-123 Lesson 7: <i>Percent of Change</i> pp. 124-126 Lesson 8: <i>Percent Applications</i> pp. 127-129
5. Understand and apply the standard algebraic order of operations, including appropriate use of parentheses.	Unit 3 – Lesson 2: <i>Order of Operations</i> pp. 78-80
4.1.8 C. Estimation	
1. Estimate square and cube roots of numbers.	Unit 1 – Lesson 8: <i>Square Roots</i> pp. 40-42
2. Use equivalent representations of numbers such as fractions, decimals, and percents to facilitate estimation.	Unit 4 – Lesson 4: <i>Fractions, Decimals, and Percents</i> pp. 114-116
3. Recognize the limitations of estimation and assess the amount of error resulting from estimation.	Unit 1 – Lesson 8: <i>Square Roots</i> pp. 40-42
STANDARD 4.2 (GEOMETRY AND MEASUREMENT)	
4.2.8 A. Geometric Properties	
1. Understand and apply concepts involving lines, angles, and planes.	
• Complementary and supplementary angles	Unit 6 – Lesson 1: <i>Angles</i> pp. 160-163
• Vertical angles	Unit 6 – Lesson 1: <i>Angles</i> pp. 160-163
• Parallel, perpendicular, and intersecting planes	Unit 6 – Lesson 2: <i>Angles in Parallel Lines Cut by a Transversal</i> pp. 164-166
2. Understand and apply the Pythagorean theorem.	Unit 3 – Lesson 8: <i>Pythagorean Theorem</i> pp. 98-101
3. Understand and apply properties of polygons.	
• Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi	Unit 6 – Lesson 3: <i>Polygons</i> pp. 167-170
• Regular polygons	Unit 6 – Lesson 3: <i>Polygons</i> pp. 167-170
• Sum of measures of interior angles of a polygon	Unit 6 – Lesson 4: <i>Sum of Angles in Polygons</i> pp. 171-173

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4. Understand and apply the concept of similarity.	
<ul style="list-style-type: none"> • Using proportions to find missing measures 	Unit 4 – Lesson 5: <i>Solving Percent Problems Using a Proportion</i> pp. 117-119 Lesson 6: <i>Using Proportions to Solve other Percent Problems</i> pp. 120-123
<ul style="list-style-type: none"> • Scale drawings 	Unit 4 – Lesson 3: <i>Scale Drawings and Models</i> pp. 111-113
<ul style="list-style-type: none"> • Models of 3D objects 	Unit 7 – Lesson 4: <i>Surface Area of a Prism</i> pp. 199-202 Lesson 5: <i>Surface Area of a Cylinder</i> pp. 203-204
5. Use logic and reasoning to make and support conjectures about geometric objects.	Unit 6 – Lesson 5: <i>Congruent Triangles</i> pp. 174-176
6. Perform basic geometric constructions using a variety of methods (e.g., straightedge and compass, patty/tracing paper, or technology).	Unit 7 – Lesson 4: <i>Surface Area of a Prism</i> pp. 199-202 Lesson 5: <i>Surface Area of a Cylinder</i> pp. 203-204
<ul style="list-style-type: none"> • Congruent angles or line segments 	Unit 6 – Lesson 5: <i>Congruent Triangles</i> pp. 174-176
7. Create two-dimensional representations (e.g., nets or projective views) for the surfaces of three-dimensional objects.	Unit 7 – Lesson 4: <i>Surface Area of a Prism</i> pp. 199-202 Lesson 5: <i>Surface Area of a Cylinder</i> pp. 203-204
4.2.8 B. Transforming Shapes	
1. Understand and apply transformations.	
<ul style="list-style-type: none"> • Sequence of transformations needed to map one figure onto another 	Unit 6 – Lesson 7: <i>Reflections and Translations in the Coordinate Plane</i> pp. 180-183 Lesson 8: <i>Rotations in the Coordinate Plane</i> pp. 184-187
<ul style="list-style-type: none"> • Reflections, rotations, and translations result in images congruent to the pre-image 	Unit 6 – Lesson 7: <i>Reflections and Translations in the Coordinate Plane</i> pp. 180-183 Lesson 8: <i>Rotations in the Coordinate Plane</i> pp. 184-

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<ul style="list-style-type: none"> • Dilations (stretching/shrinking) result in images similar to the pre-image 	Unit 6 – Lesson 6: <i>Similarity and Dilations</i> pp. 177-179
4.2.8 C. Coordinate Geometry	
1. Use coordinates in four quadrants to represent geometric concepts.	Unit 6 – Lesson 7: <i>Reflections and Translations in the Coordinate Plane</i> pp. 180-183 Lesson 8: <i>Rotations in the Coordinate Plane</i> pp. 184-187
2. Use a coordinate grid to model and quantify transformations (e.g., translate right 4 units).	Unit 6 – Lesson 7: <i>Reflections and Translations in the Coordinate Plane</i> pp. 180-183 Lesson 8: <i>Rotations in the Coordinate Plane</i> pp. 184-187
4.2.8 D. Units of Measurement	
4. 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 4: <i>Angles in a Triangle</i> pp. 132-133 Lesson 5: <i>Areas of Rectangles and Parallelograms</i> pp. 134-135 Lesson 6: <i>Area of Triangles</i> pp. 136-137 Lesson 7: <i>Area of Irregular Figures</i> pp. 138-139 Lesson 8: <i>Volume</i> pp. 140-141
4.2.8 E. Measuring Geometric Objects	
1. Develop and apply strategies for finding perimeter and area.	
<ul style="list-style-type: none"> • Geometric figures made by combining triangles, rectangles and circles or parts of circles 	Unit 7 – Lesson 1: <i>Area of a Trapezoid</i> pp. 190-192
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: <i>Volume of a Pyramid and a Cone</i> pp. 211-213
3. Develop and apply strategies and formulas for finding the surface area and volume of a three-dimensional figure.	
<ul style="list-style-type: none"> • Volume - prism, cone, pyramid 	Unit 7 – Lesson 7: <i>Volume of a Prism and a Cylinder</i> pp. 208-210

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	Lesson 8: <i>Volume of a Pyramid and a Cone</i> pp. 211-213
<ul style="list-style-type: none"> • Surface area - prism (triangular or rectangular base), pyramid (triangular or rectangular base) 	Unit 7 – Lesson 5: <i>Surface Area of a Cylinder</i> pp. 203-204 Lesson 6: <i>Surface Area of a Pyramid and a Cone</i> pp. 205-207
<ul style="list-style-type: none"> • Impact of a dilation on the surface area and volume of a three-dimensional figure 	Unit 6 – Lesson 6: <i>Similarity and Dilations</i> pp. 177-179
STANDARD 4.3 (PATTERNS AND ALGEBRA)	
4.3.8 A. Patterns	
1. Recognize, describe, extend, and create patterns involving whole numbers, rational numbers, and integers.	
<ul style="list-style-type: none"> • Descriptions using tables, verbal and symbolic rules, graphs, simple equations or expressions 	Unit 3 – Lesson 3: <i>Substituting Values for Variables in Equations</i> pp. 81-83 Lesson 4: <i>Solving Equations Using Addition or Subtraction</i> pp. 84-86 Lesson 5: <i>Solving Equations Using Multiplication or Division</i> pp. 87-88 Lesson 6: <i>Solving Inequalities by Addition and Subtraction</i> pp. 90-93 Lesson 7: <i>Solving Inequalities Using Multiplication and Division</i> pp. 94-97
<ul style="list-style-type: none"> • Generating sequences by using calculators to repeatedly apply a formula 	Unit 7 – Lesson 2: <i>Circumference of a Circle</i> pp. 193-195
4.3.8 B. Functions and Relationships	
1. Graph functions, and understand and describe their general behavior.	
<ul style="list-style-type: none"> • Rates of change (informal notion of slope) 	Unit 8 – Lesson 4: <i>Scatter Plots</i> pp. 225-228
2. Recognize and describe the difference between linear and exponential growth, using tables, graphs, and equations.	
4.3.8 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 5 – Lesson 6: <i>Graphing Linear Functions</i> pp. 147-150

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2. Use patterns, relations, symbolic algebra, and linear functions to model situations.	
• Using concrete materials (manipulatives), tables, graphs, verbal rules, algebraic expressions/equations/inequalities	Unit 5 – Lesson 6: <i>Graphing Linear Functions</i> pp. 147-150
4.3.8 D. Procedures	
1. Use graphing techniques on a number line.	
• Absolute value	Unit 1 – Lesson 1: <i>Integers and Absolute Value</i> pp. 18-20
2. Solve simple linear equations informally, graphically, and using formal algebraic methods.	
• Multi-step, integer coefficients only (although answers may not be integers)	Unit 3 – Lesson 3: <i>Substituting Values for Variables in Equations</i> pp. 81-83 Lesson 4: <i>Solving Equations Using Addition or Subtraction</i> pp. 84-86 Lesson 5: <i>Solving Equations Using Multiplication or Division</i> pp. 87-88
• Simple literal equations (e.g., $A = lw$)	Unit 7 – Lesson 1: <i>Area of a Trapezoid</i> pp. 190-192
• Using paper-and-pencil, calculators, graphing calculators, spreadsheets, and other technology	Unit 7 – Lesson 1: <i>Area of a Trapezoid</i> pp. 190-192
3. Solve simple linear inequalities.	
	Unit 3 – Lesson 6: <i>Solving Inequalities by Addition and Subtraction</i> pp. 90-93 Lesson 7: <i>Solving Inequalities Using Multiplication and Division</i> pp. 94-97
4. Create, evaluate, and simplify algebraic expressions involving variables.	
• Order of operations, including appropriate use of parentheses	Unit 3 – Lesson 2: <i>Order of Operations</i> pp. 78-80
• Distributive property	Unit 3 – Lesson 1: <i>Commutative, Associative, and Distributive Properties</i> pp. 74-77
• Substitution of a number for a variable	Unit 3 – Lesson 3: <i>Substituting Values for Variables in Equations</i> pp. 81-83

Math Content Standard	Math Elevations Level H (Grade 8) Teacher's Guide Examples/Lessons
<ul style="list-style-type: none"> • Translation of a verbal phrase or sentence into an algebraic expression, equation, or inequality, and vice versa 	Unit 3 – Lesson 3: <i>Substituting Values for Variables in Equations</i> pp. 81-83 Lesson 4: <i>Solving Equations Using Addition or Subtraction</i> pp. 84-86 Lesson 5: <i>Solving Equations Using Multiplication or Division</i> pp. 87-88
5. Understand and apply the properties of operations, numbers, equations, and inequalities.	
<ul style="list-style-type: none"> • Additive inverse 	Unit 3 – Lesson 4: <i>Solving Equations Using Addition or Subtraction</i> pp. 84-86
<ul style="list-style-type: none"> • Multiplicative inverse 	Unit 3 – Lesson 5: <i>Solving Equations Using Multiplication or Division</i> pp. 87-88
STANDARD 4.4 (DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS)	
4.4.8 A. Data Analysis	
1. Select and use appropriate representations for sets of data, and measures of central tendency (mean, median, and mode).	
<ul style="list-style-type: none"> • Type of display most appropriate for given data 	Unit 8 – Lesson 8: <i>Appropriate Graphs</i> pp. 241-243
<ul style="list-style-type: none"> • Box-and-whisker plot, upper quartile, lower quartile 	Unit 8 – Lesson 5: <i>Box-and-Whiskers Plots</i> pp. 229-232
<ul style="list-style-type: none"> • Scatter plot 	Unit 8 – Lesson 4: <i>Scatter Plots</i> pp. 225-228
<ul style="list-style-type: none"> • Calculators and computer used to record and process information 	Unit 3 – Lesson 7: <i>Solving Inequalities Using Multiplication and Division</i> pp. 94-97 Unit 3 – Lesson 8: <i>Pythagorean Theorem</i> pp. 98-101
<ul style="list-style-type: none"> • Finding the median and mean (weighted average) using frequency data. 	Unit 8 – Lesson 3: <i>Mean, Median, and Mode</i> pp. 222-224
<ul style="list-style-type: none"> • Effect of additional data on measures of central tendency 	Unit 8 – Lesson 3: <i>Mean, Median, and Mode</i> pp. 222-224

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2. Make inferences and formulate and evaluate arguments based on displays and analysis of data sets.	Unit 8 – Lesson 2: <i>Making Predictions</i> pp. 219-221
3. Estimate lines of best fit and use them to interpolate within the range of the data.	Unit 8 – Lesson 4: <i>Scatter Plots</i> pp. 225-228
4.4.8 B. Probability	
1. Interpret probabilities as ratios, percents, and decimals.	Unit 8 – Lesson 2: <i>Making Predictions</i> pp. 219-221
3. Explore the probabilities of conditional events (e.g., if there are seven marbles in a bag, three red and four green, what is the probability that two marbles picked from the bag, without replacement, are both red).	Unit 8 – Lesson 2: <i>Making Predictions</i> pp. 219-221
4. Model situations involving probability with simulations (using spinners, dice, calculators and computers) and theoretical models.	
• Frequency, relative frequency	Unit 8 – Lesson 3: <i>Mean, Median, and Mode</i> pp. 222-224
5. Estimate probabilities and make predictions based on experimental and theoretical probabilities.	Unit 8 – Lesson 2: <i>Making Predictions</i> pp. 219-221
6. Play and analyze probability-based games, and discuss the concepts of fairness and expected value.	Unit 8 – Lesson 2: <i>Making Predictions</i> pp. 219-221
4.4.8 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 1: <i>Counting Methods</i> pp. 216-218
• Concept of combinations (e.g., number of possible delegations of 3 out of 23 students)	Unit 8 – Lesson 1: <i>Counting Methods</i> pp. 216-218
2. Explore counting problems involving Venn diagrams with three attributes (e.g., there are 15, 20, and 25 students respectively in the chess club, the debating team, and the engineering society; how many different students belong to the three clubs if there are 6 students in chess and debating, 7 students in chess and engineering, 8 students in debating and engineering, and 2 students in all three?).	Unit 8 – Lesson 1: <i>Counting Methods</i> pp. 216-218
3. Apply techniques of systematic listing, counting, and reasoning in a variety of different contexts.	Unit 8 – Lesson 1: <i>Counting Methods</i> pp. 216-218
STANDARD 4.5 (MATHEMATICAL PROCESSES)	

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4.5 A. Problem Solving	
1. Learn mathematics through problem solving, inquiry, and discovery.	Unit 8 – Lesson 1: <i>Counting Methods</i> pp. 216-218
2. Solve problems that arise in mathematics and in other contexts.	
• Open-ended problems	Unit 8 – Lesson 2: <i>Making Predictions</i> pp. 219-221
• Non-routine problems	Unit 7 – Lesson 6: <i>Surface Area of a Pyramid and a Cone</i> pp. 205-207
• Problems with multiple solutions	Unit 8 – Lesson 2: <i>Making Predictions</i> pp. 219-221
• Problems that can be solved in several ways	Unit 8 – Lesson 8: <i>Appropriate Graphs</i> pp. 241-243
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 8: <i>Appropriate Graphs</i> pp. 241-243
4. Pose problems of various types and levels of difficulty.	Unit 3 – Lesson 5: <i>Solving Equations Using Multiplication or Division</i> pp. 87-88 Lesson 7: <i>Solving Inequalities Using Multiplication and Division</i> pp. 94-97
5. Monitor their progress and reflect on the process of their problem solving activity.	Unit 6 – Lesson 3: <i>Polygons</i> pp. 167-170
6. Distinguish relevant from irrelevant information, and identify missing information.	Unit 6 – Lesson 3: <i>Polygons</i> pp. 167-170
4.5 B. Communication	
1. Use communication to organize and clarify their mathematical thinking.	
• Reading and writing	Unit 8 – Lesson 8: <i>Appropriate Graphs</i> pp. 241-243
• Discussion, listening, and questioning	Unit 5 – Lesson 3: <i>Translating and Solving Word Problems</i> pp. 138-140
2. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	Unit 5 – Lesson 3: <i>Translating and Solving Word Problems</i> pp. 138-140

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3. Analyze and evaluate the mathematical thinking and strategies of others.	Unit 8 – Lesson 5: <i>Box-and-Whiskers Plots</i> pp. 229-232
4. Use the language of mathematics to express mathematical ideas precisely.	Unit 1 – Lesson 7: <i>Exponents</i> pp. 37-39 Lesson 8: <i>Square Roots</i> pp. 40-42 Unit 2 – Lesson 1: <i>Factors and Prime Factorization</i> pp. 46-48 Lesson 2: <i>Greatest Common Factor (GCF)</i> pp. 49-51 Lesson 3: <i>Least Common Multiple (LCM)</i> pp. 52-54
4.5 C. Connections	
1. Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).	Unit 8 – Lesson 6: <i>Line Graphs</i> pp. 233-236
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 8 – Lesson 6: <i>Line Graphs</i> pp. 233-236
3. Recognize that mathematics is used in a variety of contexts outside of mathematics.	Unit 8 – Lesson 2: <i>Making Predictions</i> pp. 219-221
4. Apply mathematics in practical situations and in other disciplines.	Unit 5 – Lesson 8: <i>Slope</i> pp. 154-157
6. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	Unit 6 – Lesson 2: <i>Angles in Parallel Lines Cut by a Transversal</i> pp. 164-166
4.5 D. Reasoning	
1. Recognize that mathematical facts, procedures, and claims must be justified.	Unit 8 – Lesson 3: <i>Mean, Median, and Mode</i> pp. 222-224
2. Use reasoning to support their mathematical conclusions and problem solutions.	Unit 5 – Lesson 3: <i>Translating and Solving Word Problems</i> pp. 138-140
3. Select and use various types of reasoning and methods of proof.	Unit 5 – Lesson 3: <i>Translating and Solving Word Problems</i> pp. 138-140
6. Evaluate examples of mathematical reasoning and determine whether they are valid.	Unit 8 – Lesson 3: <i>Mean, Median, and Mode</i> pp. 222-224
4.5 E. Representations	

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1. Create and use representations to organize, record, and communicate mathematical ideas.	
• Concrete representations (e.g., base-ten blocks or algebra tiles)	Unit 2 – Lesson 1: <i>Factors and Prime Factorization</i> pp. 46-48
• Pictorial representations (e.g., diagrams, charts, or tables)	Unit 8 – Lesson 1: <i>Counting Methods</i> pp. 216-218
• Symbolic representations (e.g., a formula)	Unit 7 – Lesson 3: <i>Area of a Circle</i> pp. 196-198
• Graphical representations (e.g., a line graph)	Unit 8 – Lesson 6: <i>Line Graphs</i> pp. 233-236 Lesson 7: <i>Circle Graphs</i> pp. 237-240
2. Select, apply, and translate among mathematical representations to solve problems.	Unit 8 – Lesson 8: <i>Appropriate Graphs</i> pp. 241-243
3. Use representations to model and interpret physical, social, and mathematical phenomena.	Unit 8 – Lesson 5: <i>Box-and-Whiskers Plots</i> pp. 229-232
4.5 F. Technology	
1. Use technology to gather, analyze, and communicate mathematical information.	Unit 8 – Lesson 1: <i>Counting Methods</i> pp. 216-218 Lesson 3: <i>Mean, Median, and Mode</i> pp. 222-224
2. Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information.	Unit 8 – Lesson 1: <i>Counting Methods</i> pp. 216-218 Lesson 3: <i>Mean, Median, and Mode</i> pp. 222-224
4. Use calculators as problem-solving tools (e.g., to explore patterns, to validate solutions).	Unit 8 – Lesson 1: <i>Counting Methods</i> pp. 216-218 Lesson 3: <i>Mean, Median, and Mode</i> pp. 222-224
5. Use computer software to make and verify conjectures about geometric objects.	Unit 7 – Lesson 1: <i>Area of a Trapezoid</i> pp. 190-192 Lesson 2: <i>Circumference of a Circle</i> pp. 193-195
6. Use computer-based laboratory technology for mathematical applications in the sciences (cf. science standards).	Unit 8 – Lesson 1: <i>Counting Methods</i> pp. 216-218 Lesson 3: <i>Mean, Median, and Mode</i> pp. 222-224