

## Northpoint Horizons

### *Math Elevations™ (Comprehensive Intervention System)* Correlated to the Illinois State Mathematics Content Standards

Middle / Junior High School (Grade 6)

This document provides a sampling of the extensive math directives offered throughout the *Math Elevations* program that meet the Illinois Mathematics Standards and Descriptors.

Illinois Mathematics Standards and Descriptors	<i>Math Elevations Level F (Grade 6)</i> Teacher's Guide Examples/Lessons
<b>STATE GOAL 6, NUMBER SENSE: Demonstrate and apply a knowledge and sense of numbers, including numeration and operations (addition, subtraction, multiplication, division), patterns, ratios and proportions</b>	
<b>Unit 1 – Numeration / Number Theory</b> <b>Unit 2 – Computation with Integers and Decimals</b> <b>Unit 3 – Fractions, Decimals, and Percents</b> <b>Unit 4 – Computation with Fractions</b>	
6.A. Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings.	Unit 1 - 1.1 Decimals pp. 18 – 19 1.4 Introduction to Integers pp. 24 - 25 Unit 2 - 2.2 Rounding Numbers pp. 38 – 39 Unit 3 - 3.1 Simplest Form pp. 54 – 55 3.2 Comparing and Ordering Fractions pp. 56 – 57 3.4 Understanding Percents pp. 60 – 61 3.5 Converting Between Percents, Fractions, and Decimals pp. 62 - 63
6.A.3 Represent fractions, decimals, percentages, exponents and scientific notation in equivalent forms.	Unit 1 - 1.2 Understanding Exponents pp. 20 – 21 1.3 Powers of 10 pp. 22 – 23 Unit 2 - 2.4 Multiplying and Dividing by Powers of 10 pp. 42 – 43 Unit 3 - 3.4 Understanding Percents pp. 60 – 61 3.5 Converting between Percents, Fractions, and Decimals pp. 62 – 63
6.B. Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication, division) and their properties, algorithms and relationships.	Unit 3 – 3.8 Solving Proportions pp. 68 – 69

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	Unit 4 – 4.2 Adding Mixed Numbers pp. 74 – 75 4.3 Subtracting Mixed Numbers pp. 76 – 77 4.5 Multiplying Mixed Numbers pp. 80 – 81 4.8 Dividing Mixed Numbers pp. 86 – 87 Unit 5 - 5.1 Order of Operations pp. 90 –91 5.6 Word Problems pp. 100 - 101
6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers.	Unit 4 – 4.2 Adding Mixed Numbers pp. 74 – 75 4.3 Subtracting Mixed Numbers pp. 76 – 77 4.5 Multiplying Mixed Numbers pp. 80 – 81 4.6 Dividing Fractions by Whole Numbers pp. 84 - 85
6.B.3b Apply primes, factors, divisors, multiples, common factors and common multiples in solving problems.	Unit 1 – 1.5 Primes and Composites pp. 26 – 27 1.6 Divisibility pp. 28 –29 1.7 Greatest Common Factor pp. 30 – 31 1.8 Least Common Multiple (LCM) pp. 32 – 33
6.B.3c Identify and apply properties of real numbers including pi, squares, and square roots.	Unit 1 – 1.2 Understanding Exponents pp. 20 – 21 1.3 Powers of 10 pp. 22 – 23
6.C. Compute and estimate using mental mathematics, paper-and-pencil methods, calculators and computers.	Unit 2 – 2.5 Multiplication of Whole Numbers pp. 44 – 45 2.6 Multiplying by Decimals pp. 46 – 47 2.7 Division pp. 48 – 49
6.C.3a Select computational procedures and solve problems with whole numbers, fractions, decimals, percents and proportions.	Unit 2 – 2.8 Word Problems pp. 50 – 51 Unit 3 – 3.8 Solving Proportions pp. 68 – 69
6.C.3b Show evidence that computational results using whole numbers, fractions, decimals, percents and proportions are correct and/or that estimates are reasonable.	Unit 2 – 2.3 Addition and Subtraction pp. 40 – 41 2.5 Multiplication of Whole Numbers pp. 44 – 45 2.6 Multiplying by Decimals pp. 46 – 47 2.7 Division pp. 48 – 49 Unit 3 – 3.6 More Converting Fractions pp. 64 – 65 3.7 Ratios and Proportions pp. 66 – 67 3.8 Solving Proportions pp. 68 - 69
6.D. Solve problems using comparison of quantities, ratios, proportions and	Unit 3 –

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percents.	3.4 Understanding Percents pp. 60 – 61 3.7 Ratios and Proportions pp. 66 – 67 3.8 Solving Proportions pp. 68 - 69
6.D.3 Apply ratios and proportions to solve practical problems.	Unit 3 – 3.8 Solving Proportions pp. 68 - 69
<b>STATE GOAL 7, Estimation and Measurement: Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.</b>	
<b>Unit 6 - Geometry Unit 7 - Measurement</b>	
7.A. Measure and compare quantities using appropriate units, instruments and methods.	Unit 7 – 7.1 Triangles pp. 126 – 127 7.2 Perimeter pp. 128 – 129 7.3 Angles pp. 130 – 131
7.A.3a Measure length, capacity, weight/mass and angles using sophisticated instruments (e.g., compass, protractor, trundle wheel).	Unit 7 – 7.3 Angles pp. 130 – 131
7.A.3b Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations.	Unit 7 – 7.2 Perimeter pp. 128 – 129 7.3 Angles pp. 130 – 131 7.5 Areas of Rectangles and Parallelograms pp. 134 – 135 7.6 Area of Triangles pp. 136 – 137 7.7 Area of Irregular Figures pp. 138 – 139 7.8 Volume pp. 140 – 141
7.B. Estimate measurements and determine acceptable levels of accuracy.	Unit 7 – 7.3 Angles pp. 130 – 131
7.B.3 Select and apply instruments including rulers and protractors and units of measure to the degree of accuracy required.	Unit 7 – 7.1 Triangles pp. 126 – 127 7.2 Perimeter pp. 128 – 129 7.3 Angles pp. 130 – 131
7.C. Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.	Unit 7 – 7.5 Areas of Rectangles and Parallelograms pp. 134 – 135 7.6 Area of Triangles pp. 136 – 137 7.7 Area of Irregular Figures pp. 138 – 139 7.8 Volume pp. 140 – 141
7.C.3a Construct a simple scale drawing for a given situation.	Unit 6 – 6.6 Translation pp. 118 – 119 6.7 Reflection pp. 120 – 121
7.C.3b Use concrete and graphic models and appropriate formulas to find perimeters, areas, surface areas and volumes of two- and three-	Unit 7 – 7.2 Perimeter pp. 128 – 129

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dimensional regions.	7.5 Areas of Rectangles and Parallelograms pp. 134 – 135 7.6 Area of Triangles pp. 136 – 137 7.7 Area of Irregular Figures pp. 138 – 139 7.8 Volume pp. 140 – 141
<b>STATE GOAL 8, Algebra and Analytical Methods: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.</b>	
<b>Unit 1 – Numeration / Number Theory</b> <b>Unit 3 – Fractions, Decimals, and Percents</b> <b>Unit 5 – Algebra</b> <b>Unit 8 – Probability, Statistics, and Data Analysis</b>	
8.A. Describe numerical relationships using variables and patterns.	Unit 5 – 5.2 Patterns pp. 92 – 93 5.3 One-Step Algebraic Expressions pp. 94 – 95 5.4 Two-Step Algebraic Expressions pp. 96 - 97
8.A.3a Apply the basic properties of commutative, associative, distributive, transitive, inverse, identity, zero, equality and order of operations to solve problems.	Unit 5 – 5.1 Order of Operations pp. 90 – 91 5.5 Solving Equations pp. 98 – 99 5.6 Word Problems pp. 100 – 101
8.A.3b Solve problems using linear expressions, equations and inequalities.	Unit 5 – 5.3 One-Step Algebraic Expressions pp. 94 – 95 5.4 Two-Step Algebraic Expressions pp. 96 – 97 5.5 Solving Equations pp. 98 – 99 5.8 Inequalities pp. 104 - 105
8.B. Interpret and describe numerical relationships using tables, graphs and symbols.	Unit 5 – 5.3 One-Step Algebraic Expressions pp. 94 – 95 5.4 Two-Step Algebraic Expressions pp. 96 – 97 8.6 Line Graphs pp. 154 - 155
8.B.3 Use graphing technology and algebraic methods to analyze and predict linear relationships and make generalizations from linear patterns.	Unit 5 - 5.7 Graphing Algebraic Expressions pp. 102 - 103
8.C. Solve problems using systems of numbers and their properties	Unit 5 - 5.5 Solving Equations pp. 98 – 99 5.6 Word Problems pp. 100 – 101
8.C.3 Apply the properties of numbers and operations including inverses in algebraic settings derived from economics, business and the sciences.	Unit 5 - 5.4 Two-Step Algebraic Expressions pp. 96 – 97
8.D. Use algebraic concepts and procedures to represent and solve problems.	Unit 5 - 5.5 Solving Equations pp. 98 – 99

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	5.6 Word Problems pp. 100 – 101 5.8 Inequalities pp. 104 - 105
8.D.3a Solve problems using numeric, graphic or symbolic representations of variables, expressions, equations and inequalities.	Unit 5 - 5.6 Word Problems pp. 100 – 101 5.7 Graphing Algebraic Expressions pp. 102 – 103 5.8 Inequalities pp. 104 - 105
8.D.3b Propose and solve problems using proportions, formulas and linear functions.	Unit 3- 3.8 Solving Proportions pp. 68 - 69 Unit 5 - 5.5 Solving Equations pp. 98 – 99 5.7 Graphing Algebraic Expressions pp. 102 – 103
8.D.3c Apply properties of powers, perfect squares and square roots.	Unit 1 – 1.2 Understanding Exponents pp. 20 – 21 1.3 Powers of 10 pp. 22 – 23 Unit 5 – 5.1 Order of Operations pp. 90 – 91
<b>STATE GOAL 9, GEOMETRY: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.</b>	
<b>Unit 6 – Geometry Unit 7 - Measurement</b>	
9.A. Demonstrate and apply geometric concepts involving points, lines, planes and space.	Unit 6 – 6.1 Properties of Polygons pp. 108 – 109 6.2 Classifying Quadrilaterals pp. 110 – 111
9.A.4a Construct a model of a three-dimensional figure from a two-dimensional pattern.	
9.A.4b Make perspective drawings, tessellations and scale drawings, with and without the use of technology.	Unit 6- 6.6 Translation pp. 118 – 119 6.7 Reflections pp. 120 – 121 6.8 Rotation pp. 122 - 123
9.B. Identify, describe, classify and compare relationships using points, lines, planes and solids.	Unit 6 - 6.1 Properties of Polygons pp. 108 – 109 6.2 Classifying Quadrilaterals pp. 110 – 111 6.3 Solid Figures pp. 112 – 113 Unit 7 – 7.3 Angles pp. 130 - 131
9.B.3 Identify, describe, classify and compare two- and three-dimensional geometric figures and models according to their properties.	Unit 6 – 6.1 Properties of Polygons pp. 108 – 109 6.2 Classifying Quadrilaterals pp. 110 – 111 6.3 Solid Figures pp. 112 – 113

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9.C. Construct convincing arguments and proofs to solve problems.	This standard is covered in Level H, Grade 8, Lessons 6.4 and 6.5.
9.C.3a Construct, develop and communicate logical arguments (informal proofs) about geometric figures and patterns.	Unit 6 – 6.2 Classifying Quadrilaterals pp. 110 – 111 6.3 Solid Figures pp. 112 – 113
9.C.3b Develop and solve problems using geometric relationships and models, with and without the use of technology.	Unit 7 – 7.5 Areas of Rectangles and Parallelograms pp. 134 – 135 7.6 Area of Triangles pp. 136 – 137 7.7 Area of Irregular Figures pp. 138 - 139
9.D. Use trigonometric ratios and circular functions to solve problems.	
9.D.3 Compute distances, lengths and measures of angles using proportions, the Pythagorean theorem and its converse.	Unit 7 – 7.2 Perimeter pp. 128 – 129 The Pythagorean Theorem is introduced in Level G, Grade 7, Lesson 7.1.
<b>STATE GOAL 10, Data Analysis and Probability: Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability.</b>	
<b>Unit 8 – Probability, Statistics, and Data Analysis</b>	
10.A. Organize, describe and make predictions from existing data.	Unit 8 – 8.2 Line Plots and Stem-and-Leaf Plots pp. 146 – 147 8.3 Scales and Bar Graphs pp. 148 – 149 8.4 Conducting Surveys pp. 150 – 151 8.8 Probability Experiments pp. 158 - 159
10.A.3a Construct, read and interpret tables, graphs (including circle graphs) and charts to organize and represent data.	Unit 8 – 8.2 Line Plots and Stem-and-Leaf Plots pp. 146 – 147 8.3 Scales and Bar Graphs pp. 148 – 149 8.5 Displaying Data pp. 152 - 153
10.A.3b Compare the mean, median, mode and range, with and without the use of technology.	Unit 8 – 8.1 Mean, Mode, and Median pp. 144 - 145
10.A.3c Test the reasonableness of an argument based on data and communicate their findings.	Unit 8 – 8.4 Conducting Surveys pp. 150 – 151 8.5 Displaying Data pp. 152 – 153 8.6 Line Graphs pp. 154 - 155
10.B. Formulate questions, design data collection methods, gather and analyze data and communicate findings.	Unit 8 – 8.2 Line Plots and Stem-and-Leaf Plots pp. 146 – 147 8.3 Scales and Bar Graphs pp. 148 – 149 8.4 Conducting Surveys pp. 150 – 151 8.5 Displaying Data pp. 152 – 153 8.6 Line Graphs pp. 154 - 155
10.B.3 Formulate questions (e.g., relationships between car age and mileage, average incomes and years of schooling), devise and conduct	Unit 8 – 8.4 Conducting Surveys, pp. 150-151

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experiments or simulations, gather data, draw conclusions and communicate results to an audience using traditional methods and contemporary technologies.	8.5 Displaying Data, pp. 152-153
10.C. Determine, describe and apply the probabilities of events.	Unit 8 – 8.7 Probability pp. 156 – 157
10.C.3a Determine the probability and odds of events using fundamental counting principles.	Unit 8 – 8.7 Probability pp. 156 – 157 8.8 Probability Experiments pp. 158 - 159
10.C.3b Analyze problem situations (e.g., board games, grading scales) and make predictions about results.	Unit 8 – 8.6 Line Graphs pp. 154 – 155 8.7 Probability pp. 156 – 157 8.8 Probability Experiments pp. 158 - 159