

Northpoint Horizons
Math Elevations™ (Comprehensive Intervention System)
Correlated to the Grade 7
Illinois State Mathematics Content Standards

Middle / Junior High School (Grade 7)

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 Math Standards and Descriptors	<i>Math Elevations Level G (Grade 7)</i> Teacher's Guide Examples/Lessons
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	
Unit 1 – Decimals, Exponents, and Square Roots Unit 2 – Fractions and Decimals Unit 3 – Integers Unit 5 – Ratios, Proportions, and Percents Unit 6 – Geometry Unit 7 - Measurement	
6.A. Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings.	Unit 1 1.1 Decimal Place Value pp. 18 - 21 1.8 Fractions and Mixed Numbers pp. 40 - 43
6.A.3 Represent fractions, decimals, percentages, exponents and scientific notation in equivalent forms.	Unit 1 1.4 Scientific Notation pp. 28 – 30 1.8 Fractions and Mixed Numbers pp. 40 - 43
6.B. Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication, division) and their properties, algorithms and relationships.	Unit 1 1.1 Decimal Place Value pp. 18 - 21 1.8 Fractions and Mixed Numbers pp. 40 – 43 Unit 2 2.1 Adding and Subtracting Fractions pp. 46 – 48 2.2 Adding and Subtracting Mixed Numbers pp. 49 – 51 2.3 Multiplying Fractions and Mixed Numbers pp. 52 – 54 2.4 Dividing Fractions and Mixed Numbers pp. 55 – 57 2.5 Adding and Subtracting Decimals pp. 58 – 60 2.6 Multiplying Decimals pp. 61 – 63 2.7 Dividing Decimals pp. 64 - 67
6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers.	Unit 3 3.2 Adding Integers pp. 77 – 79 3.3 Subtracting Integers pp. 80 – 82

Illinois Math Standards and Descriptors	<i>Math Elevations Level G (Grade 7)</i> Teacher's Guide Examples/Lessons
	3.5 Multiplying Integers pp. 86 – 88 3.6 Dividing Integers pp. 89 - 91
6.B.3b Apply primes, factors, divisors, multiples, common factors and common multiples in solving problems.	Unit 1 1.5 Prime Factorization pp. 31 - 33 1.6 Greatest Common Factor pp. 34 - 36 1.7 Least Common Multiple pp. 37 – 39
6.B.3c Identify and apply properties of real numbers including pi, squares, and square roots.	Unit 1 1.2 Exponents pp. 22 - 24 1.3 Square Roots pp. 25 - 27 Unit 7 7.4 Circumference of a Circle pp. 194 - 196 7.5 Area of a Circle pp. 197 - 199
6.C. Compute and estimate using mental mathematics, paper-and-pencil methods, calculators and computers.	Unit 2 2.2 Adding and Subtracting Mixed Numbers pp. 49 - 51 2.3 Multiplying Fractions and Mixed Numbers pp. 52 - 54 2.4 Dividing Fractions and Mixed Numbers pp. 55 - 57 2.5 Adding and Subtracting Decimals pp. 58 - 60 2.6 Multiplying Decimals pp. 61 - 63 2.7 Dividing Decimals pp. 64 - 67
6.C.3a Select computational procedures and solve problems with whole numbers, fractions, decimals, percents and proportions.	Unit 2 2.1 Adding and Subtracting Fractions pp. 46 – 48 2.2 Adding and Subtracting Mixed Numbers pp. 49 – 51 2.3 Multiplying Fractions and Mixed Numbers pp. 52 – 54 2.4 Dividing Fractions and Mixed Numbers pp. 55 – 57 2.5 Adding and Subtracting Decimals pp. 58 – 60 2.6 Multiplying Decimals pp. 61 – 63 2.7 Dividing Decimals pp. 64 – 67
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 2.1 Adding and Subtracting Fractions pp. 46 – 48 2.6 Multiplying Decimals pp. 61 – 63 2.7 Dividing Decimals pp. 64 – 67
6.D. Solve problems using comparison of quantities, ratios, proportions and percents.	Unit 5 5.1 Ratios pp. 128 – 131 5.2 Rates pp. 132 – 134 5.3 Writing and Solving Proportions pp. 135 - 137 5.5 Fractions, Decimals, and Percents pp. 141 – 143

Illinois Math Standards and Descriptors	<i>Math Elevations Level G (Grade 7)</i> Teacher's Guide Examples/Lessons
	5.7 Percent Problems pp. 147 - 150
6.D.3 Apply ratios and proportions to solve practical problems.	Unit 5 5.1 Ratios pp. 128 - 131 5.2 Rates pp. 132 - 134 Unit 6 6.5 Similar Polygons pp. 169 - 171
STATE GOAL 7, Estimation and Measurement: Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.	
Unit 6 – Geometry Unit 7 – Measurement	
7.A. Measure and compare quantities using appropriate units, instruments and methods.	Unit 7 7.2 Area of Parallelograms and Triangles pp. 187 - 190 7.3 Irregular Figures pp. 191 - 193
7.A.3a Measure length, capacity, weight/mass and angles using sophisticated instruments (e.g., compass, protractor, trundle wheel).	Unit 6 6.1 Angles pp. 156 – 159 6.2 Triangles pp. 160 - 162 6.3 Polygons pp. 163 - 164 Unit 7 7.4 Circumference of a Circle pp. 194 - 196
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 6 6.1 Angles pp. 156 - 159 Unit 7 7.2 Area of Parallelograms and Triangles pp. 187 - 190 7.4 Circumference of a Circle pp. 194 - 196 7.5 Area of a Circle pp. 197 - 199 7.6 Surface Area of a Prism pp. 200 - 202 7.8 Volume of a Prism pp. 206 - 208
7.B. Estimate measurements and determine acceptable levels of accuracy.	Unit 7 7.2 Area of Parallelograms and Triangles pp. 187 - 190 7.4 Circumference of a Circle pp. 194 - 196 7.5 Area of a Circle pp. 197 - 199
7.B.3 Select and apply instruments including rulers and protractors and units of measure to the degree of accuracy required.	Unit 6 6.1 Angles pp. 156 - 159 Unit 7 7.1 Pythagorean Theorem pp. 184 - 186 7.4 Circumference of a Circle pp. 194 - 196 7.8 Volume of a Prism pp. 206 - 208

Illinois Math Standards and Descriptors	<i>Math Elevations Level G (Grade 7)</i> Teacher's Guide Examples/Lessons
7.C. Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.	Unit 6 6.1 Angles pp. 156 - 159 Unit 7 7.1 Pythagorean Theorem pp. 184 - 186
7.C.3a Construct a simple scale drawing for a given situation.	Unit 5 5.4 Scale Drawings and Models pp. 138 - 140 Unit 6 6.5 Similar Polygons pp. 169 - 171
7.C.3b Use concrete and graphic models and appropriate formulas to find perimeters, areas, surface areas and volumes of two- and three-dimensional regions.	Unit 7 7.2 Area of Parallelograms and Triangles pp. 187 - 190 7.3 Irregular Figures pp. 191 - 193 7.4 Circumference of a Circle pp. 194 - 196 7.5 Area of a Circle pp. 197 - 199 7.6 Surface Area of a Prism pp. 200 - 202 7.7 Surface Area of a Cylinder pp. 203 - 205 7.8 Volume of a Prism pp. 206 - 208
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.	
Unit 1 – Decimals, Exponents, and Square Roots Unit 3 – Integers Unit 4 – Algebra Unit 6 – Geometry Unit 7 – Measurement	
8.A. Describe numerical relationships using variables and patterns.	Unit 4 4.2 Evaluating Algebraic Expressions pp. 103 - 105 4.3 Writing and Evaluating Expressions pp. 106 - 108 4.5 Simplifying Expressions pp. 112 - 114
8.A.3a Apply the basic properties of commutative, associative, distributive, transitive, inverse, identity, zero, equality and order of operations to solve problems.	Unit 3 3.7 Commutative and Associative Properties pp. 92 - 94 3.8 Distributive Property pp. 95 - 97 Unit 4 4.1 Order of Operations pp. 100 - 102
8.A.3b Solve problems using linear expressions, equations and inequalities.	Unit 4 4.6 Solving One-Step Equations Using Addition and Subtraction pp. 115 - 117 4.7 Solving One-Step Equations Using Multiplication and Division pp. 118 - 120 4.8 Solving and Graphing Inequalities pp. 121 - 124
8.B. Interpret and describe numerical relationships using tables, graphs and symbols.	Unit 4 4.4 Graphing Functions pp. 109 - 111

Illinois Math Standards and Descriptors	<i>Math Elevations Level G (Grade 7)</i> Teacher's Guide Examples/Lessons
8.B.3 Use graphing technology and algebraic methods to analyze and predict linear relationships and make generalizations from linear patterns.	4.4 Graphing Functions pp. 109 - 111
8.C. Solve problems using systems of numbers and their properties	Unit 4 4.6 Solving One-Step Equations Using Addition and Subtraction pp. 115 - 117 4.7 Solving One-Step Equations Using Multiplication and Division pp.118 –120
8.C.3 Apply the properties of numbers and operations including inverses in algebraic settings derived from economics, business and the sciences.	Unit 4 4.7 Solving One-Step Equations Using Multiplication and Division pp.118 –120
8.D. Use algebraic concepts and procedures to represent and solve problems.	Unit 4 4.3 Writing and Evaluating Expressions pp. 106 – 108 4.4 Graphing Functions pp. 109 – 111 4.7 Solving One-Step Equations Using Multiplication and Division pp.118 –120
8.D.3a Solve problems using numeric, graphic or symbolic representations of variables, expressions, equations and inequalities.	Unit 4 4.4 Graphing Functions pp. 109 - 111 4.6 Solving One-Step Equations Using Addition and Subtraction pp. 115 - 117 4.7 Solving One-Step Equations Using Multiplication and Division pp.118 –120 4.8 Solving and Graphing Inequalities pp. 121 - 124
8.D.3b Propose and solve problems using proportions, formulas and linear functions.	Unit 4 4.4 Graphing Functions pp. 109 – 111 Unit 5 5.3 Writing and Solving Proportions pp. 135 - 137 Unit 6 6.5 Similar Polygons pp. 169 - 171
8.D.3c Apply properties of powers, perfect squares and square roots.	Unit 1 1.2 Exponents pp. 22 - 24 1.3 Square Roots pp. 25 - 27 Unit 7 7.1 Pythagorean Theorem pp. 184 - 186
STATE GOAL 9, GEOMETRY: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.	
Unit 6 – Geometry	
Unit 7 - Measurement	
9.A. Demonstrate and apply geometric concepts involving points, lines, planes and space.	Unit 6 6.6 Translations in the Coordinate Plane pp. 172 - 174 6.7 Reflections and Rotations in the Coordinate Plane pp. 175 - 178 6.8 Solid Figures pp. 179 - 181
9.A.4a Construct a model of a three-dimensional figure from a two-dimensional pattern.	Unit 6 6.8 Solid Figures pp. 179 - 181 Unit 7 7.6 Surface Area of a Prism pp. 200 – 202

Illinois Math Standards and Descriptors	<i>Math Elevations Level G (Grade 7)</i> Teacher's Guide Examples/Lessons
	7.7 Surface Area of a Cylinder pp. 203 - 205
9.A.4b Make perspective drawings, tessellations and scale drawings, with and without the use of technology.	Unit 6 6.5 Similar Polygons pp. 169 - 171 6.7 Reflections and Rotations in the Coordinate Plane pp. 175 - 178
9.B. Identify, describe, classify and compare relationships using points, lines, planes and solids.	Unit 6 6.2 Triangles pp. 160 - 162 6.3 Polygons pp. 163 - 165 6.6 Translations in the Coordinate Plane pp. 172 - 174 6.7 Reflections and Rotations in the Coordinate Plane pp. 175 - 178
9.B.3 Identify, describe, classify and compare two- and three-dimensional geometric figures and models according to their properties.	Unit 6 6.3 Polygons pp. 163 - 165 6.4 Congruent Polygons pp. 166 - 168 6.5 Similar Polygons pp. 169 - 171 6.6 Translations in the Coordinate Plane pp. 172 - 174 6.7 Reflections and Rotations in the Coordinate Plane pp. 175 - 178
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 6.4 Congruent Polygons pp. 166 - 168
9.C.3b Develop and solve problems using geometric relationships and models, with and without the use of technology.	Unit 7 7.1 Pythagorean Theorem pp. 184 - 186 7.3 Irregular Figures pp. 191 - 193
9.D. Use trigonometric ratios and circular functions to solve problems.	This standard is introduced in Level H, Grade 8, Lesson 3.8.
9.D.3 Compute distances, lengths and measures of angles using proportions, the Pythagorean theorem and its converse.	Unit 7 7.1 Pythagorean Theorem pp. 184 - 186
STATE GOAL 10, Data Analysis and Probability: Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability.	
Unit 8 – Probability and Data Analysis	
10.A. Organize, describe and make predictions from existing data.	Unit 8 8.1 Possible Outcomes pp. 212 - 214 8.2 Permutations pp. 215 - 217 8.3 Combinations pp. 218 - 220 8.4 Disjoint, Overlapping and Complementary Events pp. 221 - 224 8.5 Dependent and Independent Events pp. 225 - 228 8.7 Bar Graphs and Line Graphs pp. 233 - 236
10.A.3a Construct, read and interpret tables, graphs (including circle graphs) and charts to organize and represent data.	Unit 8 8.7 Bar Graphs and Line Graphs pp. 233 - 236 8.8 Circle Graphs pp. 237 - 239

Illinois Math Standards and Descriptors	<i>Math Elevations Level G (Grade 7)</i> Teacher's Guide Examples/Lessons
10.A.3b Compare the mean, median, mode and range, with and without the use of technology.	Unit 8 8.6 Mean, Median, and Mode pp. 229 - 232
10.A.3c Test the reasonableness of an argument based on data and communicate their findings.	Unit 8 8.1 Possible Outcomes pp. 212 - 214 8.2 Permutations pp. 215 - 217 8.6 Mean, Median, and Mode pp. 229 - 232 8.7 Bar Graphs and Line Graphs pp. 233 - 236 8.8 Circle Graphs pp. 237 - 239
10.B. Formulate questions, design data collection methods, gather and analyze data and communicate findings.	Unit 8 8.1 Possible Outcomes pp. 212 - 214 8.2 Permutations pp. 215 - 217 8.3 Combinations pp. 218 - 220 8.4 Disjoint, Overlapping and Complementary Events pp. 221 - 224 8.5 Dependent and Independent Events pp. 225 - 228 8.7 Bar Graphs and Line Graphs pp. 233 - 236 8.8 Circle Graphs pp. 237 - 239
10.B.3 Formulate questions (e.g., relationships between car age and mileage, average incomes and years of schooling), devise and conduct experiments or simulations, gather data, draw conclusions and communicate results to an audience using traditional methods and contemporary technologies.	Unit 8 8.3 Combinations pp. 218 - 220 8.4 Disjoint, Overlapping and Complementary Events pp. 221 - 224 8.5 Dependent and Independent Events pp. 225 - 228 8.6 Mean, Median, and Mode pp. 229 - 232 8.7 Bar Graphs and Line Graphs pp. 233 - 236 8.8 Circle Graphs pp. 237 - 239
10.C. Determine, describe and apply the probabilities of events.	Unit 8 8.1 Possible Outcomes pp. 212 - 214 8.2 Permutations pp. 215 - 217
10.C.3a Determine the probability and odds of events using fundamental counting principles.	Unit 8 8.1 Possible Outcomes pp. 212 - 214 8.2 Permutations pp. 215 - 217 8.3 Combinations pp. 218 - 220
10.C.3b Analyze problem situations (e.g., board games, grading scales) and make predictions about results.	Unit 8 8.1 Possible Outcomes pp. 212 - 214 8.2 Permutations pp. 215 - 217 8.3 Combinations pp. 218 - 220 8.4 Disjoint, Overlapping and Complementary Events pp. 221 - 224 8.5 Dependent and Independent Events pp. 225 - 228