

Northpoint Horizons

Math Elevations™ (Comprehensive Intervention System) Correlated to Georgia Mathematics Performance Standards

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

Georgia Mathematics Performance Standards Grade 6	<i>Math Elevations</i> Level F Teacher's Guide Examples/Lessons
NUMBER AND OPERATIONS	
M6N1. Students will understand the meaning of the four arithmetic operations as related to positive rational numbers and will use these concepts to solve problems.	
a. Apply factors and multiples.	Unit 1 – Lesson 7: <i>Greatest Common Factor (GCF)</i> pp. 30–31 Lesson 8: <i>Least Common Multiple (LCM)</i> pp. 32–33
b. Decompose numbers into their prime factorization (Fundamental Theorem of Arithmetic).	Unit 1 – Lesson 5: <i>Primes and Composites</i> pp. 26–27
c. Determine the greatest common factor (GCF) and the least common multiple (LCM) for a set of numbers.	Unit 1 – Lesson 7: <i>Greatest Common Factor (GCF)</i> pp. 30–31 Lesson 8: <i>Least Common Multiple (LCM)</i> pp. 32–33
d. Add and subtract fractions and mixed numbers with unlike denominators.	Unit 4 – Lesson 1: <i>Addition and Subtraction of Fractions</i> pp. 72–73 Lesson 2: <i>Adding Mixed Numbers</i> pp. 74–75 Lesson 3: <i>Subtracting Mixed Numbers</i> pp. 76–77
e. Multiply and divide fractions and mixed numbers.	Unit 4 – Lesson 4: <i>Multiplying Fractions</i> pp. 78–79 Lesson 5: <i>Multiplying Mixed Numbers</i> pp. 80–81 Lesson 6: <i>Dividing Fractions by Whole Numbers</i> pp. 82–83 Lesson 7: <i>Dividing Fractions by Fractions</i> pp. 84–85 Lesson 8: <i>Dividing Mixed Numbers</i> pp. 86–87
f. Use fractions, decimals, and percents interchangeably.	Unit 3 – Lesson 3: <i>Converting Fractions to Decimals</i> pp. 58–59 Lesson 5: <i>Converting Between Percents, Fractions, and Decimals</i> pp. 62–63

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g. Solve problems involving fractions, decimals, and percents.	Unit 1 – Lesson 1: <i>Decimals</i> pp. 18–19 Unit 2 – Lesson 6: <i>Multiplying by Decimals</i> pp. 46–47 Unit 3 – Lesson 2: <i>Comparing and Ordering Fractions</i> pp. 56–57 Lesson 3: <i>Converting Fractions to Decimals</i> pp. 58–59 Lesson 4: <i>Understanding Percents</i> pp. 60–61 Lesson 5: <i>Converting Between Percents, Fractions, and Decimals</i> pp. 62–63 Lesson 6: <i>More Converting Fractions</i> pp. 64–65 Unit 4 – Lesson 1: <i>Addition and Subtraction of Fractions</i> pp. 72–73 Lesson 2: <i>Adding Mixed Numbers</i> pp. 74–75 Lesson 3: <i>Subtracting Mixed Numbers</i> pp. 76–77 Lesson 4: <i>Multiplying Fractions</i> pp. 78–79 Lesson 5: <i>Multiplying Mixed Numbers</i> pp. 80–81 Lesson 6: <i>Dividing Fractions by Whole Numbers</i> pp. 82–83 Lesson 7: <i>Dividing Fractions by Fractions</i> pp. 84–85 Lesson 8: <i>Dividing Mixed Numbers</i> pp. 86–87
MEASUREMENT	
M6M1. Students will convert from one unit to another within one system of measurement (customary or metric) by using proportional relationships.	Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66–67 Lesson 8: <i>Solving Proportions</i> pp. 68–69
M6M2. Students will use appropriate units of measure for finding length, perimeter, area and volume and will express each quantity using the appropriate unit.	
a. Measure length to the nearest half, fourth, eighth and sixteenth of an inch.	Unit 7 – Lesson 2: <i>Perimeter</i> pp. 128–129 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
b. Select and use units of appropriate size and type to measure length, perimeter, area and volume.	Unit 7 – Lesson 2: <i>Perimeter</i> pp. 128–129 Lesson 5: <i>Areas of Rectangles and Parallelograms</i> pp. 134–135 Lesson 6: <i>Area of Triangles</i> pp. 136–137

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c. Compare and contrast units of measure for perimeter, area, and volume.	Lesson 7: <i>Area of Irregular Figures</i> pp. 138–139 Unit 7 – Lesson 2: <i>Perimeter</i> pp. 128–129 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
M6M3. Students will determine the volume of fundamental solid figures (right rectangular prisms, cylinders, pyramids, and cones).	
a. Determine the formula for finding the volume of fundamental solid figures.	Unit 7 – Lesson 8: <i>Volume</i> pp. 140–141
b. Compute the volumes of fundamental solid figures, using appropriate units of measure.	Unit 7 – Lesson 8: <i>Volume</i> pp. 140–141
c. Estimate the volumes of simple geometric solids.	Unit 7 – Lesson 8: <i>Volume</i> pp. 140–141
d. Solve application problems involving the volume of fundamental solid figures.	Unit 7 – Lesson 8: <i>Volume</i> pp. 140–141
M6M4. Students will determine the surface area of solid figures (right rectangular prisms and cylinders).	
a. Find the surface area of right rectangular prisms and cylinders using manipulatives and constructing nets.	
b. Compute the surface area of right rectangular prisms and cylinders using formulae.	
c. Estimate the surface areas of simple geometric solids.	
d. Solve application problems involving surface area of right rectangular prisms and cylinders.	
GEOMETRY	
M6G1. Students will further develop their understanding of plane figures.	
a. Determine and use lines of symmetry.	Unit 6 – Lesson 1: <i>Properties of Polygons</i> pp. 108–109
b. Investigate rotational symmetry, including degree of rotation.	Unit 6 – Lesson 1: <i>Properties of Polygons</i> pp. 108–109
c. Use the concepts of ratio, proportion and scale factor to demonstrate the relationships between similar plane figures.	Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66–67 Lesson 8: <i>Solving Proportions</i> pp. 68–69
d. Interpret and sketch simple scale drawings.	Unit 3 –

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	Lesson 7: <i>Ratios and Proportions</i> pp. 66–67
e. Solve problems involving scale drawings.	Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66–67
M6G2. Students will further develop their understanding of solid figures.	
a. Compare and contrast right prisms and pyramids.	Unit 6 – Lesson 3: <i>Solid Figures</i> pp. 112–113
b. Compare and contrast cylinders and cones.	Unit 6 – Lesson 3: <i>Solid Figures</i> pp. 112–113
c. Interpret and sketch front, back, top, bottom and side views of solid figures.	Unit 6 – Lesson 3: <i>Solid Figures</i> pp. 112–113
d. Construct nets for prisms, cylinders, pyramids, and cones.	
ALGEBRA	
M6A1. Students will understand the concept of ratio and use it to represent quantitative relationships.	Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66–67
M6A2. Students will consider relationships between varying quantities.	
a. Analyze and describe patterns arising from mathematical rules, tables, and graphs.	Unit 5 – Lesson 2: <i>Patterns</i> pp. 92–93
b. Use manipulatives or draw pictures to solve problems involving proportional relationships.	Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66–67 Lesson 8: <i>Solving Proportions</i> pp. 68–69
c. Use proportions ($a/b=c/d$) to describe relationships and solve problems, including percent problems.	Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66–67 Lesson 8: <i>Solving Proportions</i> pp. 68–69
d. Describe proportional relationships mathematically using $y = kx$, where k is the constant of proportionality.	Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66–67 Lesson 8: <i>Solving Proportions</i> pp. 68–69
e. Graph proportional relationships in the form $y = kx$ and describe characteristics of the graphs.	Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66–67 Lesson 8: <i>Solving Proportions</i> pp. 68–69
f. In a proportional relationship expressed as $y = kx$, solve for one quantity given values of the other two. Given quantities may be whole numbers, decimals, or fractions. Solve problems using the relationship $y = kx$.	Unit 3 – Lesson 7: <i>Ratios and Proportions</i> pp. 66–67 Lesson 8: <i>Solving Proportions</i> pp. 68–69
g. Use proportional reasoning ($a/b=c/d$ and $y = kx$) to solve problems.	Unit 3 –

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	Lesson 7: <i>Ratios and Proportions</i> pp. 66–67 Lesson 8: <i>Solving Proportions</i> pp. 68–69
M6A3. Students will evaluate algebraic expressions, including those with exponents, and solve simple one-step equations using each of the four basic operations	Unit 5 – Lesson 3: <i>One-Step Algebraic Expressions</i> pp. 94–95 Lesson 4: <i>Two-Step Algebraic Expressions</i> pp. 96–97
<u>DATA ANALYSIS AND PROBABILITY</u>	
M6D1. Students will pose questions, collect data, represent and analyze the data, and interpret results.	
a. Formulate questions that can be answered by data. Students should collect data by using samples from a larger population (surveys), or by conducting experiments.	Unit 8 – Lesson 4: <i>Conducting Surveys</i> pp. 150–151 Lesson 5: <i>Displaying Data</i> pp. 152–153
b. Using data, construct frequency distributions, frequency tables, and graphs.	Unit 8 – Lesson 5: <i>Displaying Data</i> pp. 152–153
c. Choose appropriate graphs to be consistent with the nature of the data (categorical or numerical). Graphs should include pictographs, histograms, bar graphs, line graphs, circle graphs, and line plots.	Unit 8 – Lesson 2: <i>Line Plots and Stem-and-Leaf Plots</i> pp. 146–147 Lesson 3: <i>Scales and Bar Graphs</i> pp. 148–149 Lesson 4: <i>Conducting Surveys</i> pp. 150–151 Lesson 5: <i>Displaying Data</i> pp. 152–153 Lesson 6: <i>Line Graphs</i> pp. 154–155
d. Use tables and graphs to examine variation that occurs within a group and variation that occurs between groups.	Unit 8 – Lesson 5: <i>Displaying Data</i> pp. 152–153
e. Relate the data analysis to the context of the questions posed.	Unit 8 – Lesson 4: <i>Conducting Surveys</i> pp. 150–151
M6D2. Students will use experimental and simple theoretical probability and understand the nature of sampling. They will also make predictions from investigations.	
a. Predict the probability of a given event through trials/simulations (experimental probability), and represent the probability as a ratio.	Unit 8 – Lesson 7: <i>Probability</i> pp. 156–157 Lesson 8: <i>Probability Experiments</i> pp. 158–159
b. Determine, and use a ratio to represent, the theoretical probability of a given event.	Unit 8 – Lesson 7: <i>Probability</i> pp. 156–157
c. Discover that experimental probability approaches theoretical probability when the number of trials is large.	Unit 8 – Lesson 8: <i>Probability Experiments</i> pp. 158–159
<u>Process Standards</u>	
M6P1. Students will solve problems (using appropriate technology).	
a. Build new mathematical knowledge through problem solving.	Unit 2 –

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	Lesson 8: <i>Word Problems</i> pp. 50–51
b. Solve problems that arise in mathematics and in other contexts.	Unit 8 – Lesson 1: <i>Mean, Mode, and Median</i> pp. 144–145
c. Apply and adapt a variety of appropriate strategies to solve problems.	Unit 2 – Lesson 8: <i>Word Problems</i> pp. 50–51
d. Monitor and reflect on the process of mathematical problem solving.	Unit 2 – Lesson 8: <i>Word Problems</i> pp. 50–51
M6P2. Students will reason and evaluate mathematical arguments.	
a. Recognize reasoning and proof as fundamental aspects of mathematics.	Unit 6 – Lesson 3: <i>Solid Figures</i> pp. 112–113
b. Make and investigate mathematical conjectures.	Unit 6 – Lesson 3: <i>Solid Figures</i> pp. 112–113
c. Develop and evaluate mathematical arguments and proofs.	Unit 6 – Lesson 3: <i>Solid Figures</i> pp. 112–113
d. Select and use various types of reasoning and methods of proof.	Unit 6 – Lesson 3: <i>Solid Figures</i> pp. 112–113
M6P3. Students will communicate mathematically.	
a. Organize and consolidate their mathematical thinking through communication.	Unit 8 – Lesson 6: <i>Line Graphs</i> pp. 154–155
b. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.	Unit 8 – Lesson 6: <i>Line Graphs</i> pp. 154–155
c. Analyze and evaluate the mathematical thinking and strategies of others.	Unit 5 – Lesson 5: <i>Solving Equations</i> pp. 98–99
d. Use the language of mathematics to express mathematical ideas precisely.	Unit 6 – Lesson 2: <i>Classifying Quadrilaterals</i> pp. 110–111
M6P4. Students will make connections among mathematical ideas and to other disciplines.	
a. Recognize and use connections among mathematical ideas.	Unit 8 – Lesson 5: <i>Displaying Data</i> pp. 152–153
b. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	Unit 2 – Lesson 8: <i>Word Problems</i> pp. 50–51
c. Recognize and apply mathematics in contexts outside of mathematics.	Unit 2 – Lesson 8: <i>Word Problems</i> pp. 50–51
M6P5. Students will represent mathematics in multiple ways.	
a. Create and use representations to organize, record, and	Unit 8 –

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communicate mathematical ideas.	Lesson 2: <i>Line Plots and Stem-and-Leaf Plots</i> pp. 146–147 Lesson 3: <i>Scales and Bar Graphs</i> pp. 148–149 Lesson 4: <i>Conducting Surveys</i> pp. 150–151 Lesson 5: <i>Displaying Data</i> pp. 152–153 Lesson 6: <i>Line Graphs</i> pp. 154–155
b. Select, apply, and translate among mathematical representations to solve problems.	Unit 8 – Lesson 2: <i>Line Plots and Stem-and-Leaf Plots</i> pp. 146–147 Lesson 3: <i>Scales and Bar Graphs</i> pp. 148–149 Lesson 4: <i>Conducting Surveys</i> pp. 150–151 Lesson 5: <i>Displaying Data</i> pp. 152–153 Lesson 6: <i>Line Graphs</i> pp. 154–155
c. Use representations to model and interpret physical, social, and mathematical phenomena.	Unit 8 – Lesson 2: <i>Line Plots and Stem-and-Leaf Plots</i> pp. 146–147 Lesson 3: <i>Scales and Bar Graphs</i> pp. 148–149 Lesson 4: <i>Conducting Surveys</i> pp. 150–151 Lesson 5: <i>Displaying Data</i> pp. 152–153 Lesson 6: <i>Line Graphs</i> pp. 154–155