

Achievement Level Descriptors

Grade 6 Mathematics

Georgia Department of Education
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Achievement Levels and Achievement Level Descriptors

With the implementation of the Georgia Milestones Assessment System, Georgia educators have developed four achievement levels to describe student mastery and command of the knowledge and skills outlined in Georgia's content standards. Most students have at least some knowledge of the content described in the content standards; however, achievement levels succinctly describe how much mastery a student has. Achievement levels give meaning and context to scale scores by describing the knowledge and skills students must demonstrate to achieve each level.

The four achievement levels on Georgia Milestones are *Beginning Learner*, *Developing Learner*, *Proficient Learner*, and *Distinguished Learner*. The general meaning of each of the four levels is provided below:

Beginning Learners do not yet demonstrate proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia's content standards. The students ***need substantial academic support*** to be prepared for the next grade level or course and to be on track for post-secondary readiness.

Developing Learners demonstrate partial proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia's content standards. The students ***need additional academic support*** to ensure success in the next grade level or course and to be on track for post-secondary readiness.

Proficient Learners demonstrate proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia's content standards. The students ***are prepared*** for the next grade level or course and are on track for post-secondary readiness.

Distinguished Learners demonstrate advanced proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia's content standards. The students ***are well prepared*** for the next grade level or course and are well prepared for post-secondary readiness.

More detailed and content-specific concepts and skills are provided for each grade, content area, and course in the **Achievement Level Descriptors** (ALDs). ALDs are narrative descriptions of the knowledge and skills expected at each of the four achievement levels and were developed for each grade level, content area, and course by committees of Georgia educators.

ALDs show a progression of knowledge and skills for which students must demonstrate competency across the achievement levels. It is important to understand that a student should demonstrate mastery of the knowledge and skills within the student's achievement level as well as all content and skills in any achievement levels that precede the student's own, if any. For example, a Proficient Learner should also possess the knowledge and skills of a Developing Learner and a Beginning Learner.

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POLICY DESCRIPTORS			
Beginning Learner	**Developing Learner**	**Proficient Learner**	**Distinguished Learner**
Beginning Learners do not yet demonstrate proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in Georgia's content standards. The students *need substantial academic support* to be prepared for the next grade level or course and to be on track for *post-secondary readiness*.	**Developing Learners demonstrate partial proficiency in the knowledge and skills** necessary at this grade level/course of learning, as specified in Georgia's content standards. The students *need additional academic support* to ensure success in the next grade level or course and to be on track for *post-secondary readiness*.	**Proficient Learners demonstrate proficiency in the knowledge and skills** necessary at this grade level/course of learning, as specified in Georgia's content standards. The students *are prepared* for the next grade level or course and are on track for *post-secondary readiness*.	**Distinguished Learners demonstrate advanced proficiency in the knowledge and skills** necessary at this grade level/course of learning, as specified in Georgia's content standards. The students *are well prepared* for the next grade level or course and are well prepared for *post-secondary readiness*.
RANGE DESCRIPTORS			
A student who achieves at the Beginning Learner level demonstrates minimal command of the grade-level standards.	A student who achieves at the Developing Learner level demonstrates partial command of the grade-level standards.	A student who achieves at the Proficient Learner level demonstrates proficiency of the grade-level standards.	A student who achieves at the Distinguished Learner level demonstrates advanced proficiency of the grade-level standards.
6.NR.1: Solve relevant, mathematical problems involving operations with whole numbers, fractions, and decimal numbers.			
• Given a visual representation, perform an operation with multi-digit decimal numbers.	• Add or subtract any combination of fractions. • Multiply or divide any combination of whole numbers, fractions, or mixed numbers. • Perform operations with multi-digit decimal numbers.	• Add and subtract any combination of fractions to solve relevant problems. • Multiply and divide any combination of whole numbers, fractions, and mixed numbers to solve and interpret relevant problems. • Perform operations with multi-digit decimal numbers to solve relevant problems.	• Solve and interpret realistic complex or multi-step problems involving any combination of whole numbers and fractions or any combination of decimals.

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6.NR.2: Apply operations with whole numbers, fractions and decimals within relevant applications.			
• Given a data set in a list, identify how to distribute the data into equal shares. • Determine the mean, median, or range of a data set.	• Given a data set in a data display, describe how to distribute the data into equal shares. • Identify a bar graph, box plot, dot plot, or histogram that matches a data set. • Determine the interquartile range of a data set. • Identify data sets where the mean and the median are not the same. • Describe the impact that inserting or deleting a data point has on the mean or median.	• Create a bar graph, box plot, dot plot, or histogram that summarizes a data set. • Describe the distribution of a data set by using the mean, median, interquartile range, mean absolute deviation, range, and overall shape. • Use quantitative measures of center and variability to draw conclusions about data sets and make predictions based on comparisons. • Given a realistic situation, describe how the mean and median are affected differently by outliers. • Create a data display to demonstrate the impact that inserting or deleting a data point has on the mean and/or median.	• Solve relevant problems involving numerical data, using bar graphs, dot plots, and box plots to display the data. Describe the center, variability, and overall distribution of the data, including the impact of including or deleting points.
6.NR.3: Solve a variety of problems involving whole numbers and their opposites; model rational numbers on a number line to describe problems presented in relevant, mathematical situations.			
• Given a visual representation, compare integers in context. • Given an integer plotted on a number line, identify the opposite of that integer. • Given a visual representation, compare rational numbers using equality and inequality symbols. • Given a number plotted on a number line, determine the absolute value of that number.	• Compare integers in context. • Plot an integer and its opposite on a number line. • Show that the opposite of the opposite of a number is the number itself. • Compare rational numbers using equality and inequality symbols. • Given a number, determine the absolute value of that number.	• Explain the meaning of zero in the context of a realistic problem. • Order integers on a number line. • Explain that the opposite of the opposite of a number is the number itself. • Explain statements of order for rational numbers in authentic contexts. • Interpret absolute value as distance for a positive or negative quantity in a contextual situation. • Explain a comparison of absolute value from an authentic context.	• Solve realistic problems involving comparisons of rational numbers and statements of absolute value.

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6.NR.4: Solve a variety of contextual problems involving ratios, unit rates, equivalent ratios, percentages, and conversions within measurement systems using proportional reasoning.			
• Create a table of equivalent ratios. • Match a percentage of a quantity to a rate per 100.	• Represent a ratio as the relationship between two quantities by using ratio language. • Determine the missing value in a ratio table and plot the pairs of values from the table on the coordinate plane. • Given a table of values or a graph, identify the unit rate. • Find a whole when given a part and a part when given a whole. • Determine what percentage one number is of another number.	• Describe a ratio relationship between two quantities in the context of a realistic problem. • Compare ratios using tables. • Solve problems involving proportions. • Describe the unit rate from a table or graph. • Solve authentic unit rate problems. • Solve authentic problems when given a percentage. • Use ratios to convert within measurement systems (customary and metric) to solve authentic problems.	• Solve authentic complex problems involving ratios, proportions, rates, unit rates, percentages, and conversions within a measurement system, using tables and graphs, and explain the solutions in context.
6.GSR.5: Solve relevant problems involving area, surface area, and volume.			
• Given a visual model, find the area of a triangle.	• Given a visual model, find the area of a polygon by composing or decomposing it into rectangles and/or triangles. • Given the net of a rectangular prism, determine the surface area of the figure. • Given a visual model, calculate the volume of a right rectangular prism with fractional edge lengths.	• Solve authentic problems involving the areas of polygons composed of rectangles and triangles. • Given the net of a three-dimensional figure with rectangular and/or triangular faces, determine the surface area of the figure. • Solve authentic problems involving the volumes of right rectangular prisms with fractional edge lengths.	• Solve authentic complex or multi-step problems involving the areas of triangles and rectangles and the surface areas and volumes of three-dimensional figures with triangular or rectangular faces.

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6.PAR.6: Identify, write, evaluate, and interpret numerical and algebraic expressions as mathematical models to explain authentic situations.			
• Write numerical exponential expressions with rational bases and whole-number exponents. • Identify factors and multiples of a number. • Identify parts of an expression as a sum, difference, term, product, factor, quotient, coefficient, variable, or constant. • Identify an equivalent expression by combining like terms.	• Evaluate exponential expressions with positive integer bases and whole-number exponents. • Find the least common multiple of two numbers less than 12 and the greatest common factor of two numbers less than 100. • Create an algebraic expression from the word form of the expression. • Evaluate an algebraic expression when given the value of a variable. • Identify an equivalent expression by using the distributive property.	• Evaluate exponential expressions with rational bases and whole-number exponents. • Find the least common multiple and the greatest common factor of two numbers to solve realistic problems. • Create an algebraic expression that describes a realistic problem. • Solve a realistic problem by evaluating an expression when given the value of a variable. • Create an equivalent expression by combining like terms and using the distributive property.	• Solve authentic complex problems involving exponential and algebraic expressions, least common multiples, and greatest common factors.
6.PAR.7: Write and solve one-step equations and inequalities as mathematical models to explain authentic, realistic situations.			
• Use substitution to determine whether a given value for a variable is a solution to an equation.	• Use substitution to determine whether a given value for a variable is a solution to an inequality. • Write a one-step, one-variable equation to represent a realistic problem. • Solve mathematical problems of the form $x \pm p = q$, $px = q$, and $x/p = q$. • Match an inequality of the form $x > c$, $x \geq c$, $x < c$, or $x \leq c$ to a solution graphed on a number line.	• Write a one-step, one-variable inequality to represent a realistic problem. • Solve real-life problems that can be modeled by equations of the form $x \pm p = q$, $px = q$, and $x/p = q$. • Describe the solution to a realistic problem that can be modeled by an inequality in the form $x > c$, $x \geq c$, $x < c$, or $x \leq c$ in the context of the problem.	• Create and solve one-step equations and inequalities and describe the solutions in the context of the problems.

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6.PAR.8: Graph rational numbers as points on the coordinate plane to represent and solve contextual, mathematical problems; draw polygons using the coordinates for their vertices and find the length of a side of a polygon.			
• Plot an integer on a horizontal or vertical number line. • Given a coordinate plane, identify the coordinates of a plotted point.	• Plot a rational number on a horizontal or vertical number line. • Identify the quadrant of an ordered pair. • Solve problems by graphing points in the coordinate plane. • Draw polygons in the coordinate plane when given the coordinates for the vertices.	• Plot an ordered pair made up of rational numbers in the coordinate plane. • Explain that when two ordered pairs differ only by signs, the locations of the points are reflections across one or both axes. • Solve problems by finding the distance between points with the same *x*-coordinate or the same *y*-coordinate. • Determine the side lengths of polygons in the coordinate plane where two ordered pairs have the same *x*-coordinate or *y*-coordinate.	• Solve relevant problems involving points in the coordinate plane by drawing polygons in the coordinate plane and determining distances between points that have the same *x*-coordinate or *y*-coordinate.

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