

# GLENCOE CORRELATION

## *Pre-Algebra: An Integrated Transition to Algebra and Geometry*

### GEORGIA

#### Quality Core Curriculum Mathematics—Pre-Algebra

| Course Content Standard   | Lesson References   |
|---|---|
| <p><b>1</b> Solves problems, reasons, and estimates throughout mathematics:</p> <ul style="list-style-type: none"><li>-Selects and uses problem-solving strategies such as reading the problem, drawing a picture or diagram, using trial and error, making a table or chart, looking for patterns, making a simpler problem and then generalizing, and working backwards, etc.</li><li>-Selects and uses appropriate tools (such as mental computation, calculators, manipulative materials, paper and pencil, computer) in solving problems.</li><li>-Uses estimations to check the reasonableness of results.</li><li>-Solves nonroutine problems for which the answer is not obvious.</li><li>-Relates concepts and skills to practical applications.</li></ul> | 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 1-10, 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8, 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 5-1, 5-2, 5-3, 5-4, 5-5, 5-6, 5-7, 5-8, 5-9, 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, 6-8, 6-9, 7-1, 7-2, 7-3, 7-4, 7-5, 7-6, 7-7, 7-8, 8-1, 8-2, 8-3, 8-4, 8-5, 8-6, 8-7, 8-8, 8-9, 9-1, 9-2, 9-3, 9-4, 9-5, 9-6, 9-7, 9-8, 9-9, 9-10, 10-1, 10-2, 10-3, 10-4, 10-5, 10-6, 10-7, 10-8, 10-9, 10-10, 11-1, 11-2, 11-3, 11-4, 11-5, 11-6, 11-7, 11-8, 11-9, 12-1, 12-2, 12-3, 12-4, 12-5, 12-6, 12-7, 12-8, 13-1, 13-2, 13-3, 13-4, 13-5, 13-6, 13-7, 14-1, 14-2, 14-3, 14-4, 14-5 |
| <p><b>2</b> Selects and uses appropriate estimation, strategies such as rounding, truncating, adjusting, compensation, compatible numbers, clustering, and reference point, and recognizes situations in which estimates are more appropriate than exact numbers.</p>   | 1-1, 3-8, 5-2, 5-5, 6-2, 6-5  |
| <p><b>3</b> Selects and uses appropriate mental computational strategies such as multiples of ten, multiples of one tenth, and powers of ten.</p>   | 4-8, 7-8  |
| <p><b>4</b> Expresses, orders, and categorizes rational numbers in various forms, such as fractions, decimals, percent, and scientific notation, using tools such as calculators and number lines.</p>  | 2-3, 5-1, 6-1, 6-9, 9-7   |

| <b>Course Content Standard</b>   | <b>Lesson References</b>   |
|--|--|
| 5 Recalls from memory decimal and percent equivalents of common simple fractions (halves, thirds, fourths, fifths, sixths, eighths, and tenths).                                       | 6-1, 9-8, 9-7  |
| 6 Uses the appropriate equivalent forms of rational numbers to solve problems involving fractions, decimals, or percent.   | 6-1, 6-9, 9-7, 9-9, 9-10   |
| 7 Selects appropriate units to measure length (including perimeter and circumference), area, volume/capacity, weight/mass, time, and temperature in both customary and metric systems. | 3-4, 3-5, 6-3, 8-5, 12-1, 12-2, 12-3, 12-4, 12-5, 12-6, 12-7, 12-8 |
| 8 Estimates, measures, and solves problems in both customary and metric systems.   | 3-4, 3-5, 6-3, 8-5, 12-1, 12-2, 12-3, 12-4, 12-5, 12-6, 12-7, 12-8 |
| 9 Selects appropriate measuring instruments and measures accurately length, volume/capacity, weight/mass, time, temperature, and angles.   | 11-1, 11-2, 11-3   |
| 10 Measures and classifies angles as right, acute, or obtuse.  | 11-1, 11-3   |
| 11 Classifies triangles as right, acute, or obtuse by their angle measures and as scalene, isosceles, or equilateral by their side measures.   | 11-4   |
| 12 Uses square units to determine the area of two-dimensional geometric figures, without using formulas.   | 3-5, 12-1, 12-3  |
| 13 Uses cubic units to determine the volume of three-dimensional figures, without using formulas.  | 12-8   |
| 14 Changes from one unit of measurement to another within the same measurement system.   | 7-8  |

| <b>Course Content Standard</b>  | <b>Lesson References</b>  |
|---|---|
| 15 Uses order of operations (with and without grouping symbols) to find the value of a numerical expression, selecting and using appropriate tools such as mental computation and calculators.  | 1-2   |
| 16 Translates words into simple numerical and algebraic expressions and equations, and translates expressions and equations into words.   | 1-3, 1-8, 3-8, 5-6, 7-2, 7-3, 9-9   |
| 17 Evaluates expressions involving variables.   | 2-7, 4-9, 6-3, 6-4  |
| 18 Substitutes known values in formulas, with and without grouping symbols, and solves problems involving formulas.   | 3-4, 3-5, 8-6, 12-1, 12-2, 12-3, 12-4, 12-5, 12-6, 12-7, 12-8, 13-3, 13-4 |
| 19 Graphs simple and compound inequalities on a number line.  | 3-6, 3-7, 6-7, 7-6  |
| 20 Identifies physical and symbolic representations of geometric figures, such as points, lines, planes, line segments, polygons, vertices, rays, sides, angles, and diagonals.   | 11-1, 11-3, 11-8, 13-7  |
| 21 Models the concept of addition (as putting together and shifting or sliding) using physical materials and pictorial and algebraic representations, including rational numbers on the number line, angles and line segments and their measures, and rotations of geometric figures. | 1-3, 1-6, 1-8, 2-4, 3-2, 3-6, 5-3, 5-4, 11-9, 14-2                        |
| 22 Relates rational numbers on the number line to the concept of absolute value and the perimeter of a polygon.   | 3-5, 11-8   |
| 23 Adds, subtracts, multiplies, and divides all forms of rational numbers.  | 1-2, 2-4, 2-5, 2-7, 2-8, 5-3, 5-4, 5-5, 6-3, 6-4, 6-5                     |
| 24 Recognizes, describes, and applies certain patterns for addition, such as commutative, associative, identity and inverse properties, and the addition property of equality.  | 1-4, 1-5  |

| Course Content Standard  | Lesson References   |
|--|---|
| 25 Solves equations and applied problems with the form $x + a = b$ , $x - a = b$ , and $a - x = b$ .   | 1-8, 3-2, 5-6   |
| 26 Models the concept of subtraction (as taking apart, shifting or sliding, and comparing) using physical materials and pictorial and algebraic representations, including rational numbers on the number line, and angles and line segments and their measures.   | 1-8, 3-2, 5-6, 14-3   |
| 27 Identifies physical and symbolic representations of vertical, supplementary, complementary, and straight angles; parallel and perpendicular lines; transversals; and special quadrilaterals (parallelogram, rectangle, rhombus, square); and uses these geometric figures, properties, and relations to solve problems. | 11-3, 11-7, 12-1  |
| 28 Solves problems using the property that the sum of the measures of the angles in a triangle is 180 degrees.   | 11-4, 11-8  |
| 29 Collects and organizes information or data by classifying or identifying patterns, and organizes data into tables, charts, and graphs.  | 1-10, 6-6, 8-2, 8-5, 10-1, 10-2, 10-3                               |
| 30 Graphs points in the coordinate plane, identifies coordinates of points, graphs linear equations, and solves problems using these concepts.   | 1-7, 2-2, 8-3, 8-4, 8-5, 8-6, 8-7, 8-8                              |
| 31 Reads and interprets tables, charts, graphs, (bar, circle, line, and coordinate) and diagrams.  | 1-1, 1-7, 4-3, 6-6, 8-2, 8-5, 8-6, 8-7, 8-8, 10-3, 10-4, 10-5, 11-2 |
| 32 Identifies congruent figures (images and preimages) formed by translating, rotating, or reflecting geometric figures.   | 11-5, 11-9  |
| 33 Identifies line and rotational symmetries.  | 11-9  |
| 34 Models the concept of multiplication (as area/volume, array, size change, rate factor, and repeated addition) using physical models and pictorial and algebraic representations.  | 3-3, 3-5, 6-7, 12-1   |

| Course Content Standard   | Lesson References                 |
|---|-----------------------------------|
| 35 Recognizes, describes, and applies certain patterns for multiplication such as commutative, associative, identity, and inverse properties; the property of zero; and the multiplication property of equality.                    | 1-4, 3-3, 6-7                     |
| 36 Uses multiplication to determine area of rectangles, surface area and volume of rectangular solids, and similarity of geometric figures in a coordinate plane.   | 3-5, 11-6, 12-5, 12-7             |
| 37 Solves equations and applies problems of the form $ax = b$ and $ax + b = c$ , $ax + b = cx + d$ , $\frac{x}{a} = b$ and $\frac{x}{a} + b = c$ .  | 1-6, 1-8, 3-3, 6-7                |
| 38 Applies the distributive property of multiplication over addition, of the form $a(b + c) = ab + ac$ and $ab + ac = a(b + c)$ .   | 1-5                               |
| 39 Models the concept of division (as rate, ratio comparison, and missing factors) using physical models and pictorial and algebraic representations.   | 9-1, 9-3, 13-6, 13-7              |
| 40 Solves proportions, including using the means-extremes property.   | 9-4, 9-5, 11-6                    |
| 41 Writes and solves problems involving rate, ratio, and proportion, such as situations involving corresponding sides of similar figures, scale drawing, unit cost, distance-rate-time, relative frequency, and simple probability. | 3-4, 4-6, 9-1, 9-3, 9-4, 9-5, 9-6 |
| 42 Calculates the area of polygons and solves problems involving such areas.  | 12-1                              |
| 43 Estimates and determines exact or approximate values of the square root of a number.   | 13-1, 13-3                        |
| 44 Applies the Pythagorean Theorem and its converse in problem-solving situations.  | 13-4                              |
| 45 Calculates the area and circumference of a given circle and solves problems involving area or circumference.   | 7-4, 11-2, 12-2                   |

| <b>Course Content Standard</b>  | <b>Lesson References</b>            |
|---|-------------------------------------|
| 46 Calculates the volume and surface area of pyramids, cylinders, cones, and spheres and solves problems involving volume and surface area.                       | 12-5, 12-6, 12-7, 12-8              |
| 47 Summarizes data in various ways, including mean, median, mode, and range.  | 6-6, 10-2, 10-4                     |
| 48 Identifies possible outcomes of simple experiments and predicts or describes the probability of a given event expressed as a rational number from 0 through 1. | 10-5, 10-6, 10-7                    |
| 49 Differentiates between odds and probability and determines the odds of an event.   | 10-5, 10-6, 10-7                    |
| 50 Conducts and interprets a compound probability experiment.   | 10-5, 10-6, 10-7, 10-8, 10-9, 10-10 |
| 51 Solves practical problems using percents (e.g., sales tax, sales price and commission, discounts).   | 9-9, 9-10                           |