Alabama Course of Study, Grade 8, Correlated to *Mathematics: Applications and Concepts,* Course 3

Alabama Course of Study, Grade 8	Student Edition Lesson
Number and Operations (NO)	
1-0. Use various strategies and operations to solve problems involving real numbers.	
1-1. Use alternative representations of rational numbers.	2-1, 5-1, 5-2, 5-5
1-2. Apply GCF, LCM, and prime and composite numbers, including justification for the reasonableness of results, when working with rational numbers.	5-5, Prerequisite Skills pp. 609, 610, and 612
1-3. Apply proportional reasoning.	4-4, 4-5, 4-6, 4-7, 4-8, 5-3
1-4. Use vocabulary associated with sets, including *union* and *intersection*.	3-3a
1-5. Determine whether a number is rational or irrational.	3-3
1-6. Demonstrate computational fluency with operations on rational numbers.	2-3, 2-4, 2-5, 2-6
2-0. Simplify expressions containing natural number exponents by applying one or more of the laws of exponents.	2-8, 12-6, 12-7
2-1. Write numbers using scientific notation.	2-9
3-0. Use order of operations to evaluate and simplify algebraic expressions.	
3-1. Apply the substitution principle.	1-2, 1-3, 1-5, 1-6, 2-3, 2-8
3-2. Apply the properties of operations on rational numbers to evaluate and simplify algebraic expressions.	1-2, 3-3, 7-6, 10-1, 12-3, 12-4, 12-5, 12-7
Algebra (ALG)	
4-0. Graph linear relations by plotting points or by using the slope and y-intercept.	
4-1. Determine slopes and y-intercepts of lines.	4-3, 11-3, 11-5
4-2. Calculate the slope of a linear relation given as a table or graph.	4-3, 11-4
4-3. Exhibit conceptual understanding of various uses of variables.	1-2, 1-7, 4-4, 10-3, 11-2, 11-3
5-0. Solve problems involving linear functions.	
5-1. Identify functions from information in tables, sets or ordered pairs, equations, graphs, and mappings.	11-2, 11-3a
5-2. Determine the rule that defines a function.	11-2, 11-3
5-3. Classify variables in a function as independent or dependent.	11-2
5-4. Classify relations as linear or nonlinear by examining tables, graphs, or simple equations.	12-1
6-0. Solve multistep linear equations, including equations requiring the use of the distributive property.	10-2, 10-3, 10-4a, 10-4

Geometry (GEO)	
7-0. Solve problems using the Pythagorean Theorem.	
7-1. Apply the Triangle Inequality Theorem.	
7-2. Verify the Pythagorean Theorem.	3-4
7-3. Apply the Pythagorean Theorem to determine if a triangle is a right triangle.	3-4
7-4. Apply the Pythagorean Theorem to find the missing length of a side of a right triangle.	3-4, 3-5, 6-3
7-5. Calculate distance on the coordinate plane using the Pythagorean Theorem.	3-6
8-0. Compare quadrilaterals, triangles, and solids, using their properties and characteristics.	
8-1. Develop mathematical arguments about the relationships amongtypes of quadrilaterals and triangles.	6-2, 6-3, 6-4, 6-4b, 6-5a, 7-4a, 7-4
8-2. Identify angle bisectors, perpendicular bisectors, congruent angles, and congruent figures.	6-1, 6-2b, 6-3b, 6-5
8-3. Construct congruent and similar polygons, congruent angles, congruent segments, and parallel and perpendicular lines.	6-1b, 6-2b, 6-3b, 6-5b
Measurement (MEA)	
9-0. Determine the measures of special angle pairs, including adjacent, vertical, supplementary, and complementary angles, and angles formed by parallel lines cut by a transversal.	6-1
10-0. Find the perimeter and area of regular and irregular plane figures.	7-1, 7-2, 7-3, Prerequisite Skills, p. 613
11-0. Determine the surface area and volume of rectangular prisms, cylinders, and pyramids.	
11-1. Estimate surface area and volume of solid figures.	7-5, 7-8b
11-2. Determine the appropriate units of measure to describe surface area and volume.	7-5, 7-7
11-3. Develop formulas for determining surface area and volume of rectangular prisms, cylinders, and pyramids.	7-5, 7-6, 7-7a, 7-7, 7-8, 7-8b
12-0. Determine the lengths of missing sides and measures of angles in similar and congruent figures.	
12-1. Apply proportional reasoning.	4-5, 4-6, 4-7
12-2. Use dilations on the coordinate plane to determine measures of similar figures.	4-8
12-3. Find the ratios of the perimeters and areas of similar triangles, trapezoids, and parallelograms.	4-5, 7-1, 7-8b
Data Analysis and Probability (DAP)	
13-0. Interpret data from populations, using given and collected data.	
13-1. Represent the data with the most appropriate graph, including box-and-whisker plot, circle graph, and scatterplot.	9-1a, 9-1, 9-1b, 9-2, 9-3, 9-3b, 9-6, 9-7, 11-6a, 11-6, 11-6b
13-2. Make predictions by estimating the line of best fit from a scatterplot.	11-6, 11-6b

13-3. Compare data sets involving two populations.	9-1, 9-6, 9-7
13-4. Determine the measure of center that is the most appropriate for a given situation.*	9-4, 9-4b
14-0. Determine the theoretical probability of an event.*	
14-1. Calculate the probability of complementary events and mutually exclusive events.	8-1, 8-2, 8-3, 8-5
14-2. Compare experimental and theoretical probability.	8-6
14-3. Compute the probability of two independent events and two dependent events.	8-5
14-4. Determine the probability of an event through simulation.	8-6b

*Topic covered on Alabama High School Graduation Exam

SAT 10 Objectives are addressed by the Alabama Course of Study Standards that are listed above.