Seventh Grade Mathematics
Mathematics Course Outline

Unit & Content Objectives	*Time*	*Activities & Methods*	*Books & Materials*	*Evaluation Techniques*
Algebraic Expressions and Integers • Students will identify numerical and variable expressions. • Students will write variable expressions. • Students will use the order of operations. • Students will use grouping symbols. • Students will evaluate variable expressions. • Students will solve problems by evaluating expressions. • Students will use rules and models to subtract and add integers. • Students will multiply and divide integers. • Students will name coordinates and quadrants. • Students will graph points on a coordinate plane. • Students will evaluate and understand absolute value expressions.	45 min/day 5 days/wk 2 semesters	• Student Workbooks	• Core Knowledge Teacher Handbook, Grade 7 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra or Saxon Course 3	• Teacher Observation • Homework • Tests • Quizzes

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Area and Volume • Students will find the area of rectangles, parallelograms, triangles, trapezoids, and circles. • Students will identify space figures. • Students will identify space figures by their net. • Students will find the surface and volume area of prisms, cylinders, pyramids, cones, and spheres. • Students will know that the section created by the intersection of a plane and a sphere is a circle. • Students will estimate and compute the area of irregular figures.	45 min/day 5 days/wk 2 semesters	• Student Workbooks	• Core Knowledge Teacher Handbook, Grade 7 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra or Saxon Course 3	• Teacher Observation • Homework • Tests • Quizzes

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Decimals and Equations • Students will round decimals. • Students will estimate sums and differences of decimals. • Students will estimate products and quotients of decimals. • Students will find mean, median, and mode. • Students will choose the best measure of central tendency. • Students will solve equations with decimals in them.	45 min/day 5 days/wk 2 semesters	• Student Workbooks	• Core Knowledge Teacher Handbook, Grade 7 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra or Saxon Course 3	• Teacher Observation • Homework • Tests • Quizzes

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Factors, Fractions, and Exponents • Students will find factors and use divisibility test. • Students will use exponents. • Students will use the order of operations with exponents. • Students will find prime factorizations of numbers and variable expressions. • Students will find the greatest common factor of numbers and variable expressions. • Students will find equivalent fractions. • Students will write fractions in simplest form. • Students will evaluate fractions containing variables. • Students will multiply powers with the same base. • Students will find a power of a power. • Students will divide variable expressions containing exponents. • Students will simplify expressions with integer exponents. • Students will write and evaluate numbers in scientific notation. • Students will use the multiplication properties of exponents.	45 min/day 5 days/wk 2 semesters	• Student Workbooks	• Core Knowledge Teacher Handbook, Grade 7 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra or Saxon Course 3	• Teacher Observation • Homework • Tests • Quizzes

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Geometry • Students will identify adjacent and vertical angles. • Students will relate angles formed by parallel lines and a transversal. • Students will construct parallel lines and a transversal using a straight edge. • Students will determine the image of a various figures under translations, rotations, and reflections.	45 min/day 5 days/wk 2 semesters	• Student Workbooks	• Core Knowledge Teacher Handbook, Grade 7 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra or Saxon Course 3	• Teacher Observation • Homework • Tests • Quizzes

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Linear Functions and Graphing • Students will identify and graph relations and functions. • Students will find solutions of two-variable equations. • Students will graph equations with two variables. • Students will find the slope of a line. • Students will use the slope of a line to graph linear equations. • Students will write linear equations for word problems and tables. • Students will interpret and draw scatter plots. • Students will use scatter plots to find trends. • Students will solve word problems by graphing. • Students will determine the equation for a slope of a line given its slope and intercepts. • Students will find the upper- and lower- quartiles of data.	45 min/day 5 days/wk 2 semesters	• Student Workbooks	• Core Knowledge Teacher Handbook, Grade 7 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra or Saxon Course 3	• Teacher Observation • Homework • Tests • Quizzes

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Polynomials • Students will identify and evaluate polynomials. • Students will add, subtract, and multiply polynomials. • Students will divide polynomials by monomials. • Students will multiply binomials.	45 min/day 5 days/wk 2 semesters	• Student Workbooks	• Core Knowledge Teacher Handbook, Grade 7 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra or Saxon Course 3	• Teacher Observation • Homework • Tests • Quizzes

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Ratios, Proportions, and Percents • Students will write and simplify ratios. • Students will find rates and unit rates. • Students will solve proportions. • Students will use proportions to solve problems. • Students will find probability. • Students will find odds. • Students will find part of a whole and percent. • Students will find markups and discounts. • Students will use similar figures and scale drawings to solve problems. • Students will understand the difference between independent and dependent events. • Students will understand that if the probability of an event occurring is p then, 1-p is the probability of the event not occurring.	45 min/day 5 days/wk 2 semesters	• Student Workbooks	• Core Knowledge Teacher Handbook, Grade 7 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra or Saxon Course 3	• Teacher Observation • Homework • Tests • Quizzes

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Solving Equations and Inequalities • Students will solve two-step equations and inequalities. • Students will solve multi-step equations with fractions and decimals. • Students will solve equations with variables on both sides. • Students will solve formulas for a given variable. • Students will solve simple and compound interest problems.	45 min/day 5 days/wk 2 semesters	• Student Workbooks	• Core Knowledge Teacher Handbook, Grade 7 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra or Saxon Course 3	• Teacher Observation • Homework • Tests • Quizzes

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Solving Equations with Fractions • Students will solve and check one-step equations with fractions. • Students will find powers of products and quotients which contain variables. • Students will solve and check equations with mixed-numbers. • Students will use ratios to convert customary measurements.	45 min/day 5 days/wk 2 semesters	• Student Workbooks	• Core Knowledge Teacher Handbook, Grade 7 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra or Saxon Course 3	• Teacher Observation • Homework • Tests • Quizzes

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Solving One-step Equations and Inequalities • Students will identify and use the commutative, identity, distributive, and associative properties of numbers. • Students will identify parts of variable expressions. • Students will simplify variable expressions. • Students will classify types of equations. • Students will solve and check one-step equations using substitution. • Students will graph inequalities. • Students will write inequalities. • Students will solve and graph one-step inequalities.	45 min/day 5 days/wk 2 semesters	• Student Workbooks	• Core Knowledge Teacher Handbook, Grade 7 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra or Saxon Course 3	• Teacher Observation • Homework • Tests • Quizzes

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Triangles • Students will find square roots. • Students will use the Pythagorean theorem to find missing sides of right triangles and to classify triangles. • Students will use 45-45-90 and 30-60-90 triangles. • Students will identify corresponding parts of a congruent triangle. • Students will identify congruent triangles using side-side-side, side-angle-side, and angle-angle-side. • Students will demonstrate that the angles of a triangle add up to 180 degrees.	45 min/day 5 days/wk 2 semesters	• Student Workbooks	• Core Knowledge Teacher Handbook, Grade 7 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra or Saxon Course 3	• Teacher Observation • Homework • Tests • Quizzes