



Mathematics (*Core - Level: 08*)

Pre-Algebra Course Outline

<i>Unit & Content Objectives</i>	<i>Time</i>	<i>Activities & Methods</i>	<i>Books & Materials</i>	<i>Evaluation Techniques</i>
Exponents and Exponential Functions <ul style="list-style-type: none"> • Students will simplify expressions with zero and negative exponents. • Students will evaluate exponential expressions. • Students will write numbers in scientific and standard notation. • Students will use scientific notation. • Students will multiply powers. • Students will work with scientific notation. • Students will raise a power to a power. • Students will raise a product to a power. • Students will divide powers with the same base. • Students will raise a quotient to a power. • Students will form geometric sequences. • Students will use formulas when describing geometric sequences. • Students will evaluate exponential functions. • Students will graph exponential functions. • Students will model exponential growth. • Students will model exponential decay. 	5 days/wk 45 min/day 2 semesters	<ul style="list-style-type: none"> • Student Workbooks 	<ul style="list-style-type: none"> • Core Knowledge Teacher Handbook, Grade 8 • Holy Bible (NIV) • Prentice Hall Mathematics, Pre-Algebra 	<ul style="list-style-type: none"> • Teacher Observation • Homework • Tests • Quizzes

Eighth Grade Mathematics
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Graphs and Functions <ul style="list-style-type: none"> • Students will interpret, sketch, and analyze graphs. • Students will identify relations and functions. • Students will evaluate functions. • Students will model functions using rules, tables, and graphs. • Students will write function rules using a table. • Students will write equations of a direct variation. • Students will use ratios and proportions with direct variations. • Students will solve inverse variations. • Students will compare direct and inverse variations. • Students will write rules for arithmetic sequences. • Students will use inductive reasoning in continuing number patterns. 	5 days/wk 45 min/day 2 semesters	<ul style="list-style-type: none"> • Student Workbooks 	<ul style="list-style-type: none"> • Core Knowledge Teacher Handbook, Grade 8 • Holy Bible (NIV) • Prentice Hall Mathematics, Pre-Algebra 	<ul style="list-style-type: none"> • Teacher Observation • Homework • Tests • Quizzes

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Area and Volume <ul style="list-style-type: none"> • 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. 	5 days/wk 45 min/day 2 semesters	<ul style="list-style-type: none"> • Student Workbooks 	<ul style="list-style-type: none"> • Core Knowledge Teacher Handbook, Grade 8 • Holy Bible (NIV) • Prentice Hall, Pre-Algebra 	<ul style="list-style-type: none"> • Teacher Observation • Homework • Tests • Quizzes

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Rational Numbers <ul style="list-style-type: none"> • Students will add rational numbers using models and rules. • Students will subtract rational numbers. • Students will multiply rational numbers. • Students will divide rational numbers. • Students will use the Distributive Property. • Students will simplify algebraic equations. • Students will identify properties. • Students will use deductive reasoning. • Students will find theoretical probability. • Students will find experimental probability. • Students will find the probability of independent events. • Students will find the probability of dependent events. 	5 days/wk 45 min/day 2 semesters	<ul style="list-style-type: none"> • Student Workbooks 	<ul style="list-style-type: none"> • Core Knowledge Teacher Handbook, Grade 8 • Holy Bible (NIV) • Prentice Hall Mathematics, Pre-Algebra 	<ul style="list-style-type: none"> • Teacher Observation • Homework • Tests • Quizzes

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Solving Equations <ul style="list-style-type: none"> • Students will solve two-step equations. • Students will use the Distributive Property when combining like terms. • Students will use the Distributive Property when solving equations. • Students will find ratio and rates. • Students will solve proportions. • Students will solve proportions using similar figures. • Students will use scales when measuring indirectly. • Students will define a variable in terms of another variable. • Students will use the distance formula. • Students will find percent of change. • Students will find percent error. • Students will find square roots. • Students will estimate and use square roots. • Students will use the Pythagorean Theorem. • Students will identify right triangles. 	5 days/wk 45 min/day 2 semesters	<ul style="list-style-type: none"> • Student Workbooks 	<ul style="list-style-type: none"> • Core Knowledge Teacher Handbook, Grade 8 • Holy Bible (NIV) • Prentice Hall Mathematics, Pre-Algebra 	<ul style="list-style-type: none"> • Teacher Observation • Homework • Tests • Quizzes

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Solving Inequalities <ul style="list-style-type: none"> • Students will identify solutions of inequalities. • Students will graph and write inequalities. • Students will solve inequalities using addition. • Students will solve inequalities using subtraction. • Students will solve inequalities using multiplication. • Students will solve inequalities using division. • Students will solve multi-step inequalities with variables on one side. • Students will solve multi-step inequalities with variables on both sides. • Students will solve compound inequalities which contain the words 'and' or 'or.' • Students will solve equations that involve absolute value. • Students will solve inequalities that involve absolute value. 	5 days/wk 45 min/day 2 semesters	<ul style="list-style-type: none"> • Student Workbooks 	<ul style="list-style-type: none"> • Core Knowledge Teacher Handbook, Grade 8 • Holy Bible (NIV) • Prentice Hall Mathematics, Pre-Algebra 	<ul style="list-style-type: none"> • Teacher Observation • Homework • Tests • Quizzes

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Systems of Equations and Inequalities <ul style="list-style-type: none"> • Students will solve systems by graphing. • Students will analyze special types of systems. • Students will solve systems using substitution. • Students will solve systems by adding or subtracting. • Students will solve systems by multiplying. • Students will write systems of linear inequalities. • Students will graph linear inequalities. • Students will write and use linear inequalities with real-world situations. • Students will solve systems of linear inequalities by graphing. • Students will model real-world situations using systems of linear inequalities. 	5 days/wk 45 min/day 2 semesters	<ul style="list-style-type: none"> • Student Workbooks 	<ul style="list-style-type: none"> • Core Knowledge Teacher Handbook, Grade 8 • Holy Bible (NIV) • Prentice Hall Mathematics, Pre-Algebra 	<ul style="list-style-type: none"> • Teacher Observation • Homework • Tests • Quizzes

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Variables, Function Patterns, and Graphs <ul style="list-style-type: none"> • Students will model relationships with variables and equations. • Students will simplify and evaluate expressions and formulas. • Students will simplify and evaluate expressions containing grouping symbols. • Students will classify and compare numbers. • Students will write function rules. • Students will understand relationships of quantities in a function. • Students will analyze data using scatter plots. • Students will find central tendency using mean, median, mode, and range. • Students will make, use, and read stem-and-leaf plots. 	5 days/wk 45 min/day 2 semesters	<ul style="list-style-type: none"> • Student Workbooks 	<ul style="list-style-type: none"> • Core Knowledge Teacher Handbook, Grade 8 • Holy Bible (NIV) • Prentice Hall Mathematics, Pre-Algebra 	<ul style="list-style-type: none"> • Teacher Observation • Homework • Tests • Quizzes