Curriculum Guide for Pre-Algebra

Unit 1: Algebra and Integers

2 Weeks

PA: 1, 2, 3, 9

Biblical Worldview Essential Questions

Where did Math originate?
Why is Math possible?
What should we expect as we use Math?
How should we use Math?
What is the purpose of using symbols, notations, and conventions in Math?
What enables us to memorize facts and algorithms?
What are you relying on every time you solve a math problem?

Objectives	Methods	Resources	Assessment
The students will 1. use a four-step plan to solve problems and choose an appropriate method of computation. 2. use order of operations to evaluate expressions and translate verbal phrases into numerical expressions. 3. evaluate expressions containing variables and translate verbal phrases into algebraic expressions. 4. Identify properties of addition and multiplication and simplify algebraic expressions. 5. identify, solve, and translate verbal sentences into equations. 6. Use ordered pairs, tables, and graphs to locate points and represent relations. 7. Construct and interpret scatterplots to investigate relationships between two sets of data.	• teacher lecture • teacher working examples on the board. • teacher showing problems with ELMO. • student guided practice of problems in book • student taking notes. • cooperative learning groups • individual assistance • partner work • worksheets • homework	• Pre-Algebra, Glencoe McGraw-Hill, 2003 • Punchline: Bridge to Algebra, 2009 • Math-Drills.com • Quizizz.com • IXL.com • Posters	• Completion of homework • Board work • Participation in class activities • Answering questions during class work • Quizzes • Mid-chapter test • Chapter test

Curriculum Guide for Pre-Algebra

Unit 2: Algebra and Rational Numbers

3 Weeks

PA: 1, 2, 3, 4, 9

Biblical Worldview Essential Questions

What is the purpose of using symbols, notations, and conventions in Math?
What enables us to memorize facts and algorithms?
What are you relying on every time you solve a math problem?
How will understanding equalities help us better understand how to work with real-life relationships?
How can we see God's faithfulness when we use math properties?

Objectives	Methods	Resources	Assessment
The students will 8. compare and order integers and find the absolute value of an expression. 9. add, subtract, multiply, or divide two or more integers. 10. simplify and evaluate algebraic expressions. 11. find the average of a data set. 12. graph points on a coordinate plane and graph algebraic relationships.	• teacher lecture • teacher working examples on the board. • teacher showing problems with ELMO. • student guided practice of problems in book • student taking notes. • cooperative learning groups • individual assistance • partner work • worksheets • homework	• Pre-Algebra, Glencoe McGraw-Hill, 2003 • Punchline: Bridge to Algebra, 2009 • Math-Drills.com • Quizizz.com • IXL.com • Posters	• Completion of homework • Board work • Participation in class activities • Answering questions during class work • Quizzes • Mid-chapter test • Final test

Curriculum Guide for Pre-Algebra

Unit 3: Equations

3 Weeks

PA: 1, 2, 3, 9

Biblical Worldview Essential Questions

How does math help us better understand God's world?
How do notations help us see that God created a universe more intricate than we can imagine?
How can inequalities help us express things that cannot be equated with anything else, ie God?
Can you name mathematical consistencies that enable you to solve equations that cause you to praise God?
How does God govern creation such that we can manipulate unknowns to confidently solve problems?
How can math be a witnessing tool?

Objectives	Methods	Resources	Assessment
The students will 13. Use Distributive Property to write numerical and algebraic expressions. 14. solve equations using Addition, Subtraction, Multiplication, or Division Properties of Equality. 15. solve and write verbal sentences as two-step equations. 16. solve problems using formulas involving perimeter and area.	• teacher lecture • teacher working examples on the board. • teacher showing problems with ELMO. • student guided practice of problems in book • student taking notes. • cooperative learning groups • individual assistance • partner work • worksheets • homework	• Pre-Algebra, Glencoe McGraw-Hill, 2003 • Punchline: Bridge to Algebra, 2009 • Math-Drills.com • Quizizz.com • IXL.com • Posters	• Completion of homework • Board work • Participation in class activities • Answering questions during class work • Quizzes • Mid-chapter test • Final test

Curriculum Guide for Pre-Algebra

Unit 4: Factors and Fractions

3 Weeks

PA; 1, 2, 3, 4, 9

Biblical Worldview Essential Questions

How do fractions help accurately describe the real-life consistencies God created?
Why do we need different notations to express God's creation?
How can the useful tool of exponents help us to describe God's creation?
Can math be applied such that it leads to inaccurate conclusions that do not honor God?
How does scientific notation remind us of the enormity and complexity of God's creation?
How can we grow exponentially in God's grace?

Objectives	Methods	Resources	Assessment
The students will 17. identify and factor monomials. 18. write and evaluate expressions containing exponents. 19. write the prime factorization of composite numbers. 20. find the (GCF) greatest common factor to simplify fractions. 21. multiply and divide monomials. 22. express, compare, and order numbers written in scientific notation.	• teacher lecture • teacher working examples on the board. • teacher showing problems with ELMO. • student guided practice of problems in book • student taking notes. • cooperative learning groups • individual assistance • partner work • worksheets • homework	• Pre-Algebra, Glencoe McGraw-Hill, 2003 • Punchline: Bridge to Algebra, 2009 • Math-Drills.com • Quizizz.com • IXL.com • Posters	• Completion of homework • Board work • Participation in class activities • Answering questions during class work • Quizzes • Mid-chapter test • Final test

Curriculum Guide for Pre-Algebra

Unit 5: Rational Numbers

3 Weeks

PA: 1, 2, 3, 4, 9

Biblical Worldview Essential Questions

What do these mathematical principles demonstrate about God?
How do these principles demonstrate God's orderliness?
How do these principles demonstrate God's precision?
How can objects be represented to help us understand the variety of God's creation?
How do numerical patterns link us to an infinite God?
How do steps in solving problems reflect God's character in solving life problems?
What are things that can create inequality in the Christian life?

Objectives	Methods	Resources	Assessment
The students will 23. write fractions as terminating or repeating decimals. 24. identify, classify, and write rational numbers as fractions. 25. multiply and divide rational numbers. 26. add and subtract like fractions. 27. find the (LCM) least common multiple of two or more numbers. 28. find the (LCD) least common denominator or two or more fractions. 29. add and subtract unlike fractions. use and analyze mean, median, and mode as measures of central tendency. 30. solve equations containing rational numbers. 31. find the terms of arithmetic and geometric sequences.	• teacher lecture • teacher working examples on the board. • teacher showing problems with ELMO. • student guided practice of problems in book • student taking notes. • cooperative learning groups • individual assistance • partner work • worksheets • homework	• Pre-Algebra, Glencoe McGraw-Hill, 2003 • Punchline: Bridge to Algebra, 2009 • Math-Drills.com • Quizizz.com • IXL.com • Posters	• Completion of homework • Board work • Participation in class activities • Answering questions during class work • Quizzes • Mid-chapter test • Final test

Curriculum Guide for Pre-Algebra

Unit 6: Ratio, Proportion, and Percent

3 Weeks

PA: 1, 2, 3, 5, 8, 9

Biblical Worldview Essential Questions

How does this show math as an integral part of God's creation?
How do these mathematical principles reflect God's spiritual relationships?
How do these mathematical principles reflect God's spiritual processes?
Why do you think order, accuracy, precision, and balance are important to God?
How are these concepts utilized in daily life?
How can we use God's gift of the number system to understand the world and all created things?

Objectives	Methods	Resources	Assessment
The students will 32. write ratios as fractions. 33. solve proportions. 34. use proportions to solve real-world problems. 35. use and construct scale drawings. 36. express percents as decimals and fractions and vice versa. 37. estimate with percents. 38. solve real-world problems using percents. 39. find percent of increase or decrease. 40. find the probability of simple events.	• teacher lecture • teacher working examples on the board. • teacher showing problems with ELMO. • student guided practice of problems in book • student taking notes. • cooperative learning groups • individual assistance • partner work • worksheets • homework	• Pre-Algebra, Glencoe McGraw-Hill, 2003 • Punchline: Bridge to Algebra, 2009 • Math-Drills.com • Quizizz.com • IXL.com • Posters	• Completion of homework • Board work • Participation in class activities • Answering questions during class work • Quizzes • Mid-chapter test • Final test

Curriculum Guide for Pre-Algebra

Unit 7: Linear Equations, Inequalities, and Functions

2½ Weeks

PA: 1, 2, 3, 4, 9

Biblical Worldview Essential Questions

How does this show math as an integral part of God's creation?
How do these mathematical principles reflect God's spiritual relationships?
How do these mathematical principles reflect God's spiritual processes?
Why do you think order, accuracy, precision, and balance are important to God?
How are these concepts utilized in daily life?
How can we use God's gift of the number system to understand the world and all created things?

Objectives	Methods	Resources	Assessment
The students will 41. solve equations with variables on each side. 42. solve equations that involve grouping symbols. 43. write and graph inequalities. 44. solve inequalities using Addition and Subtraction Properties of Inequalities. 45. solve inequalities by multiplying or dividing by positive or negative numbers. 46. solve inequalities that involve more than one operation.	• teacher lecture • teacher working examples on the board. • teacher showing problems with ELMO. • student guided practice of problems in book • student taking notes. • cooperative learning groups • individual assistance • partner work • worksheets • homework	• Pre-Algebra, Glencoe McGraw-Hill, 2003 • Punchline: Bridge to Algebra, 2009 • Math-Drills.com • Quizizz.com • IXL.com • Posters	• Completion of homework • Board work • Participation in class activities • Answering questions during class work • Quizzes • Mid-chapter test • Final test

Curriculum Guide for Pre-Algebra

Unit 8: Functions and Graphing

4 Weeks

PA: 1, 2, 6, 9

Biblical Worldview Essential Questions

What do mathematical principles demonstrate about God?
How do numerical patterns link us to an infinite God?
How can objects be represented to help us understand the variety of God's creation?
What do these concepts indicate about God's order?
How do these concepts demonstrate God's constancy?
How can slope compare with our relationship with God?

Objectives	Methods	Resources	Assessment
The students will 47. identify and use functions to describe relationships between quantities. 48. solve and graph linear equations. 49. find the slope of a line. 50. solve problems involving direct variation. 51. graph linear equations using slope and y-intercept. 52. draw best-fit lines for sets of data and make predictions. 53. solve linear equations by substitution. 54. graph and describe solutions of linear equations.	• teacher lecture • teacher working examples on the board. • teacher showing problems with ELMO. • student guided practice of problems in book • student taking notes. • cooperative learning groups • individual assistance • partner work • worksheets • homework	• Pre-Algebra, Glencoe McGraw-Hill, 2009 • Punchline: Bridge to Algebra, 2009 • Math-Drills.com • Quizizz.com • IXL.com • Posters	• Completion of homework • Board work • Participation in class activities • Answering questions during class work • Quizzes • Mid-chapter test • Final test

Curriculum Guide for Pre-Algebra

Unit 9: Real Numbers and Right Triangles

3 weeks

PA: 1, 2, 3, 7, 9

Biblical Worldview Essential Questions

What geometric shapes do you see in nature?
How does geometry reveal God?
Are shapes in nature purposeful?
How does the study of geometrical principles help us to better understand God's creation?
How does man use shapes?
How is symmetry reflected throughout God's creation?

Objectives	Methods	Resources	Assessment
The students will 55. find squares and square roots. 56. solve equations by finding square roots. 57. measure, draw, and classify acute, right, obtuse, or straight angles. 58. use the Pythagorean Theorem. 59. use the Distance Formula. 60. use the Midpoint Formula. 61. identify corresponding parts and missing measures of similar triangles. 62. find sine, cosine, and tangent ratios.	• teacher lecture • teacher working examples on the board. • teacher showing problems with ELMO. • student guided practice of problems in book • student taking notes. • cooperative learning groups • individual assistance • partner work • worksheets • homework	• Pre-Algebra, Glencoe McGraw-Hill, 2003 • Punchline: Bridge to Algebra, 2009 • Math-Drills.com • Quizizz.com • IXL.com • Posters	• Completion of homework • Board work • Participation in class activities • Answering questions during class work • Quizzes • Mid-chapter test • Final test

Curriculum Guide for Pre-Algebra

Unit 10: Two-Dimensional Figures

3 Weeks

PA: 1, 2, 7, 9

Biblical Worldview Essential Questions

What does this reveal about God?
How does measurement help us fulfill God's plan?
What do the attributes of measurement reveal about God?
How can we show honor to God by being faithful and accurate in our measurements?
How do shapes and their parts help us appreciate God's creation?

Objectives	Methods	Resources	Assessment
The students will 63. identify relationships of vertical, adjacent, complementary, and supplementary angles. 64. identify congruent triangles and corresponding parts. 65. draw translations, rotations, and reflections on a coordinate plane. 66. classify and find missing angles of quadrilaterals. 67. find area of parallelograms, triangles, and trapezoids. 68. classify polygons. 69. find circumference and area of circles. 70. find area of irregular figures.	• teacher lecture • teacher working examples on the board. • teacher showing problems with ELMO. • student guided practice of problems in book • student taking notes. • cooperative learning groups • individual assistance • partner work • worksheets • homework	• Pre-Algebra, Glencoe McGraw-Hill, 2003 • Punchline: Bridge to Algebra, 2009 • Math-Drills.com • Quizizz.com • IXL.com • Posters	• Completion of homework • Board work • Participation in class activities • Answering questions during class work • Quizzes • Mid-chapter test • Final test

Curriculum Guide for Pre-Algebra

Unit 11: Three-Dimensional Figures

2 Weeks

PA: 1, 2, 5, 9

Biblical Worldview Essential Questions

How is Math being misused or abused?
What do numbers represent and how do they help us order things in God's world?
How can objects be represented to help us understand the variety of God's creation?
How can we quantify our findings in a way that pleases God?
How can change be represented mathematically?
How are patterns used to make discoveries about God's creation/world?

Objectives	Methods	Resources	Assessment
The students will 71. identify three-dimensional figures. 72. find volumes of prisms, pyramids, cones, and circular cylinders. 73. find surface areas of pyramids and cones. 74. identify and solve problems involving solids. 75. describe measurements using precision and significant digits.	• teacher lecture • teacher working examples on the board. • teacher showing problems with ELMO. • student guided practice of problems in book • student taking notes. • cooperative learning groups • individual assistance • partner work • worksheets • homework	• Pre-Algebra, Glencoe McGraw-Hill, 2003 • Punchline: Bridge to Algebra, 2009 • Math-Drills.com • Quizizz.com • IXL.com • Posters	• Completion of homework • Board work • Participation in class activities • Answering questions during class work • Quizzes • Mid-chapter test • Final test

Curriculum Guide for Pre-Algebra

Unit 12: More Statistics and Probability

2 Weeks

PA: 1, 2, 3, 9

Biblical Worldview Essential Questions

What do these mathematical principles demonstrate about God?
How do these principles demonstrate God's orderliness?
How do these principles demonstrate God's precision?
How can objects be represented to help us understand the variety of God's creation?
How does this concept reflect God's dependability?

Objectives	Methods	Resources	Assessment
The students will 76. display and interpret stem-and-leaf-plots. 77. find and use measures of variation. 78. display and interpret data in box-and-whisker plots. 79. display and interpret histograms. 80. recognize misleading statistics. 81. find the odds of a simple event. 82. find the probability of independent and dependent events.	• teacher lecture • teacher working examples on the board. • teacher showing problems with ELMO. • student guided practice of problems in book • student taking notes. • cooperative learning groups • individual assistance • partner work • worksheets • homework	• Pre-Algebra, Glencoe McGraw-Hill, 2003 • Punchline: Bridge to Algebra, 2009 • Math-Drills.com • Quizizz.com • IXL.com • Posters	• Completion of homework • Board work • Participation in class activities • Answering questions during class work • Quizzes • Mid-chapter test • Final test