Lesson Titles/Descriptions:

Lesson 1 – The Power of Algebra – Offers a basic overview of algebra and its components, and reviews the commutative, associative, and distributive properties for addition and multiplication.

Lesson 2 - Polynomials – Introduces the basic terminology of polynomials, the procedures for simplifying a polynomial, and methods for adding, subtracting, and multiplying polynomials.

Lesson 3 – Solving and Graphing Equations – Demonstrates the four problem-solving techniques - Verbal, symbolic, numeric, and graphic.

Lesson 4 – Linear Equations – Reviews the general strategy for solving linear equations and introduces formulas for solving word problems involving consecutive integers.

Lesson 5 – Solving by Factoring – Introduces the rate-time-distance formula and describes some common strategies for solving applied problems involving rates and times.

Lesson 6 – Inequalities and Absolute Values – Explains and demonstrates how to formulate and solve linear inequalities.

Lesson 7 – Graphs of Equations and Functions – Explains the Cartesian coordinate system and introduces the intercept method for graphing linear equations.

Lesson 8 – Systems of Equations – Describes systems of linear equations and their solution through substitution or elimination method.

Lesson 9 – Graphing Inequalities – Illustrates the steps of graphing a linear inequality in the plane.

Lesson 10 – Introduction to Quadratic Equations – Introduces the standard form of a quadratic equation, reviews square root properties, and demonstrates the solution of quadratic equations.

Lesson 11 – The Quadratic Formula – Shows how to derive a general formula that can be used to solve any quadratic equation and explores various real-world applications.
Lesson 12 – Graphing Quadratic Equations – Presents three methods for graphing a quadratic equation in two variables: plotting points using a table of values, finding the vertex and the intercepts, and applying geometric transformations.

Lesson 13 – Rational Expressions – Explains the procedures for working with fractions involving polynomials.

Lesson 14 – The Algebra of Functions – Illustrates the different ways that functions can be specified: by a table, a set of ordered pairs, a graph, or an equation.

Lesson 15 – Graphing Functions – Includes examples of how to graph linear, quadratic, and higher degree functions.

Lesson 16 – Exponents and Radical Expressions – Explains how exponents help students manage very large numbers and very small numbers using scientific notation.

Lesson 17 – Exponential Functions – Discusses mathematical models of exponential growth and decay.

Lesson 18 – Logarithmic Functions – Demonstrates how logarithms can be used to solve for an unknown that appears in an exponent.

Lesson 19 – Properties of Logarithms – Introduces the five key properties of logarithms, which are derived from the properties of exponents.

Lesson 20 – Exponential and Logarithmic Equations – Reviews the properties and methods used in solving exponential and logarithmic equations.

Lesson 21 – Systems of Linear Equations and Matrices – Teaches students how to solve sets of three equations in three unknowns using linear equations and matrices.

Lesson 22 – Operations on Matrices – Introduces the algebraic operations on matrices.

Lesson 23 – Conic Sections – Defines the properties and graphs of the many shapes-circles, ellipses, parabolas, and hyperbolas-that originate as sections of a cone.

Lesson 24 – Sequences and Series – Offers and overview of numerical sequences and the sum of their terms, known as series.


Lesson 26 – Permutations, Combinations & Probability – Explains the calculation of probability using permutations and combinations.