FOUNDATIONS FOR ALGEBRA YEAR 1 (FFA 1)—THE BIG PICTURE

- Concepts are based on memorable activities or concrete models so more students will be successful. For example the integer arithmetic is introduced with a concrete model, integer tiles, and practiced in game formats before moving to the abstract.
- The first five chapters cover:
    - Addition, multiplication and subtraction of integers.
    - Central tendency, mean, mode, median, and stem-and-leaf plots.
    - Setting up a complete graph and scaling axes.
    - Coordinate graphing.
    - Variables and solving two step algebraic equations.
    - Absolute value.
    - Using Guess and Check to solve word problems.
    - Fraction, decimal, percent conversion.
    - Simplifying expressions using the order of operations.
    - Basic geometric vocabulary.
    - Area of rectangles, parallelograms, triangles, and trapezoids.
    - Geometric model for multiplication.
    - Use of subproblems to solve more complex area problems.
    - Equivalent fractions using fraction bars, rulers, grids, and ratio tables.
    - Identity Property of Multiplication (seen as a "Giant 1").
    - Solving proportions, unit costs, and unit rates using a ratio tables.
- Chapters six through 10 cover:
    - Setting up proportions and solving using cross multiplication in real life applications including currency conversion, distance rate and time, percent, sale price, discount, similar figure, and scale drawings.
    - Least common multiples.
    - Changing fractions to decimals using long division.
    - Calculate probability of complementary events.
    - Division of integers.
    - Fraction and decimal arithmetic.
    - Geometric angle concepts.
    - Classifying triangles.
    - Combining like terms.
    - Number properties including the Distributive property, commutative property, associative Property and Identity Property.
    - Circumference and area of circles.
    - Volumes of prisms and cylinders.
    - Surface area.
    - Experimental and theoretical probability.
    - Sampling techniques, bias in polls, analyzing the validity of claims, and correlation versus causation.
- Each chapter includes mental math and reviews the concepts developed previously. All chapters contain a culminating big problem or summary activity to tie together and/or possibly extend the concepts.

FOUNDATIONS FOR ALGEBRA YEAR 2 (FFA 2)—THE BIG PICTURE

- Concepts are based on memorable activities or concrete models so more students will be successful. For example multiplication and factoring of polynomials are introduced with a concrete model, algebra tiles, before moving to the abstract.
- The first five chapters cover:
    - Data display and interpretation using scatter plots, line graphs, bar graphs, stem-and-leaf plots, and box-and-whisker plots.
    - Guess and Check tables solve word problems.
    - Measures of central tendency.
    - Graphing ordered pairs, lines and parabolas.
    - Patterns and rules in tables.
    - Arithmetic of integers.
    - Probability.
    - Arithmetic of fractions.
    - Fraction decimal percent conversion.
    - Order of Operations.
    - Writing algebraic expressions and equations from Guess and Check tables and word problems.
    - Distributive Property and factoring using algebra tiles.
    - Combining like terms.
    - Solving equations using inverse operations with the Cover-up method and with balances and substitution.
    - Solving systems of equations to find the point of intersection.
- Chapters six through 10 cover:
    - Writing and simplifying ratios and proportions.
    - Area of parallelograms, triangles, trapezoid, and circles.
    - Reducing and enlarging figures.
    - Division of fractions.
    - Solving equations with fractional coefficients.
    - Formulas to solve simple and compound interest problems.
    - Markup amounts, selling prices, discounts, sale price and percent of increase or decrease.
    - Distance rate, and time.
    - Writing formulas.
    - Solving literal equations.
    - Pythagorean Theorem.
    - Square roots of square numbers and estimating square numbers.
    - Nets of 2-dimensional drawings for 3-dimensional models.
    - Volume and surface area of cylinders and prisms.
    - Subproblems to break a complex problem into smaller parts.
    - Slopes triangles, rate of change and equations of lines.
    - Line of Best Fit
    - Inequalities
    - Exponential growth.
    - Volume of a cone.
    - Laws of Exponents.
    - Scientific Notation.
- Each chapter includes mental math and reviews the concepts developed previously. All chapters contain a culminating big problem or summary activity to tie together and/or possibly extend the concepts.