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# Pre-Algebra Syllabus

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- 1) Negative Numbers
  - a) Additive Identity and Absolute Value
  - b) Numberline addition and subtraction
  - c) Estimation and Rounding Integers; Inequalities and Ordering Integers
    - i) Activity - Geography Long Jump
  - d) Adding integers with the same and different signs
  - e) Subtracting integers with the same and different signs
  - f) Addition and Subtraction of Like Terms
  - g) Multiplication Properties and Patterns, Factors and Area
    - i) Activity - Multiplying Two Negative Integers with Fraction Bars
  - h) Multiplication of Positive and Negative Numbers and Expressions
  - i) Division of Positive and Negative Numbers and Expressions
  - j) Distributive Property with Variables
  - k) Order of Operations
    - i) Activity - Skyview
  - l) Review and Unit Test
- 2) Exponents and Factoring
  - a) Patterns of Multiplication
  - b) Distributive Law and Generalization - Multiplication as Repeated Addition
  - c) A New Operation - Exponentiation
    - i) Activity – The Fibonacci Bunny
  - d) Vocabulary, Variables, and the Additive Property of Exponent Multiplication
  - e) Subtractive Property and Zero Exponents
  - f) Sequences, Patterns and Generalizations
  - g) Divisibility: 1, 2,5,10, and then 3, 4, 7, 8, 9
    - i) Activity: Finding the Sum of the Exterior and Interior Angles of a Polygon
  - h) Factors, Factoring and Prime Factorization
  - i) GCF and LCM: Greatest Common Factor and Lowest Common Multiple
  - j) Formulas with exponents
  - k) Raising Powers and Multiplying Variables with Coefficients
    - i) Activity – Sieve of Eratosthenes
  - l) Review and Unit Test

## Pre-Algebra Syllabus

- 3) Fractions
  - a) Introduction to Fractions a.k.a. Rational Numbers
  - b) Multiplying by a Whole Number; Multiplying by a Fraction
  - c) Simplest form; Simplifying products
    - i) Activity – Fraction Equalities and Inequalities
  - d) Dividing Fractions
  - e) Equations and Evaluating Formulas
  - f) Adding and Subtracting Fractions; Fractions with the Same Denominator
  - g) Fractions with Unlike Denominators
    - i) Activity - Tony's Tiger BITES
  - h) Addition and Subtraction of All Fractions
  - i) Mixed Numbers
  - j) Regrouping to Subtract
  - k) Equations with Fractions and Generalized Operations
    - i) Activity – Draining the Swimming Pool
  - l) Review and Unit Test
- 4) Decimals and Percents
  - a) Ordering Decimals
  - b) Changing forms: Fractions to Decimals, Rounding
  - c) Adding and Subtracting Decimals
    - i) Activity - Decimals & Percents – Junk Food Math
  - d) Multiply Decimals
  - e) Working with Money at a Store
  - f) Evaluating Formulas; Scientific Notation
  - g) Dividing Decimals
    - i) Activity - Density
  - h) Equations, One Step with Decimals
  - i) Percents to Decimals to Fractions
  - j) Three Types of Percent Problems
  - k) Commission and Discount
    - i) Activity – Saving for a Rainy Day
  - l) Review and Unit Test

## *Pre-Algebra Syllabus*

- 5) Rate, Ratio, and Relationships
  - a) Ratios – Comparing Quantities
  - b) Comparing Rates; Unit Rates
  - c) Unit Price and Average Speed
    - i) Activity – “How to Measure a Chair”
  - d) Proportions
  - e) Applying Proportions
  - f) Rate Schedules and Map Scales
  - g) Circle Graphs
    - i) Activity - Similarity
  - h) Similar Triangles
  - i) Trigonometric Ratios
  - j) Probability for Simple Events
  - k) Counting Principles for Compound Events
    - i) Activity: “Measurement of Volume”
  - l) Review and Unit Test
- A) Extended Activities
  - m) Algebraic Addition
  - n) Rules of Sign Change
  - o) Positive-Negative Charge Model For Integers
  - p) History Of Our Solar System on a Time Line
  - q) Measurement: What is it?
  - r) Number Patterns in Pascal's Triangle