

**Department:** Mathematics  
**Course Name:** Pre-Algebra

**Course Description:**

The Pre-Algebra course begins the transition from an arithmetic to an algebraic approach to mathematics, facilitating the changes needed in order to study higher math. Students fine tune their skills in the basic operations with whole numbers, decimals, fractions, and percentages while being taught the algebraic processes behind these skills. Emphasis is placed on critical thinking, complex communication, collaboration, creativity, and risk-taking. Students change the way they approach problem solving and work with integers. Upon successful completion of Pre-Algebra, students move to Algebraic Theory and Geometry.

**Content:**

Whole Numbers and Patterns  
Integers  
Rational Numbers  
Expressions and Equations  
Inequalities  
Ratios and Proportions  
Percents  
Constructions and Scale Drawings  
Circles and Areas  
Probability and Statistics

**Skills:**

Estimate for reasonableness  
Express numbers in scientific notation  
Multiply and divide by powers of ten  
Represent numbers with exponents  
Find square numbers and square roots  
Estimate the square root of non-perfect squares  
Use the order of operations to simplify numerical expressions  
Identify properties of numbers and use them to simplify expressions  
Compare and order integers  
Find the absolute value of integers  
Add, subtract, multiply, and divide integers  
Convert between fractions and decimals  
Compare and order rational numbers  
Estimate decimal sums, differences, products, and quotients  
Add, subtract, multiply, and divide decimals and integers by decimals  
Estimate sums, products, differences, and quotients of fractions and mixed numbers  
Add, subtract, multiply, and divide fractions and mixed numbers  
Convert between equivalent fractions and mixed numbers  
Evaluate algebraic expressions  
Translate words into numbers, variables, and operations  
Simplify algebraic expressions

Determine whether a number is a solution of an equation  
Write, solve, and check one-step equations with rational numbers and integers  
Solve two-step equations  
Read and write inequalities and graph them on a number line  
Solve one-step inequalities by adding, subtracting, multiplying, and dividing  
Solve and graph two-step inequalities  
Identify, write, and compare ratios  
Find and compare unit rates, such as average speed and unit price  
Find equivalent ratios  
Write and solve proportions using mental math and cross products  
Use ratios to determine if two figures are similar  
Use similar figures to find unknown lengths  
Understand ratios and proportions in scale drawings, and use ratios and proportions with scale  
Determine whether two ratios are proportional using cross products  
Model percents and write percents as equivalent fractions and decimals  
Write decimals and fractions as percents  
Compare and order fractions, decimals, and percents  
Solve problems involving percent using proportions and equations  
Solve problems involving percent of change  
Solve problems involving simple interest  
Identify and name basic geometric figures  
Measure and draw angles using a protractor  
Identify adjacent and vertical angles and use them to find missing angle measures  
Classify angles and pairs of angles  
Find angle measures using relationships  
Classify and construct triangles  
Classify, construct, and find missing angle measures of quadrilaterals  
Evaluate expressions involving exponents  
Describe a circle in terms of radius and diameter  
Find the circumference and area of circles and semi-circles  
Find perimeters and areas of composite figures  
Identify and find possible outcomes  
Find probabilities of events and use them to make predictions  
Compare theoretical and experimental probabilities  
Find probabilities of independent, dependent, and compound events

**Text and Materials:**

Larson, Ron and Boswell, Laurie., Big Ideas Math Course 2: A Bridge to Success (Houghton Mifflin Harcourt, 2014)

**Methods of Instruction:**

Lecture  
Pair share  
Hands on activities  
Problem solving  
Cooperative learning  
Centers  
Interactive notebook

Digital interactive notebook  
Manipulatives  
Desmos  
NearPod  
Videos  
DeltaMath

**Methods of Evaluation:**

Homework  
Whiteboards  
Quizzes  
Tests  
Questioning  
Classwork  
GoFormative

