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**PINEWOOD – THE AMERICAN INTERNATIONAL SCHOOL OF THESSALONIKI, GREECE**

**NAME OF COURSE: PRE- ALGEBRA**

**GRADE LEVEL: 7-8**

**SCHOOL YEAR: 2011-2012**

**COURSE DESCRIPTION**

This course introduces students to the concept of positive and negative numbers in basic operations as well as in equations and problem solving. Students will delve further into the study of consumer math problems, applications of factoring, and geometric figures. This course provides the essential groundwork for success in Algebra I.

**LEARNING OBJECTIVES**

**Content Standards**

- Numbers and Operations – understand numbers, ways of representing numbers, relationships among numbers, and number systems.
- Algebra – understand patterns, relations, and functions.
- Geometry – analyze characteristics and properties of two-and-three dimensional geometric shapes and develop mathematical arguments about geometric relationships
- Measurement – understand measurable attributes of objects and the units, systems, and processes of measurement
- Data analysis and probability – formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them

**Process Standards**

- Problem solving – build new mathematical knowledge through problem solving; solve problems that arise in mathematics and in other contexts
- Reasoning and Proof – make and investigate mathematical conjectures
- Communication – understand how mathematical ideas interconnect and build on one another to produce a coherent whole.
- Representation – create and use representations to organize, record, and communicate mathematical ideas.

**SCOPE AND SEQUENCE \***

**QUARTER I**

**Variables, Expressions, and Integers**

- Expressions and variables
- Powers and Exponents
- Order of Operations
- Operations with Integers
- Coordinate Plane
- Absolute Value opposites

## **Solving Multi Step Equations and Inequalities**

- Coefficients, constants, Like Terms
- Properties - Commutative, Associative, Identity, Distributive
- Simplifying Variable Expressions
- Equations with multiple operations
- Decimal operations with equations
- Solving equations with like terms
- Solving equations with variables on both sides
- Solving multi step inequalities
- Absolute Value equations

## **QUARTER II**

### **Factors, Fractions and Exponents**

- Factors, prime factorization, greatest common factor, least common multiple
- Rules of exponents
- Negative and zero exponents
- Scientific notation

### **Rational Numbers and Equations**

- Adding and subtracting like and unlike fractions
- Multiplying, dividing fractions
- Equations and inequalities with rational numbers

### **Ratio, Proportion, and Probability**

- Ratios, rates, writing and solving proportions
- Cross multiplication
- Similar and congruent figures
- Similarity and measurement
- Scale drawings
- Probability and odds
- The Counting Principle

## **QUARTER III**

### **Percents**

- Percents, fractions, proportions
- The percent Equation
- Percent of Change
- Percent Applications
- Simple and Compound Interest

### **Linear Functions**

- Relations and Functions
- Linear Equations in Two Variables
- Using Intercepts
- The Slope of a Line
- Slope-Intercept Form
- Systems of Linear Equations

## **QUARTER IV**

### **Real Numbers and Right Triangles**

- Square Roots
- Simplifying Square Roots
- The Pythagorean Theorem

### **Measurement, Area, and Volume**

- Triangles
- Polygons and Quadrilaterals
- Areas of Parallelograms and Trapezoids
- Circumference and Area of a Circle
- Surface Area of Prisms, Cylinders, pyramids and Cones
- Volume of Prisms, Cylinders, Pyramids, and cones

*\*Note that the order in scope and sequence is subject to change during the school year.*

## **HOMEWORK POLICY**

Frequent homework assignments are given, based on the day's lecture and assigned out of the main textbook or given in the format of a worksheet. All homework is to be collected and graded. Homework submitted late will lose 10% of the overall score for each day late, and will only be accepted up to two days after the due date.

## **ASSESSMENT**

The students are assessed on the following:

- Frequent homework assignments, based on the days lecture and assigned out of the main textbook or given in the format of a worksheet. Homework will be periodically collected and graded.
- Class participation including board work, attentiveness of the student during the lecture, interest and effectiveness of the student in answering and asking questions about the lecture, and general classroom behavior of the student.
- Three to four tests per quarter, testing the student's overall knowledge and comprehension of a specific chapter or a number of sections.
- Periodically, students will write unannounced quizzes, testing the students' understanding of the previous lessons.

## **GRADING POLICY**

TESTS, QUIZZES 60% of the Quarter grade

• HOMEWORK 30% of the Quarter grade

• CLASS PARTICIPATION 10% of the Quarter grade

- 4% PARTICIPATION
- 3% EFFORT
- 3% BEHAVIOR / ATTITUDE

Semester I grade: 40% Quarter I grade + 40% Quarter II grade + 20% Exam I

Semester II grade: 40% Quarter III grade + 40% Quarter IV grade + 20% Exam II

FINAL GRADE: 50% SEMESTER I GRADE + 50% SEMESTER II GRADE

### **RESOURCES**

- Main textbook: Pre Algebra. McDougal Littell, 2005.
- Teacher generated course materials either in handout form or thematic booklets.

### **ACADEMIC HONESTY**

Academic honesty is fundamental to the integrity and operation of our school. Acts of academic dishonesty, including plagiarism (the act of presenting others' words and ideas as one's own without crediting the source), stealing in quizzes and tests, copying work from other students or allowing their own work to be copied, or using notes during a test, are considered serious offences. The consequences of academic dishonesty will be a zero grade on the specific test/assignment, and additional disciplinary action. The said student will be ineligible or removed from the National Honor Society.