

7th Grade Pre-Algebra 2011-2012

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Course Description

This course is designed to give students a solid foundation in the essential skills and concepts needed for further study in higher-level mathematics courses. Activities and inquiry are designed to develop student understandings to support mathematical analysis. Class activities require students to apply problem-solving skills, to think critically, and to compute fluently with rational numbers. Students who successfully develop and demonstrate required understandings are well prepared to begin Algebra 1.

Three essential mathematical ideas, based on NCTM (National Council of Teachers of Mathematics) curriculum focal points, form the foundation of this course. These ideas are as follows: an understanding of and applying proportionality, including similarity; an understanding of and applying formulas to determine the surface areas and volumes of 3-dimensional shapes; and an understanding of operations on all rational numbers and solving linear equations.

Learning Objectives and Benchmarks

Develop mathematical reasoning to support skill development and conceptual understanding

Exhibit persistence, flexibility, and appropriate independence when solving problems

Organize mathematical thinking by following logical steps and proper technique

Compute fluently with rational numbers in all forms

Preparation for Class / Course Materials

Required textbook: Algebra Readiness (Prentice Hall); scientific calculator

Methods of Instruction

Classroom activities involve students in performance tasks designed to lead to essential understandings. Teaching approaches include modeling, lecture, class discussion, technology, written assignments, small group work, and activities with manipulatives. Lessons include visual, auditory, and kinesthetic components whenever possible. Students are encouraged to work together and to communicate their thinking. Individualized instruction is offered as appropriate.

Assessment

Students will demonstrate understanding with various kinds of authentic performance tasks. Their progress will be assessed based on benchmarks outlined above. Numerical course grades are determined each trimester by a point system. Forms of assessment include performance tasks, daily homework, class work, projects, skill checks, quizzes and tests. The student handbook contains information about missing and late assignment policies.

Projected Course Schedule

Units of study spread over 3 trimesters:

Unit 1 - data analysis

Unit 2 - algebraic expressions and integers

Unit 3 - solving one- and two-step equations and inequalities

Unit 4 - factors, fractions and exponents

Unit 5 - ratios, proportions, percents

Unit 6 - geometry and measurement

Unit 7 - linear functions