

Rationale

Algebra I Foundations will provide the skills necessary for working with unknowns in everyday situations. The ability to manipulate variables using investigative techniques will lead the students to form logical conclusions.

Course Description

This course is designed to prepare the student for further mathematical study by enhancing some previously learned mathematical processes and developing new processes. Algebra Foundations will provide the skills necessary for remediation of skill deficits while working with unknown variables in everyday situations.

Prerequisites

Prerequisite: Completion of Pre-Algebra and IEP team approval

Open to: 9, 10, 11, 12

Credit: 1 Unit - Two Semesters (Mathematics)

Course Objectives

1. The student will apply appropriate technology and communicate mathematically with 80% accuracy. GLE: MA, Grade 9 Numbers and Operation. Locally assessed. (A+: Writing). (MA3; 1.4, 2.7)

- Apply operations to real numbers, using mental computation or paper and pencil calculations for simple cases and technology for more complicated cases. (GLE)

2. The student will collect data, explore its meaning and validity, and using mathematical skills, form conclusions with 80% accuracy. GLE: MA, Grade 9 Numbers and Operations, Geometric and Spatial Relationships, Measurement, Data and Probability. Locally assessed. (A+: Research) (MA3; 1.5, 1.6, 1.7, 1.8, 3.3, 3.6)

- Compare and order rational and irrational numbers, including finding the appropriate locations on a number line. (GLE)
- Describe the effects of operations such as multiplication, division and computing powers and roots on the magnitude of quantities. (GLE)
- Judge the reasonableness of numerical computations and their results. (GLE)
- Draw or use visual models to represent and solve problems. (GLE)

3. The student will present mathematical data in organized and understandable methods by using different types of graphs with 80% accuracy. GLE: MA, Grade 9, Geometric and Spatial Relationships, Data and Probability. Locally assessed. (A+: Speaking). (MA3; 1.5, 1.6, 1.8, 2.3)

- Make conjectures and solve problems involving two-dimensional objects represented with Cartesian coordinates. (GLE)

4. The student will analyze mathematical data and establish mathematical conclusions by manipulating expressions and solving different types of equations and inequalities with 80% accuracy. GLE: MA, Grade 9, Numbers and Operations, Algebraic Relationships, Geometric and Spatial Relationships, Measurement, Data and Probability. Locally assessed. (MA1, 3, 4, 5; 1.5, 1.6, 1.8, 3.3, 3.4)

- Solve problems involving proportions. (GLE)
- Use and solve equivalent forms of equations and inequalities (linear, piece-wise, and quadratic). (GLE)
- Analyze linear functions by investigating rates of change and intercepts. (GLE)
- Use unit analysis to solve problems involving rates. (GLE)
- Apply properties of exponents to simplify expressions or solve equations. (GLE)

5. The student will use operations to manipulate polynomials with 80% accuracy. GLE: MA, Grade 9, Numbers and Operations, Algebraic Relationships. Locally assessed. (MA1, 5; 3.2, 3.3, 3.4, 3.6)

- Apply properties of exponents (including order of operations to simplify expressions or solve equations. (GLE)
- Describe and use algebraic manipulations, including factoring and rules of integer exponents. (GLE)

6. The student will reach mathematical conclusions over various number systems with 80% accuracy. GLE: MA, Grade 9, Numbers and Operations, Locally assessed. (A+: Reading). (MA1, 5; 3.2, 3.3, 3.4, 3.6)

Algebra Foundations

Mehlville School District
Special Education
Grades 9 - 12, Duration 1 Year, 1 Credit

- Apply all operations on rational numbers (GLE)
- Use real numbers to solve problems (GLE)
- Use a variety of representations to demonstrate an understanding of very large and very small numbers. (GLE)

7. The student will recognize and apply patterns and relationships within and among functions with 80% accuracy. GLE: MA, Grade 9, Algebraic Relationships. Locally assessed. (MA1, 5; 1.6, 1.8, 3.1, 3.4, 3.5, 3.6)

- Understand and compare the properties of linear, exponential, and quadratic functions (including intercepts, domain, and range). (GLE)

BOE 11-6-14