

ALGEBRAIC CONCEPTS & SPATIAL REASONING

Module Descriptions

This course is designed to provide paraeducators with the skills and knowledge needed to assist students with algebraic concepts and spatial reasoning skills. The course content is designed and adapted from standards recommended by the National Council of Teachers of Mathematics. It includes the specific skill building areas of real number properties; graphical representations; algebraic concepts and problem solving; data and probability; and spatial reasoning skills typically taught at intermediate and middle school levels.

Module A. Mathematical Literacy (optional)

The Paraeducators will:

1. Identify common misconceptions about mathematics.
2. Identify the role of communication in mathematical literacy development.
3. Identify the goal of problem-solving and its development in the classroom.
4. Compare and contrast mathematical literacy and language / reading / writing (literacy) development.

Module B. Patterns and Predictions

The Paraeducator will:

1. Employ strategies of problem-solving to make predictions and determine the likelihood of an event.
2. Develop integer operation rules from concrete experiences.
3. Explore the coordinate graph system.

Module C. Algebraic Fundamentals

The Paraeducator will:

1. Use concrete materials to aid pattern recognition and generalization.
2. Relate basic patterns to algebraic concept development.
3. Describe patterns and other relationships using words and expressions.
4. Develop plans for solving basic algebraic equations.

Module D. Graphic Representations

The Paraeducator will:

1. Explore linear and non-linear functions as they represent data patterns.
2. Interpret linear graphs as rates of change (i.e. slope).
3. Sketch graphs that represent real-life situations.

Module E. Spatial Reasoning

The Paraeducator will:

1. Describe and classify relationships between 2-D and 3-D geometric shapes by their attributes.
2. Use concrete methods to determine perimeter and area.
3. Develop perimeter and area formulas for basic geometric shapes.
4. Describe how scale factor and changes in dimensions affect perimeter and area.