

Inspire Intermediate Students to Soar: Connect Algebraic Concepts Across the Mathematics Curriculum



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Discover hands-on mathematical concepts which interest and motivate students to soar to the next level . . . algebra for intermediate learners!

A 2-day workshop for teachers of grades 3 through 5, elementary math specialists, administrators, and parents who are interested in training students to become mathematically powerful in algebraic thinking

Algebra is sometimes described as the “gateway to higher mathematics” and is being mandated as a graduation requirement by many of our nation’s schools. As educators and parents, we want *all* of our students to have an equal opportunity to burst through those gates! In order for all of our students to master algebra, the groundwork must begin in the elementary grades. Learn how to tie algebraic ideas to traditional mathematical concepts in a concrete, visual way to ensure that our elementary students have the foundation for formal algebra.

Through hands-on, thought-provoking activities, you will literally learn how to seamlessly integrate algebraic ideas throughout the mathematics curriculum. Real classroom examples and student samples will be shared, along with activities that are ready-to-go! You will return to your classroom with an appreciation of how algebra weaves through the intermediate math curriculum and how your students can develop clear and powerful algebraic thinking.

Workshop Highlights:

The “Big Picture” of Elementary Algebra

- What is algebra, and how does it translate into classroom teaching?
- Where does algebra begin, and where does it lead?
- How is algebra relevant to students’ lives at the elementary level?

Arithmetic as the Foundation

- Using tiles and base-ten blocks to teach multiplication
- Generalizing arithmetic rules to teach “hangman” division
- Discovering the power of “one” in teaching fractions

Properties of Mathematics

- Using tiles, blocks, and counters to demonstrate the . . .
 - commutative properties of addition and multiplication
 - associative properties of addition and multiplication
 - distributive property
 - identity and zero properties
- Exploring equation solving using properties

Patterns, Functions, and Graphing

- Building a foundation using patterns
- Using a variety of manipulatives to explore the concept of function
- Integrating the study of functions into real life
- Using games and art to introduce the coordinate grid
- Plotting linear and non-linear equations
- Exploring the slopes and y-intercept of a linear function

Expressions and Equations

- Using hands-on materials to explore expressions and equations
- Emphasizing the significance of balance in the study of equations
- Working with equations that include variables
- Using the order of operations
- Developing an understanding of inverse operations for use in equation solving
- Exploring the language of algebra
- Playing meaningful games to reinforce specific vocabulary

Algebraic Generalizations

- Integrating two- and three-dimensional geometry with algebra
- Using the geoboard to explore the power of algebra

Student Assessment

- Using a portfolio system to track student learning over time
- Solving real-life problems to demonstrate and apply learning

Current Issues in Mathematics Education

- Identifying the current issues and how they apply to teaching and learning
- Investigating the effects of standardized testing and accountability on classroom teaching
- Discovering new approaches to instruction based on the latest brain research

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arithmetic
thinking into
algebraic
thinking!**

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Grades 3-5
2 Days**