

# BREAKTHROUGH MATHEMATICS

## Fraction Concepts

Grade Level: 3 through 5

### Module Description:

Because logical reasoning lies at the heart of mathematics, instruction in fractions that focuses only on the mechanics of procedures and not on reasoning misses valuable opportunities to develop a core mathematical skill. In *Fraction Concepts*, participants study the meaning of fractions, how to represent and compare fractions, and gain a deeper understanding of teaching strategies. As with each of the modules in the BreakThrough Mathematics program, *Fraction Concepts* features a Content Exploration phase and a Lesson Analysis phase.

The Content Exploration phase offers participants opportunities to discuss the meaning of fractions as well as methods of representing and comparing fractions.

In the Lesson Analysis phase, participants have the opportunity to perform an in-depth analysis of a classroom lesson. Participants first review a lesson plan based on a fraction problem, and then observe the teacher who wrote the plan present the lesson to a fourth grade class. Participants also have the opportunity to choose another problem so they can plan and discuss their own lesson.

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### Potential Funding Sources:\*

- Title I
- Comprehensive School Reform
- Educational Technology State Grants
- Improving Teacher Quality
- Innovative Education State Grants — Title V
- Mathematics and Science Partnerships

\*Additional grant funding is available for this training.

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### Participant Outcomes:

As a result of taking this module participants will:

- Learn how to define what a fraction is
- Become knowledgeable in using manipulatives to teach fractions
- Apply the conceptual understanding gained in the course to the analysis of an actual classroom lesson by:
  - solving the central math problem of the lesson and predicting how students might approach the problem
  - analyzing the lesson plan and determining how the plan relates to the actual presentation of the lesson
  - examining the lesson closely to identify and discuss several key teaching and learning issues
- Select a rich fraction problem and decide how to use it with a group of students
- Build a lesson plan around the selected rich problem
- Analyze other teachers' lesson plans and make suggestions to improve them by using LessonLab's lesson planning process

### Materials Included:

Materials included vary according to the method of delivery.

#### Online delivery

- Facilitator guide
- Printed participant guide
- CD of the course videos
- Online technical help guide

#### Face-to-face delivery

- Facilitator guide
- Printed participant guide

#### Blended delivery

- Facilitator guide
- Printed participant guide
- CD of the course videos
- Online technical help guide

For more information, call 800-348-4474, option 4  
or email [breakthrough@lessonlab.com](mailto:breakthrough@lessonlab.com)

### Additional Modules Available:

- Concepts of Measurement
- Equality and Inequality
- Geometric Shapes and Solids
- Multi-Digit Whole Number Computation
- Numbers and Numeration
- Numbers and Properties of Operations
- Perspectives on Problem Solving (K–5)
- Perspectives on Problem Solving (6–algebra 1)
- Ratio and Proportion
- Rational Numbers and Operations
- Solving Equations
- Statistics, Data Analysis and Probability
- Focus on Assessment
- Focus on Struggling Readers