

## Teaching Reasoning and Problem-Solving Strategies

Numerate adults do more than calculate figures. They think about the relationships between mathematical concepts and real-life situations. They look for patterns, make predictions, and evaluate their conclusions. They can form problems, represent them, and solve them. They apply critical thinking skills. As an instructor, you help students learn by choosing appropriate problems and guiding students as they try out new reasoning and problem-solving strategies.

This course examines mathematical reasoning and problem-solving strategies, along with lots of teaching strategies and activities that you can use right away. By the end of the course, you will be able to:

- understand how adults solve math problems
- build students' comfort and skills in numeracy
- use reasoning and problem-solving strategies and activities in your own teaching

### Course Topics

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| • The Components of Numeracy  | • Facilitation Questions                |
| • Building Conceptual Understanding of the Four Arithmetic Operations | • Vocabulary Building                   |
| • Adaptive Reasoning  | • Strategic Competence                  |
| • Prediction and Mathematical Reasoning                               | • Problem-Solving Strategies            |
| • Validating Conjectures  | • Games for Developing Strategic Skills |
| • Inductive and Deductive Reasoning                                   | • Procedural Fluency                    |
|   | • Productive Disposition                |

This course is part of a six-part series of online courses focused on effective adult numeracy instruction. Other courses in this series are:

- *Foundations of Teaching Adult Numeracy*
- *Number Sense: Teaching About Parts and Wholes*
- *Geometry: Teaching About Shapes and Their Measures*
- *Data: Helping Students Interpret Statistical Representations*
- *Algebra: Introducing Algebraic Reasoning*

**Prerequisite:** Foundations of Teaching Adult Numeracy or comparable experience

**Course Format:** facilitated, online

Throughout this six-week course you will follow a weekly schedule of activities and readings, as well as asynchronous electronic discussions with the facilitator and course participants.

**Estimated Completion Time:** approx. 2-3 hours per week; 12 hours total

**Completion Requirements:** Successful completion requires participants to complete required assignments, participate in asynchronous discussion, and score at least 80% on the course exam. Participants may download a Certificate of Completion upon successful completion of course requirements.

Participants are encouraged to seek approval in advance from their agency or organization for continuing education or professional development credits that may be awarded for successfully completing this online course.

**Course Fee:** \$179 (\$152.15 for ProLiteracy members. Group discounts available.)

**Questions?** Please call 888.528.2224 ext. 283 or e-mail [prodev@proliteracy.org](mailto:prodev@proliteracy.org).

**For information about upcoming course dates and registration,  
please visit [ProfessionalStudiesAE.org](http://ProfessionalStudiesAE.org).**