

## **BUILDING TEACHER CAPACITY FOR MATH INSTRUCTION IN ADULT EDUCATION**

### **What is ANI 2.0?**

ANI 2.0 is an evidence-based, fully online program in effective standards-aligned mathematics instruction for adults. It is an update to the Adult Numeracy Instruction (ANI) Professional Development.

### **What is the focus of ANI 2.0?**

- Improving teachers' mathematical knowledge and the quality of their instruction
- Improving student outcomes and attainment of short- and long-term educational and employment goals
- Communicating the principles of the original ANI course at a greater intensity and duration
- Sharing new research on pedagogy and curriculum (learning) resources
- Contextualized learning and practical application

### **What is the organization of ANI 2.0?**

- Six instructional modules focused on pedagogy and mathematical content
- Alternating synchronous and asynchronous sessions within each module
- Online delivery to optimize access
- Two training facilitators support each state team

### **When will ANI 2.0 be available to states?**

ANI 2.0 is currently being field tested in six states: Idaho, Minnesota, Michigan, Louisiana, Pennsylvania, and New Jersey.

The field test, which began October 22, 2021 and concludes May 4, 2022, will inform revisions to the program in summer of 2022. The ANI 2.0 PD program will be available to states through the LINCS Technical Assistance and Professional Development Center in 2023.

### **MODULE TOPICS**

#### **Module 1**

The Big Ideas of Adult Numeracy: Foundations of the ANI 2.0 PD Program

#### **Module 2**

Instructional Routines and Formative Assessment Practices That Promote Positive Mathematical Identities

#### **Module 3**

Essential Understandings and Operations With Whole and Rational Numbers

#### **Module 4**

Essential Understandings and Applications of Algebraic Thinking

#### **Module 5**

Essential Understandings and Applications of Geometry and Measurement

#### **Module 6**

Essential Understandings and Applications of Data, Statistics, and Probability



## Problem-Based Task Example

ANI 2.0 uses different types of problem-based tasks to promote conceptual understanding. A **problem stem** is a word problem in which the question has been removed.

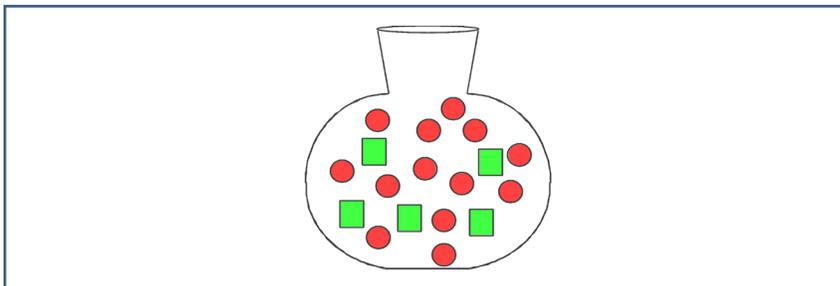
### Candy Jar Problem Stem\*

A candy jar contains 5 Jolly Ranchers (JRs) and 13 jawbreakers (JBs). Suppose you had a new candy jar with the same ratio of Jolly Ranchers to jawbreakers, but it contained 100 Jolly Ranchers.

With the question removed, participants are asked to identify all the **quantities and relationships** they see in the problem stem.

Quantities	Relationships
<ul style="list-style-type: none"> <li>• The number of JRs</li> <li>• The number of JBs</li> <li>• The number of candy jars</li> </ul>	<ul style="list-style-type: none"> <li>• For every 5 JRs, there are 13 JBs</li> <li>• For every 13 JBs, there are 5 JRs</li> <li>• For every JR, there are 2.6 JBs</li> </ul>

After making the important distinction between a mathematical quantity and a mathematical relationship, participants create a **diagram**, allowing connections to be made among verbal, contextual, and visual representations.



The activity concludes with **participant reflections** on (1) the core mathematics of the task, (2) how this approach can support learners in understanding and solving word problems, and (3) the types of questions that can now be posed.

\* The Candy Jar problem stem and diagram are adapted from Smith, M. S., Silver, E. A., Stein, M. K., Boston, M., & Henningsen, M. A. (2005). *Improving instruction in rational numbers and proportionality: Using cases to transform mathematics teaching and learning, Volume 1*. New York: Teachers College Press.

