

Solving Word Problems: Building Algebraic Fluency with Tape Diagrams, Grades 6–9

This full-day, six-hour session improves participants' ability to effectively model and teach the tape diagram as a tool for supporting algebraic fluency with expressions and equations. Throughout the day, the facilitator demonstrates different modes of instructional delivery that engage participants in authentic problem-solving experiences. These activities encourage reflective discussion about the intersection between content and pedagogy.

Participants experience the power of tape diagrams to support algebraic reasoning when solving one-step equations, two-step equations, and equations that involve the distributive property. Work then transitions from evaluating expressions and solving equations to solving word problems. Participants translate words to mathematical symbols using the visual support of the tape diagram. They practice creating problems that help students succeed with more difficult scenarios.

The session includes plenty of opportunities for participants to model and solve problems with tape diagrams, to practice delivering segments of instruction, to analyze student work, and to study the curriculum.

Participants can expect to deepen their understanding of

- effective instructional delivery methods.
- the coherent use of tape diagrams for modeling problems from Grades 1–9.
- the Read-Draw-Write problem-solving process.
- the tape diagram's usefulness in interpreting partitive and measurement division word problems.
- when tape diagrams are effective tools, and when it makes sense for students to move away from using them as they advance in their study of mathematics.

Required materials: Participants should bring a pencil and an eraser.