

Solving Word Problems: Modeling Multiplication, Division, and Multi-Step Word Problems with the Tape Diagram, Grades 3–5

This full-day, six-hour session improves participants' ability to effectively model and teach multiplication and division word problems by using the tape diagram. Throughout the day, the facilitator models different modes of instructional delivery that engage participants in authentic problem-solving experiences with a variety of word problem types. These activities encourage reflective discussion about the intersection of content and pedagogy.

Participants begin by solving single-step word problems, first involving whole numbers and multiplication and division. They then use the same tape diagram models to represent multi-step problems and multiplication and division scenarios involving more complex units (e.g., larger whole numbers, decimals, and fractions). This work segues into studying and practicing multiplicative comparison word problems.

Participants can expect to deepen their understanding of

- multiplication and division word problem types required by the Common Core State Standards for Mathematics.
- modeling the required multiplication and division problem types by using tape diagrams.
- part–whole relationships and the skills needed to decode those relationships.
- the difference between measurement and partitive division word problems.
- the Read-Draw-Write process and its relationship to the Standards for Mathematical Practice.
- teaching students to assess their work for reasonableness.
- engaging students in critiquing the reasoning of others.
- the exceptional utility of the tape diagram for solving ratio problems in middle school.

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