

Lesson 18: Diagrams and Equations for Word Problems

Standards Alignments

Addressing 3.OA.D.8

Building Towards 3.OA.D.8

Teacher-facing Learning Goals

- Relate diagrams and equations to two-step word problems.

Student-facing Learning Goals

- Let's connect diagrams and equations to situations.

Lesson Purpose

The purpose of this lesson is for students to relate diagrams and equations to two-step word problems.

In grade 2, students interpreted tape diagrams for one- and two-step problems involving addition and subtraction. Earlier this year, they did the same with one-step word problems involving multiplication. They also learned that a question mark, a blank line, or a box could be used to represent an unknown quantity in an equation.

In this lesson, students connect tape diagrams and equations with a symbol standing for the unknown quantity to two-step word problems. The work of this lesson prepares students to write equations with a letter standing for the unknown quantity and solve two-step problems, using a diagram if it helps them.

Access for:

Students with Disabilities

- Engagement (Activity 1)

English Learners

- MLR8 (Activity 1)

Instructional Routines

Card Sort (Activity 1), Notice and Wonder (Warm-up)

Materials to Gather

- Sticky notes: Activity 2
- Tools for creating a visual display: Activity 2

Materials to Copy

- Card Sort: Situations, Equations, and Diagrams (groups of 4): Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

Students previously used tape diagrams to represent and solve one-step addition, subtraction, and multiplication problems. How are they leveraging that knowledge in this lesson on two-step problems?

Cool-down (to be completed at the end of the lesson)

 5 min

Equation Match

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Student-facing Task Statement

Andre had 451 beads. 125 beads were blue. 223 beads were pink. The rest of the beads were yellow. How many beads were yellow?

Which equation matches this situation? Explain your reasoning.

- A. $451 + 125 + 223 = ?$
- B. $? + 125 + 223 = 451$
- C. $? = 451 + 125 - 223$

Student Responses

B. Sample response: The 125 and 223 were just part of the total of 451, so the missing number should be one of the numbers that add up to 451.