

Lesson 22: Problems About Perimeter and Area

Standards Alignments

Addressing 4.MD.A.2, 4.MD.A.3, 4.NBT.B.5, 4.OA.A.3

Teacher-facing Learning Goals

- Solve multi-step problems involving measurement conversions, perimeter, and area.

Student-facing Learning Goals

- Let's solve situations involving perimeter and area.

Lesson Purpose

The purpose of this lesson is for students to apply what they know about multiplication and division to convert units of measurement and solve multi-step problems involving perimeter and area.

This lesson prompts students to apply their reasoning skills and knowledge of all operations to solve problems about area and perimeter. Along the way, students also use multiplication and division to convert units of measurement. Most numbers used here are two- and three-digit numbers. The problems in the lesson may include more than one step and can be solved in multiple ways, offering students opportunities to construct logical arguments to communicate their thinking and to critique the reasoning of others (MP3). As students begin the lesson remind them of their past experiences with multi-step problems and explain that the problems in this lesson may involve more than one step.

Access for:



Students with Disabilities

- Representation (Activity 1)



English Learners

- MLR8 (Activity 2)

Instructional Routines

How Many Do You See? (Warm-up)

Materials to Gather

- Grid paper: Activity 1
- Inch tiles: 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

Some problems in the lesson can reveal the depth of students' understanding of multiplication and division, the flexibility of their thinking, and their ability to make use of structure. What evidence of flexible reasoning, structural thinking, or deep understanding did you see today?

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

 5 min

Paper for a Banner

Standards Alignments

Addressing 4.MD.A.2, 4.MD.A.3, 4.NBT.B.5

Student-facing Task Statement

Han has a rectangular piece of paper that is 96 inches by 36 inches. He is using it to create a banner for Awards Day. Last year the banner measured 2,304 square inches.

1. Will the new banner fit in the same area that the old banner was? Show your reasoning.
2. What is the difference in square inches between the area of last year's banner and this year's banner?

Student Responses

1. No. Sample reasoning:
 - The paper for this year's banner has an area of 3,456 square inches, because $96 \times 36 = 3,456$. Last year's banner had an area of 2,304 square inches, because $48 \times 48 = 2,304$, so Han will need a bigger space to hang the new banner.
2. The difference is 1,152. $3,456 - 2,304 = 1,152$