LESSON MAKER PRO

Tile Count

Cover rectangles with square units.

GRADE 2 · TEKS 2.9.F

2.9.F "use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit; and"

NAME _____ **DATE** _____

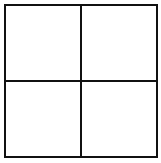
Setup with an adult: get 12 equal square tiles, blank paper and a pencil. Use plans A-D to arrange tiles and trace four rectangle outlines on separate paper. Label each outline and remove the tiles. Cover these empty outlines to do the tasks. The printed plans are not actual tile size.

Cover the whole rectangle once

Use the same equal square tiles for every outline. Cover all the space inside the boundary once. Tiles meet edge to edge. Count every tile, then write the number and square units.

Try it together

Practice covering

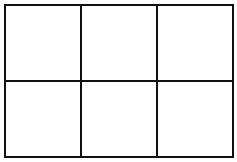


Cover a practice rectangle with 2 rows of 2 tiles. What is its area?

Check that the tiles leave no gaps and do not overlap. Touch and count all four tiles. The area is 4 square units.

1. Cover outline A

Plan A: 2 rows of 3



Cover outline A with the square tiles. Leave no gaps or overlaps. Touch and count every tile. Write the area with the unit.

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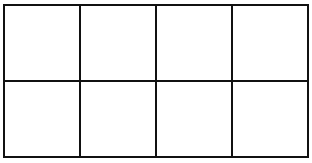
2. Cover outline B

Plan B: 2 rows of 4



Cover outline B. Check the edges and every space. Count all the tiles and write its area.

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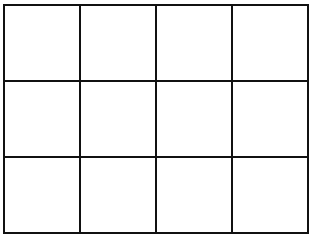
3. Explain a covering rule

Use outline B and your tiles. Leave one gap, then make two tiles overlap. Explain why neither covering measures the area correctly. Fix it.

4. Cover outline C

Cover outline C completely without overlaps. Count the tiles. Write the area, including the unit.

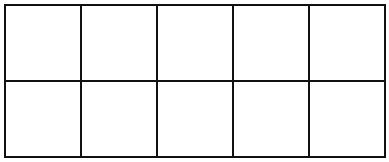
Plan C: 3 rows of 4



5. Choose enough tiles

A small display will cover outline D. Cover it with tiles and count them. Are 9 square tiles enough? Write the area and explain.

Plan D: 2 rows of 5



6. Compare covered areas

Cover A, then B using the same tiles. Which outline has more area? Tell how many more square units and how you know.

7. Check the unit

Cover C again. Sam writes its area as 12 units. Explain what unit Sam should name and what the 12 counts.

Tile Count

Teacher notes

Follow the student setup with equal square tiles or paper squares. Observe physical covering, counting and unit labels. Printed plans are references, not actual-size outlines. Use the same square unit throughout.

Task 1

6 square units.

Task 2

8 square units.

Task 3

A gap leaves some area uncovered; an overlap counts a part twice. Fixed outline B has 8 square units.

Task 4

12 square units.

Task 5

10 square units. Nine tiles are not enough; one square unit would remain uncovered.

The conclusion must come from a complete covering, not counting just the edge tiles.

Task 6

B has more area: 8 square units versus 6. It needs 2 more of the same square tiles.

Check physical covering and counting.

Task 7

12 square units. The 12 counts all equal square tiles covering the whole rectangle once, with no gaps or overlaps.