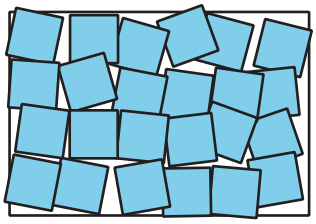
Unit 2 Family Support Materials

Area and Multiplication

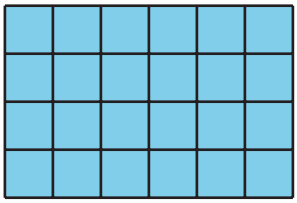
In this unit, students learn about the concept of area and relate area to multiplication and addition.

Section A: Concepts of Area Measurement

In this section, students make sense of the area of a flat shape. They learn that the area of a shape is the amount of space the shape covers, and that area can be measured by the number of square units that cover the shape, without gaps or overlaps. Students explore this idea by tiling shapes, with squares, and counting the number of squares.



We cannot measure area by the number of squares when they cover a shape, with gaps and overlaps.



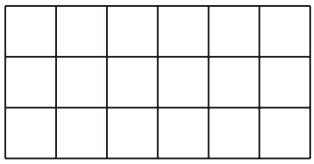
We can measure the area of this shape by the number of squares, because the squares tile the shape.

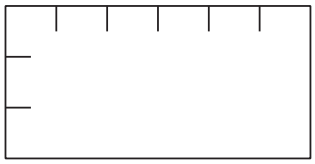
Section B: Relate Area to Multiplication

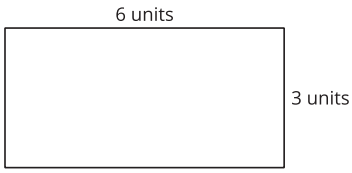
In this section, students relate the area of a rectangle to multiplication. They see that a rectangle can be tiled with squares in equal-size rows (or columns). If the rectangle is 6 units by 4 units, there are 6 groups of 4 or 4 groups of 6. The number of square units is then 6×4 or 4×6.

Students come to understand that multiplying the side lengths of a rectangle gives the same number of squares as counting them. A rectangle that is 3

units by 6 units can be tiled with 3 rows of 6 squares, so its area is 3×6 or 18 square units.





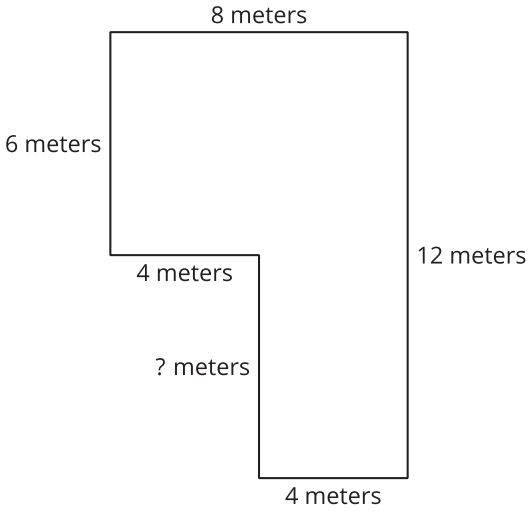


Students then use these ideas to solve real-world story problems related to area.

Section C: Find the Area of a Figure Composed of Rectangles

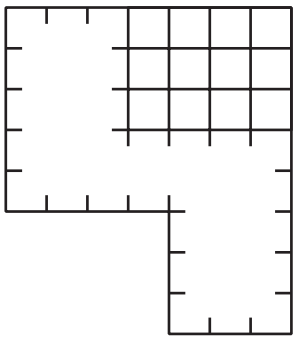
In this section, students find the area of a figure composed of rectangles. They do so by decomposing (breaking apart) the figure into non-overlapping rectangles, finding the area of each rectangle, and adding all the areas.

Students also use the structure of rectangles to find unknown side lengths in figures composed of rectangles.



Try it at home!

Near the end of the unit, ask your third grader to find the area of this figure:



Questions that may be helpful as they work:

- How can this figure be decomposed into rectangles?
- How many rows (or columns) are there in each rectangle?
- What multiplication expressions would you use to find the area?
- Where do we see this kind of design in our home or in places we visit?

Solution:
44 square units

Samples response:

- I decomposed (or broke apart) the top and the bottom of the figure to make a large rectangle on top and a small rectangle on the bottom.
- There are 5 rows and 7 columns in the top rectangle. There are 3 rows and 3 columns in the bottom rectangle.
- I can use 7×5 to find the area of the top rectangle and 3×3 to find the area of the small rectangle. I can add those areas together to find the area of the figure.
- The design looks like the layout of our home. The larger rectangle looks like a room, and the smaller rectangle looks like the hallway connected to the room.

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