



# Bricks

Grade 3

Area and Perimeter

3 levels

## Probing Questions

- How do you know which shapes will fit?
- Are there any other ways you could solve it?
- How would you describe this piece?

## What Concepts Are Being Developed?

Students must discern the elements of area by paying attention to the dimensions of the rectangle and filling the space. This game also lets students explore decomposing the rectangle.

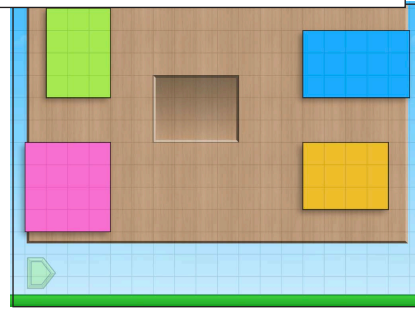
## What's Important Here?

Students find the area of rectangles by tiling, filling the space exactly with no overlap.

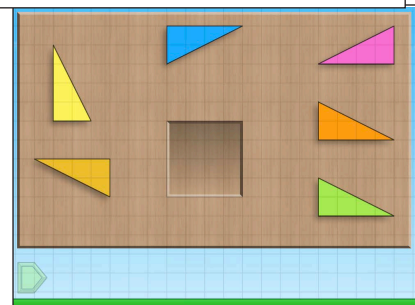
STMath.

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To move a shape, click on it, move the cursor to where you want it placed, and click again.



Note how some puzzles have two solutions.



Area and Perimeter - 1



# Perimeter Select

Grade 3

Area and Perimeter

3 levels

## Probing Questions

- What does the yarn do?
- What do you have to do to find the perimeter?
- How do you know how long this side is?

## Emphasize the Connection

- The word perimeter with the yarn going around the outside of the figure
- Symbols for equivalent sides
- Perimeter shown as an equation
- The scale of JiJi to the units (m, ft., cm., yd., in.)

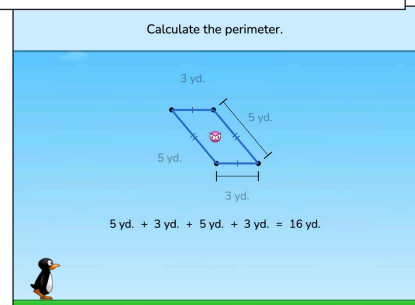
## Pause the Animation

After students have explained how they find the perimeter, use the scrub bar to verify the student's answer. Pause the animation to show each of the dimensions and how they are added to find the perimeter.

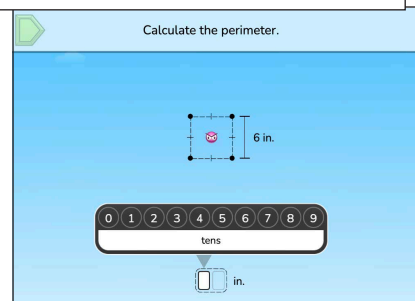
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The animation shows the perimeter as a sum of the sides.



Levels 2 and 3 use symbols to show equivalent sides and don't give the length of each side.



Area and Perimeter - 2



# Select Area Perimeter

Grade 3

Area and Perimeter

5 levels

## Probing Questions

- How do you figure out the area/perimeter?
- How can you figure it out without counting?
- What is the difference between area and perimeter?

## What's Important Here?

This game requires students to distinguish between area and perimeter. Note the different visual representations for each.

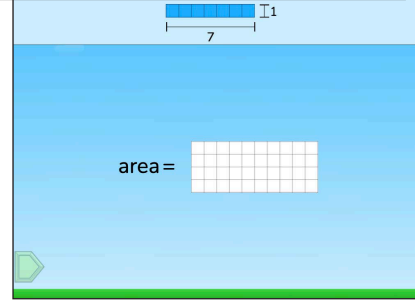
## Uncover the Thinking

Sharing different student strategies will help students see Sharing student thinking will help students move from counting strategies to using multiplication, leading to an understanding of the formulas for area and perimeter.

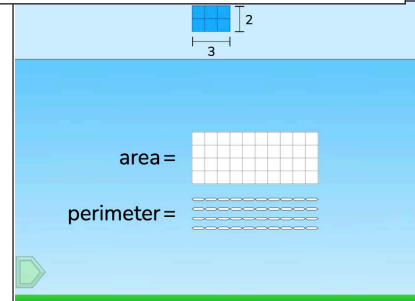
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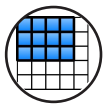
Some rectangles show grid lines and others show dimensions.



Some levels ask for perimeter, some for area, and some ask for both.



Area and Perimeter - 3



# Area Perimeter Select Shape

Grade 3

Area and Perimeter

5 levels

## Probing Questions

- How do you know how big to make the rectangle?
- How would you describe this rectangle?
- What do you do differently when you are given the perimeter instead of the area?
- How do you figure it out when you are given both the area and perimeter?

## Something to Think About

Asking students to generate multiple rectangles with the same area in levels 1 and 2 will help prepare them for levels 3 and 4.

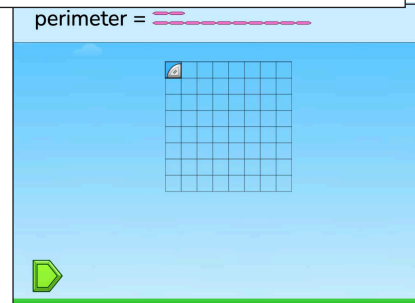
## Supporting Struggling Students

Using grid paper or square tiles can help students test their solutions. Facilitate by asking students to explain how they determine the dimensions of the rectangle.

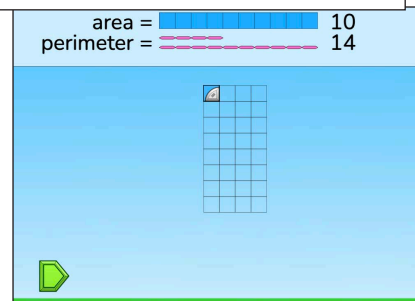
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Create a rectangle with a given area in Level 1 and a given perimeter in Level 2.



Ask students to check calculations for both area and perimeter in Levels 3-5.



Area and Perimeter - 4