

DIGITAL: AREA AND PERIMETER

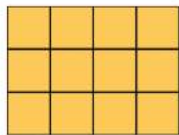
A PROGRESSION FOR GRADES 3-5 STUDENTS

CREATED BY
SHELLEY GRAY

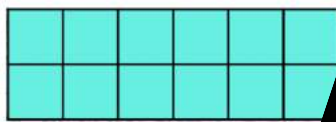
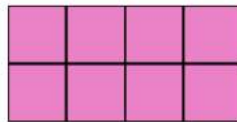
FIND THE AREA



Multiply the length by the width to find the area of each shape.



$$4 \times 3 = 12 \text{ square units}$$



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FIND THE AREA

Find the area of the irregular shape.



What is the area?

Explain how you found it.

HELPFUL HINT

Imagine the shape like this!



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About This Resource

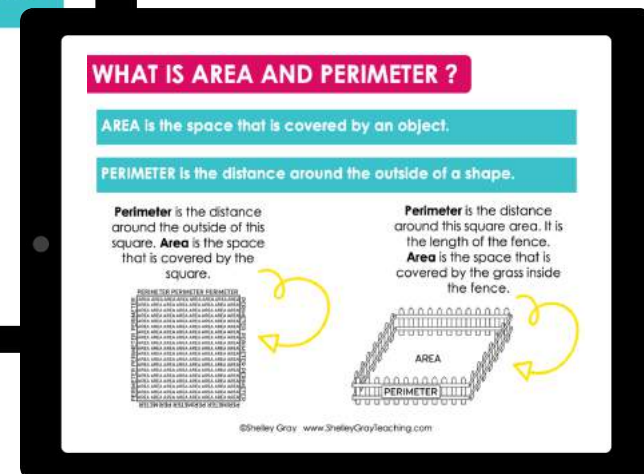
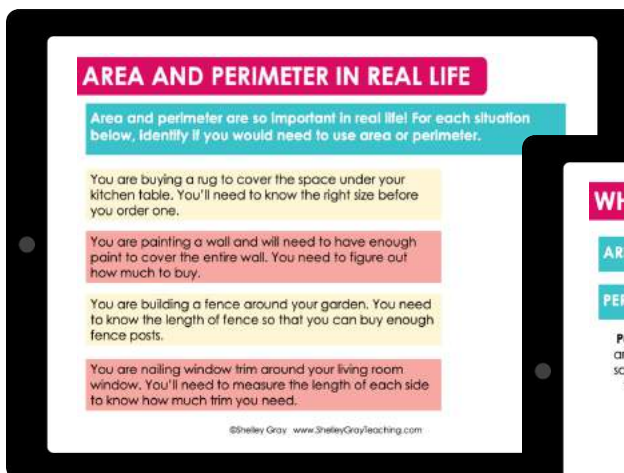
This digital area and perimeter resource is in Google Slides™ format, making it compatible with Google Classroom™. This resource is only intended for digital learning; there is no PDF document included.

There are **over 125 student slides** included in this resource. They cover area and perimeter skills that are generally taught in 3rd to 5th grade. This resource includes a progression of these skills, beginning with counting “units” and progressing along to multiplying side lengths and working with simple irregular shapes. This resource is designed to give students an excellent understanding of area and perimeter.

Slides are divided into the following sections:

INTRODUCTION TO AREA AND PERIMETER

Explanations and comparing area to perimeter
(2 slides)




BEGINNING AREA CONCEPTS

Counting square units to calculate area
(4 slides)

HOW TO CALCULATE AREA


We can calculate area by **TILING** an object. This means putting square tiles inside and then counting them.



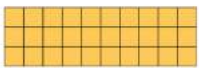
We covered this rectangle with **15 square tiles**. We say that this rectangle has an area of **15 square units**.

FIND THE AREA


Find the area of each of these shapes. Remember to write "square units."



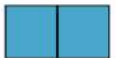
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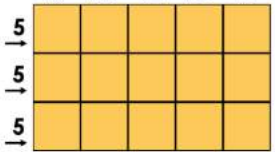
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Adding rows or columns to find area
(3 slides)

USING ADDITION TO FIND AREA


Instead of counting the unit squares one by one, we can add the rows or columns.



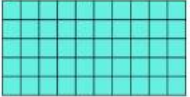
To count these unit squares we could add $5+5+5$ to make 15.
Or we could add $3+3+3$ since there are 5 rows of 3.

FIND THE AREA


Add the rows or columns to find the area of each shape.



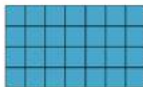
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


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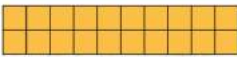
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FIND THE AREA


Add the rows or columns to find the area of each shape.



$3+3+3=9$ square units



Type here.



Type here.

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Creating different shapes with the same area
(5 slides)

CREATE A SHAPE

Resize the colored squares to create two different shapes with an area of 12 square units.

CREATE A SHAPE

Resize the colored squares to create two different shapes with an area of 24 square units.

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SAME AREA, DIFFERENT SHAPE

Two shapes can have the same area, even if they don't look the same.

This square and this rectangle both have an area of **4 square units**.

Check for yourself by counting the square tiles.

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Estimate area and use tiling to find the actual
(2 slides)

ESTIMATE THE AREA

Estimate the area of these shapes. How many square units do you think will fit inside? Then tile the shapes with square units to find the actual area.

= 1 square unit

ESTIMATE:
square units

ACTUAL AREA:
square units

REFLECT:
Imagine that you are painting a wall. Why would you need to know the area of the wall?
Type here.

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ESTIMATE THE AREA

Estimate the area of these shapes. How many square units do you think will fit inside? Then tile the shapes with square units to find the actual area.

= 1 square unit

ESTIMATE:
square units

ACTUAL AREA:
square units

REFLECT:
Imagine that you are making an outdoor sitting area with a brick floor. Why would you need to know the area of the sitting area?
Type here.

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Comparing and ordering areas
(4 slides)

COMPARING AREA

In each set, circle the shape that has the greatest area.

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ORDERING BY AREA

Order the shapes from least area to greatest area.

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Adding and decomposing area
(5 slides)

DECOMPOSING AREA

We can decompose a shape into smaller parts and find the area of each smaller part.

The area of this shape is square units. What is the area of each smaller part? square units.

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ADDING AREAS

Add the two smaller areas to find the total area.

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DECOMPOSING AREA

Decompose the rectangle into two smaller parts using the colored shapes. Find the area of each part.

STEP ONE:
Use the colored shapes to decompose the rectangle. You will need to resize the shapes by dragging the corners or sides.

STEP TWO:
What is the area of each part? Remember to include "square units" in your explanation.
Type here.

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Using multiplication to find area (8 slides)

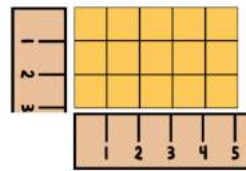
USING MULTIPLICATION TO FIND AREA

Instead of adding the rows or columns to find the area, we can multiply the length of the rectangle by the width of the rectangle.



AREA IN SQUARE CENTIMETERS

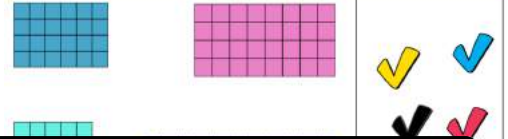
Instead of square units, we can measure an object's area in square centimeters, square meters, square inches, square feet, or any other unit of measurement!



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"CHECK" THE SHAPES

Put a check mark on the shapes that have an area of 24 square units.



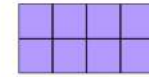
FIND THE AREA

= 1 square centimeter

Each of the squares represents 1 square centimeter. Write the area for each shape.



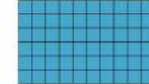
$2 \times 2 = 4$ square centimeters



Type here.



Type here.



Type here.

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Area relationships – the effect of doubling a side (3 slides)

DOUBLING THE AREA

We can double the area of a shape simply by doubling one of the sides. Let's look at what this means.



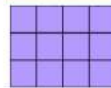
This rectangle has 2 rows of 3. The total area is 6 square units.



This rectangle has 4 rows of 3.

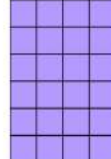
EXPLORING AREA RELATIONSHIPS

What do you notice about these two shapes?



How does the length of this shape change?

Type here.



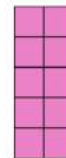
How does the area of this shape change?

Type here.

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EXPLORING AREA RELATIONSHIPS

What do you notice about these two shapes?



How does the length of this shape change?

Type here.

How does the area of this shape change?

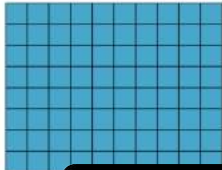
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Area in real life
(problem-solving)
(3 slides)

AREA IN REAL LIFE

Nicole needs to buy a cover for her swimming pool. There are two different options. The area of the first cover is 120 square meters. The area of the second cover is 80 square meters. The diagram below shows the length and width of Nicole's swimming pool.



Each square represents 1 square meter.

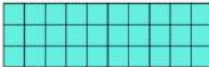
Which cover should Nicole buy?

Type here.

AREA IN REAL LIFE

Kendra has two sections of grass to mow – the back yard and the front yard. She wants to begin with the piece that has the smallest area, because it will take her the least amount of time.

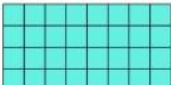
Back Yard



Find the area of the back yard.

Type here.

Front Yard



Find the area of the front yard.

Type here.

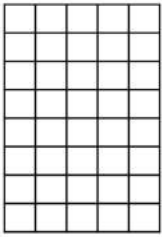
Which one should Kendra mow first?

Type here.

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AREA IN REAL LIFE

Aunt Peggy is making a quilt. She has 42 square units of material available to make her quilt. She has a quilt pattern below. Will she have enough material? How much material will be left over?



Find the area of the quilt.

Type here.

Does she have enough material?

Type here.

How much material will be left over?

Type here.

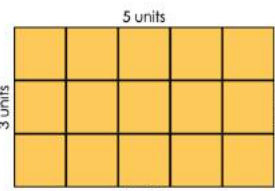
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BEGINNING PERIMETER CONCEPTS

What is perimeter
and how to
calculate it
(2 slides)

WHAT IS PERIMETER?

Perimeter is the distance around the outside of a shape.

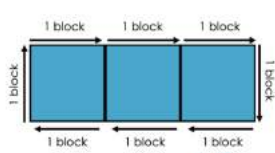


This means the perimeter is 16 units.

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HOW TO CALCULATE PERIMETER

When we count units for perimeter, we don't count the squares – we count the outside edges.



Suppose this model represents three city blocks. You are walking all the way around as the arrows show.

This means that you are walking around the **perimeter** of these city blocks.


The **perimeter** is 8 blocks.

Count them to check!

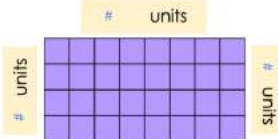
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Finding perimeter by counting units
(6 slides)

FIND THE PERIMETER
Label the side lengths of the rectangle. Then add the side lengths together to find the perimeter.




FIND THE PERIMETER
Label the side lengths of the rectangle. Then add the side lengths together to find the perimeter.

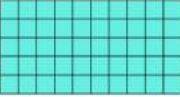


Find the perimeter. $\# + \# + \# + \# = \#$


FIND THE PERIMETER
Find the perimeter of each shape.



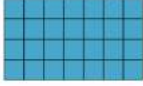
Type here.



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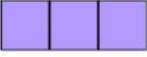


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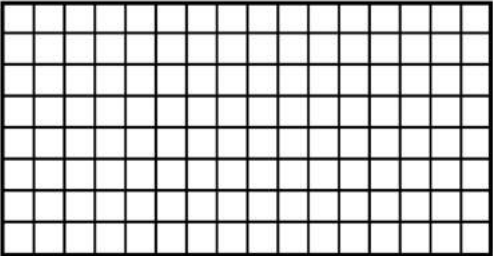
Type here.

SAME PERIMETER, DIFFERENT SHAPE
Two shapes can have the same perimeter even if they don't look the same.


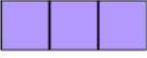
This square and this rectangle both have a **perimeter** of 8 units. Check for yourself.

CREATE A SHAPE
Resize the colored squares to create two different shapes with a perimeter of 16 units.



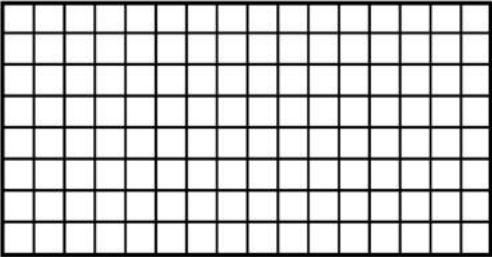
Different shapes with the same perimeter
(2 slides)

SAME PERIMETER, DIFFERENT SHAPE
Two shapes can have the same perimeter even if they don't look the same.

This square and this rectangle both have a **perimeter** of 8 units. Check for yourself.

CREATE A SHAPE
Resize the colored squares to create two different shapes with a perimeter of 16 units.



Finding missing side lengths using attributes of rectangles and squares
(5 slides)

MISSING SIDE LENGTHS

Sometimes when we work with shapes, not all the sides are labeled. We can use what we know to figure them out!

On this square, only one side is labeled. What do you know about squares? How could that help you figure out the missing side lengths?

Type here.

MISSING SIDE LENGTHS

Sometimes when we work with shapes, not all the sides are labeled. We can use what we know to figure them out!

On this rectangle, only two sides are labeled. What do you know about rectangles that could help you figure out the missing side lengths?

Type here.

Now fill in the missing side lengths.

What is the perimeter of this rectangle?

Type here.

MISSING SIDE LENGTHS

The perimeter of this rectangle is 30 units. Can you figure out the missing side lengths?

What are the missing side lengths?

Type here.

Explain how you figured it out.

Type here.

Perimeter in real life (problem solving)
(3 slides)

PERIMETER IN REAL LIFE

Keira is sewing a pillow for her cat. She wants to put ribbon all the way around the edges of the pillow. Her pillow is 20 centimeters long and 10 centimeters wide. She has 70 centimeters of ribbon. Does she have enough ribbon?

What is the perimeter of the pillow?

Type here.

Does Keira have enough ribbon?

Type here.

PERIMETER IN REAL LIFE

Trinity is making a wooden frame for one of her paintings. She will cut a long piece of wood into 4 pieces to make the frame. How many centimeters of wood will she need to make her frame?

What is the perimeter of the painting?

Type here.

How much wood will Trinity need to make her frame?

Type here.

PERIMETER IN REAL LIFE

Nate is building a fence around his garden. He has some old fence boards in his shed. The old boards will be enough to build 100 meters of fence. Does he have enough fence boards to build a fence around his entire garden?

What is the perimeter of the garden?

Type here.

Does Nate have enough fence boards?

Type here.

INTEGRATING AREA AND PERIMETER

Incorporating both area and perimeter to create shapes and solve problems.
(10 slides)

The first slide, titled "AREA AND PERIMETER", asks to calculate the area and perimeter of a rectangle with a length of 10 units and a width of 4 units. It includes a "THINK FAST:" section asking how the area and perimeter would change if the width was doubled. The second slide, "CREATE ANY RECTANGLE", provides a grid for creating a rectangle and calculating its area and perimeter. The third slide, "AREA AND PERIMETER IN REAL LIFE", presents a word problem about Mrs. Wilson's bulletin board (6m by 3m) and asks whether she has enough 15m of border.

MORE ADVANCED AREA CONCEPTS

Irregular shapes:
find area and
create shapes with
the same area
that look different
(5 slides)

The first slide, "FIND THE AREA", shows four irregular shapes made of square tiles and asks for their areas. The second slide, "SAME AREA, DIFFERENT SHAPE", shows two shapes made of 6 square tiles each and asks if they have the same area. The third slide, "CREATE A SHAPE", provides a grid for creating two different shapes with an area of 15 square units.

Estimate area of irregular shapes and then use tiling to check (2 slides)

ESTIMATE THE AREA □ = 1 square unit

Estimate the area of these shapes. How many square units do you think will fit inside? Then tile the shapes with square units to find the actual area.

ESTIMATE: # square units

ACTUAL AREA: # square units

ESTIMATE: # square units

ACTUAL AREA: # square units

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ESTIMATE THE AREA □ = 1 square unit

Estimate the area of these shapes. How many square units do you think will fit inside? Then tile the shapes with square units to find the actual area.

ESTIMATE: # square units

ACTUAL AREA: # square units

REFLECT: Imagine that you are having gravel for an outdoor play area. Why would area be important? Type here.

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Ordering (3 slides)

ORDERING BY AREA

Order the shapes from least area to greatest area.

ORDERING BY AREA

Order the shapes from least area to greatest area.

Drag the shapes.

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ORDERING BY AREA

Order the shapes from least area to greatest area.

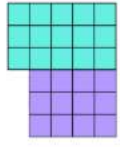
Drag the shapes.

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Adding and decomposing areas for irregular shapes
(6 slides)

ADDING AREAS

Two smaller areas can be joined to create one bigger area.



Imagine if we joined two rugs on the floor.

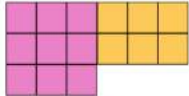
The teal rug covers an area of 15 square units.

The purple rug covers an area of 9 square units.

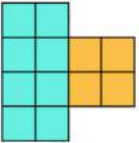
Together, they cover an area of 24 square units.

ADDING AREAS

Add the two smaller areas to find the total area.



+ # = # square units

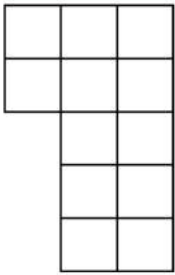


+ # = # square units

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DECOMPOSING AREA

Decompose the shape into two smaller squares. Find the area of each part.



STEP ONE:
Use the colors to decompose the shape into two smaller squares. You will need to reposition the shape by dragging the corners or sides.

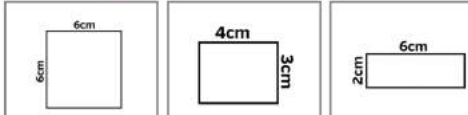
STEP TWO:
What is the area of each part? Remember to include "square units" in your explanation.
Type here

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Multiplying side lengths to find area
(4 slides)

MULTIPLYING SIDE LENGTHS

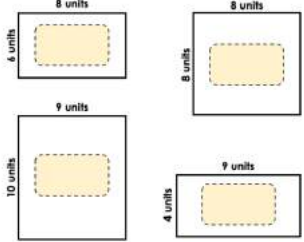
We know that we can multiply length times width to find the area of a rectangle. Use multiplication to find the area of each of these rectangles.



Area = length x width
Area = # x #

MATCH THE AREAS

Place the correct area inside each shape.



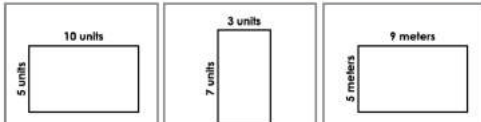
40 square units
46 square units
44 square units
32 square units
10 square units
36 square units

Drag the area.

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MULTIPLYING SIDE LENGTHS

Use multiplication to find the area of each of these rectangles.



Area = length x width
Area = # x #
Area = # square units

Area = length x width
Area = # x #
Area = # square units

Area = length x width
Area = # x #
Area = # square meters

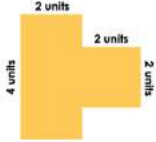
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Finding area of irregular shapes
(5 slides)

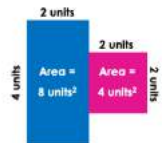
AREA OF IRREGULAR SHAPES

Not all shapes are perfect rectangles!

Suppose we want to find the area of a shape like this...



We could break it up into 2 separate shapes and find the area of each one!

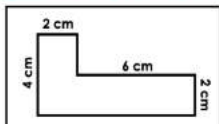


Area = 8 units^2 Area = 4 units^2


Now we can add the two areas together to $8 + 4 = 12 \text{ units}^2$

FIND THE AREA

Find the area of each irregular shape.



Type here

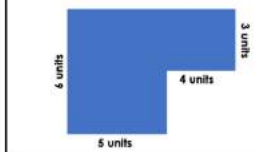


Type here

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FIND THE AREA

Find the area of the irregular shape.



Type here


What is the area?

Explain how you figured it out.

Type here

HELPFUL HINT

Imagine the shape like this!

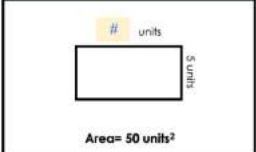


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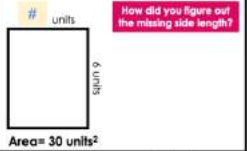
Finding missing side lengths given the area
(2 slides)

MISSING SIDE LENGTHS

For each of these shapes, the area and one side length is given. Can you figure out the missing side length?



How did you figure out the missing side length?

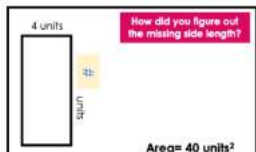


How did you figure out the missing side length?

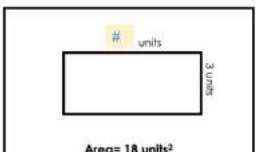
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MISSING SIDE LENGTHS

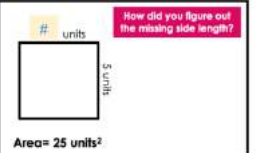
For each of these shapes, the area and one side length is given. Can you figure out the missing side length?



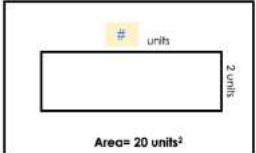
How did you figure out the missing side length?



How did you figure out the missing side length?



How did you figure out the missing side length?



How did you figure out the missing side length?

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Area in real life
(problem solving)
(3 slides)

AREA IN REAL LIFE

Sara has always planted a big 35 square meter garden. This year, she wants to make it bigger so that it has an area of 50 square meters. How could Sara change her garden to have an area of 50 square meters instead of 35 square meters?

5 meters
7 meters
GARDEN

Explain how Sara could change her garden.

Type here

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AREA IN REAL LIFE

Timberland Roofing Company has two garden shed roofs to put shingles on today. They will start with the roof that has the greatest area. Which roof should they start with?

9 units
5 units
Shed Roof #1

7 units
7 units
Shed Roof #1

What is the area of Shed Roof #1?
Type here

What is the area of Shed Roof #2?
Type here

Which roof should they shingle first?
Type here

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MORE ADVANCED PERIMETER CONCEPTS

Perimeter of shapes other than rectangles – finding perimeter, comparing, ordering
(6 slides)

PERIMETER OF SHAPES

Perimeter is the distance around a shape. We can find the perimeter of any shape by adding up all the side lengths. Find the perimeter of each shape.

7 units
3 units
5 units

12 units
12 units

Perimeter = # + # + #

Perimeter = # + #

Perimeter = #

Perimeter = #

THINK FAST! Type here

Imagine you are planting trees around the outside of your yard. How might you use perimeter for this task?

COMPARING PERIMETER

In each set, circle the shape that has the greatest perimeter.

4 units
4 units
4 units

3 units
3 units
3 units
4 units
3 units

4 units
4 units
4 units
4 units

5 units
8 units
9 units

5 units
6 units
5 units
6 units

2 units
2 units
2 units
2 units
2 units
2 units

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Finding missing side lengths and calculating perimeter (5 slides)

FIND THE PERIMETER

What is the perimeter of each shape?

14 units
8 units

Type here

9 units

Type here

REFLECT: How do you think a house designer might use perimeter?
Type here

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MISSING SIDE LENGTHS

Sometimes when we work with shapes, not all the sides are labeled. We can use what we know to figure them out!

12 units
10 units
x units

Perimeter = 29 units

The perimeter of this triangle is 29 units. Fill in the missing side length.

How did you figure it out?
Type here

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MISSING SIDE LENGTHS

This rectangle has a missing side length!

12 units
7 units
x units

HINT: Fill in this side first!

What is the perimeter of this rectangle?
Type here

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Perimeter in real life (problem solving) (3 slides)

PERIMETER IN REAL LIFE

Curtis is creating a rock garden in the shape shown below. He wants the perimeter of the rock garden to be 22 meters. Show some possible measurements for the rock garden.

10 units
5 units
x units
y units

Type here.

ROCK GARDEN

Type here.

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PERIMETER IN REAL LIFE

Rose is sewing 3 baby blankets. She will sew a ribbon border around each blanket and needs to make sure that she has enough ribbon. Each blanket will be the size shown below. She has 550 centimeters of ribbon.

40 cm
50 cm
40 cm
50 cm

BABY BLANKET

What is the perimeter of one blanket?
Type here.

How much ribbon will Rose need for three blankets?
Type here.

Does Rose have enough ribbon?
Type here.

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PERIMETER IN REAL LIFE

Abby is tiling her bathroom floor. She is putting a row of white tiles all the way around the outside of the floor and needs to figure out the perimeter of her bathroom.

5 meters
4 meters
3 meters
2 meters
6 meters

BATHROOM FLOOR

What is the perimeter of the bathroom floor?
Type here.

When Abby buys the tiles, she will buy 5 meters more than she needs so that she has a few extra. How many meters of tiles should she buy?
Type here.

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INCORPORATING AREA AND PERIMETER

Incorporating both area and perimeter to create shapes and solve problems.
(10 slides)

The image shows three overlapping presentation slides. The top-left slide is titled "AREA AND PERIMETER" and asks to calculate the area and perimeter of a rectangle with a length of 10 units and a width of 2 units. It includes a "THINK FAST!" section with a question about doubling the length. The middle slide is also titled "AREA AND PERIMETER" and asks to find the area and perimeter for a square (6 cm by 7 cm) and an L-shaped polygon (5 cm by 7 cm with a 2 cm wide notch). The rightmost slide is titled "AREA AND PERIMETER IN REAL LIFE" and describes a window with a width of 5 meters and a height of 6 meters, asking for the width and height of a curtain and the area of the fabric needed.

AREA AND PERIMETER
Calculate the area and perimeter.

10 units
2 units

THINK FAST:
How would the area of the shape change if the side length is 10 units doubled to 20 units?
Type here.

AREA= Type here.

PERIMETER= Type here.

AREA AND PERIMETER
Write the area and perimeter for each shape.

6 cm
7 cm

2 cm
5 cm
4 cm
3 cm

AREA: Type here. Type here. Type here.
PERIMETER: Type here. Type here. Type here.

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AREA AND PERIMETER IN REAL LIFE
Nicole is sewing curtains for her window. She will have to figure out how much fabric she needs. The window is shown below. The curtain needs to be 2 meters wider and 1 meter longer than the window, but the same height.

5 meters
6 meters

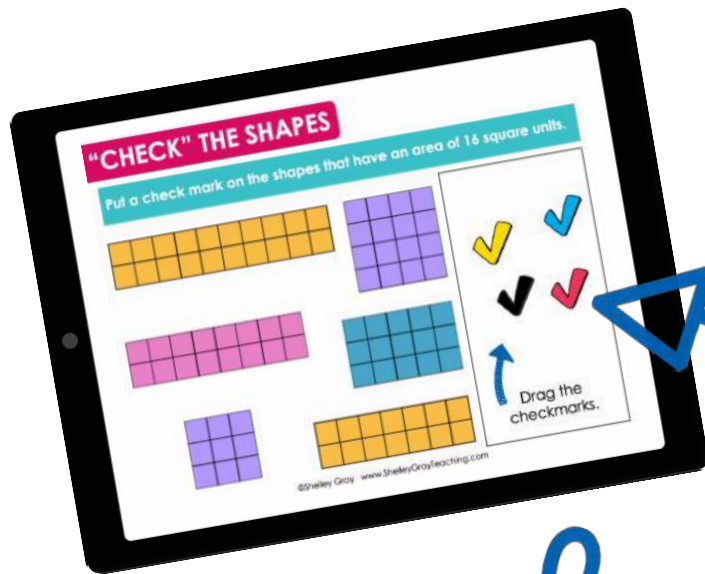
What is the width and height for the piece of fabric that Nicole needs?
Width: Type here.
Height: Type here.

What is the area of the window?
Type here.

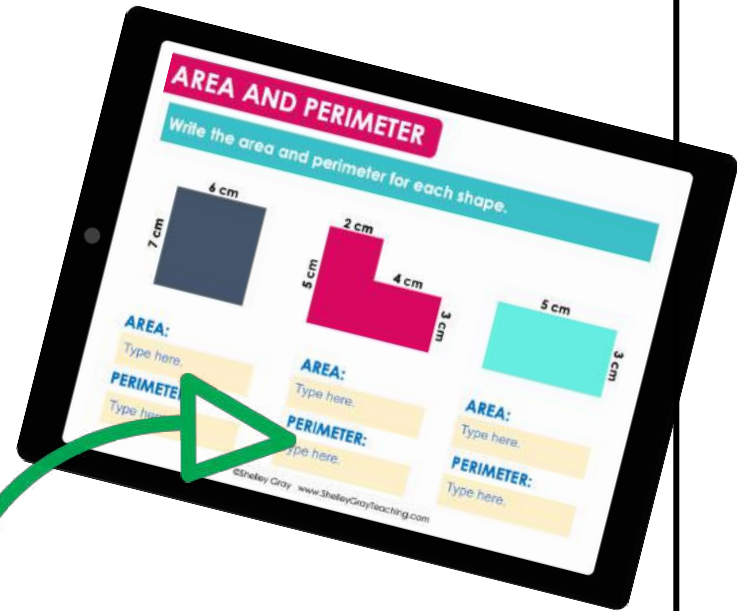
What is the area of the fabric that she will need?
Type here.

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The digital nature of this resource means that students will be moving objects around the slide and typing directly on the slides to complete some activities.



MOVEABLE!



**TEXT
BOXES TO
TYPE**

MORE QUESTIONS ABOUT DIGITAL LEARNING? CHECK OUT THESE INFORMATIVE STEP BY STEP BLOG POSTS FOR ASSIGNING SLIDES AND CREATING ASSIGNMENTS.

<https://shelleygrayteaching.com/google-slides-how-to-assign-only-a-few-slides-at-a-time/>

<https://shelleygrayteaching.com/how-to-create-an-assignment-with-google-classroom/>