Measurement: Measure Perimeter

Aim	**Success Criteria**	**Resources**
Measure the perimeter of simple 2-D shapes. To calculate the perimeter of shapes.	I can measure the length of the sides of shapes and calculate the perimeter. I can draw different shapes with the same perimeter.	Lesson Pack Centimetre rulers Centimetre-squared grids
	Key/New Words Perimeter, sides, calculate, measure, centimetre.	**Preparation** Finding Perimeter Activity Sheets – one per child Differentiated Measure Perimeter Activity Sheets – one per child Diving into Mastery Activity Sheets – as required

Prior Learning	It will be helpful if children are able to measure length in centimetres, covered in Measure Length

Learning Sequence

	Remember It: Children add together sets of numbers shown on the Lesson Presentation. They are encouraged to think about the order they add the numbers together.	
	What is Perimeter? Use the Lesson Presentation to introduce the concept of perimeter. Children identify which shapes they can measure the perimeter of.	
	Measure Perimeter: Use the Lesson Presentation to demonstrate how to measure the sides of shapes and then add them together to calculate the perimeter. They complete the Finding Perimeter Activity Sheet, measuring sides and calculating the perimeter. Can the children measure the length of the sides of shapes and calculate the perimeter?	
	Same Perimeter: Children use centimetre-squared grids to draw different shapes with the same perimeter like the shape shown on the Lesson Presentation. Can the children draw different shapes with the same perimeter?	
	Measure Perimeter: Using the differentiated Measure Perimeter Activity Sheets, the children will demonstrate their understanding of measuring the perimeter of shapes. Children working towards the expected level use their rulers to measure the sides of shapes and add the measurements together to calculate the perimeter. They draw different shapes which have the same perimeter. They measure the perimeter of objects around the classroom. Children working at expected level use their rulers to measure the sides of shapes and add the measurements together to calculate the perimeter. They order the shapes by perimeter. They explain why you only need to know the measurement of one side when calculating the perimeter of a square. They draw different shapes which have the same perimeter. They draw a shape whose perimeter fits between two other shapes. Children exceeding the expected level use their rulers to measure the sides of shapes and add the measurements together to calculate the perimeter. They order the shapes by perimeter. They explain why you only need to know the measurement of the length and the width when calculating the perimeter of a rectangle. They draw different shapes which have the same perimeter. They draw shapes that match the statements about perimeter .	

Diving into Mastery: Schools using a mastery approach may prefer to use the following as an alternative activity. These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

Children practise their fluency skills by measuring the perimeter of a variety of shapes.

Children identify whether perimeters of shapes are correct, giving the actual perimeter if incorrect. They reason about how to calculate the perimeter of rectangles.

Children answer open-ended problems about the perimeter of shapes, where there are multiple possible answers.

Exploreit

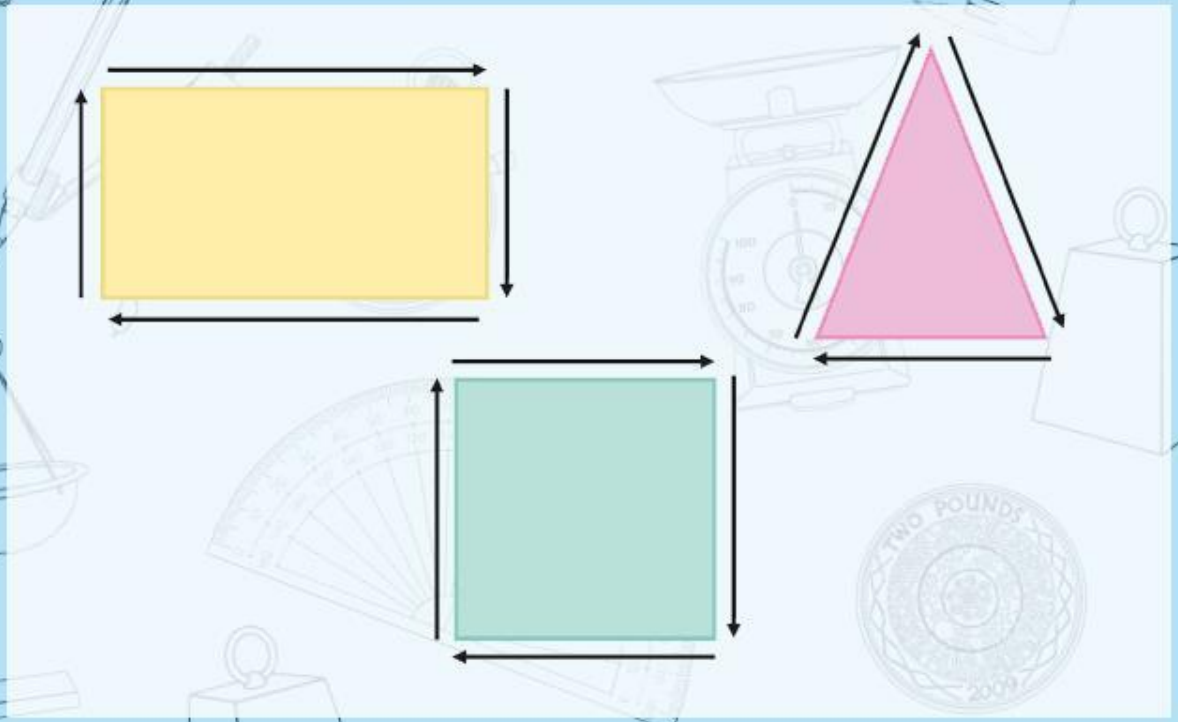
Estimateit: Children find objects around the room and estimate the perimeter. They measure the perimeter and check against their estimates.

Learnit: Children will find this superb, visually exciting Knowledge Organiser a useful tool to support their understanding of length and perimeter.

Maths

Measurement

Measure Perimeter



Aim

- To calculate the perimeter of shapes.

Success Criteria

- I can measure the length of the sides of shapes and calculate the perimeter.
- I can draw different shapes with the same perimeter.

Remember It

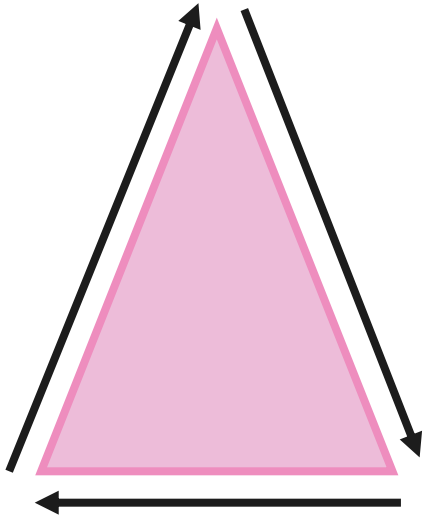
Add the numbers together.
Do you have to add them in the order they are written?
Think about a good way to add the numbers.

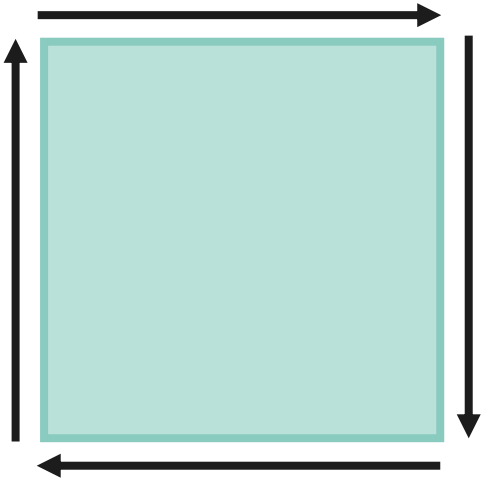
1	4 + 5 + 4 + 6 = **4 + 4 + 5 + 6 = 8 + 11 = 19**
2	10 + 7 + 7 + 10 = **10 + 10 + 7 + 7 = 20 + 14 = 34**
3	9 + 4 + 6 + 1 = **9 + 1 + 4 + 6 = 10 + 10 = 20**
4	12 + 7 + 3 + 8 = **12 + 8 + 7 + 3 = 30**
5	6 + 9 + 6 + 9 = **6 + 9 + 6 + 9 = 15 + 15 = 30**
6	16 + 5 + 4 + 4 = **16 + 4 + 5 + 4 = 29**

Did you order the numbers in the same way?

What is Perimeter?

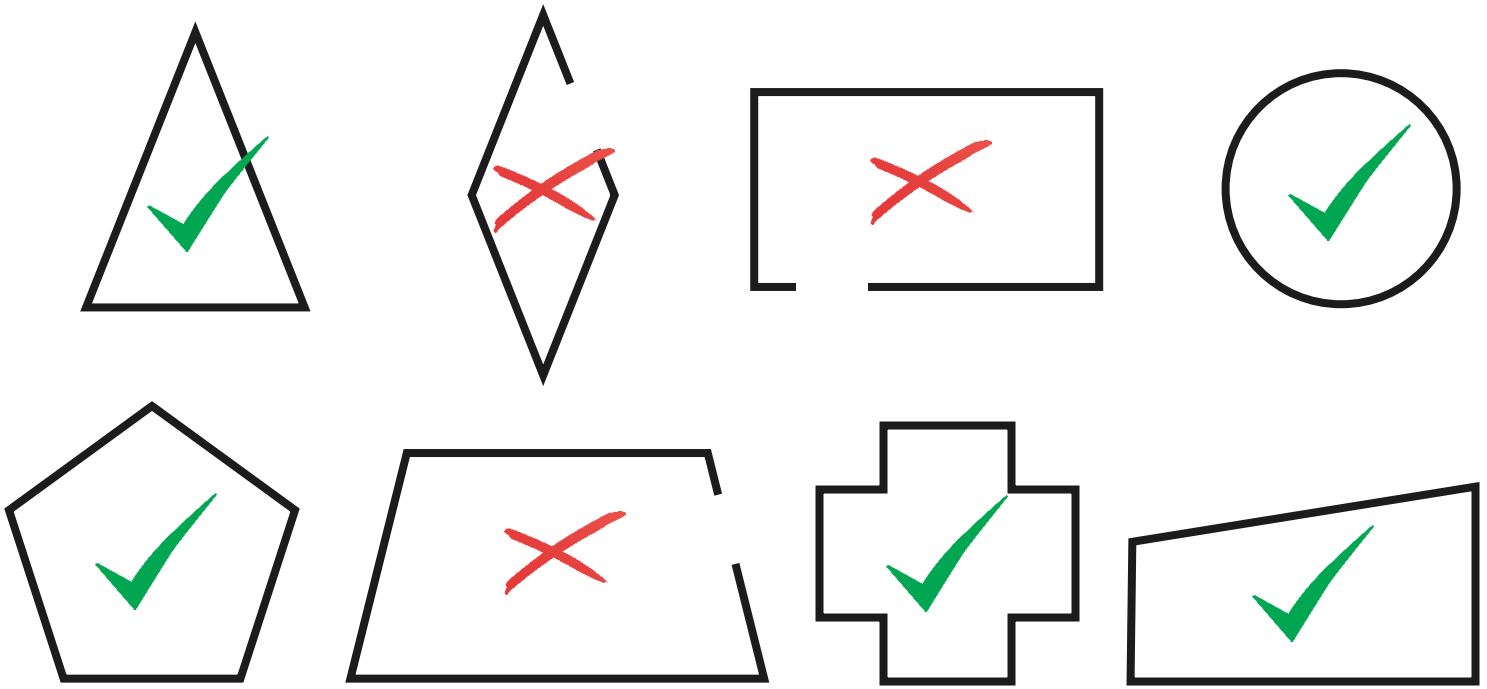
Perimeter is the measurement around the outside of an enclosed shape.





What is Perimeter?

For which of these shapes could you measure the perimeter?



Why couldn't you measure the perimeter of the shapes with a cross?

It's because these shapes are not enclosed
- they have a gap in one of the sides.

Measure Perimeter

To calculate the perimeter of this shape, we would need to measure all 4 sides and add them together.

Let's measure side 4.
How long is the fourth side?

Measure Perimeter

10cm + 5cm + 10cm + 5cm = **30cm**

Add all the sides together to get the perimeter.

Perimeter = 30cm

How did you add the sides together to get the perimeter?

10 + 5 + 10 + 5

15 + 15 = 30

Another way could be:

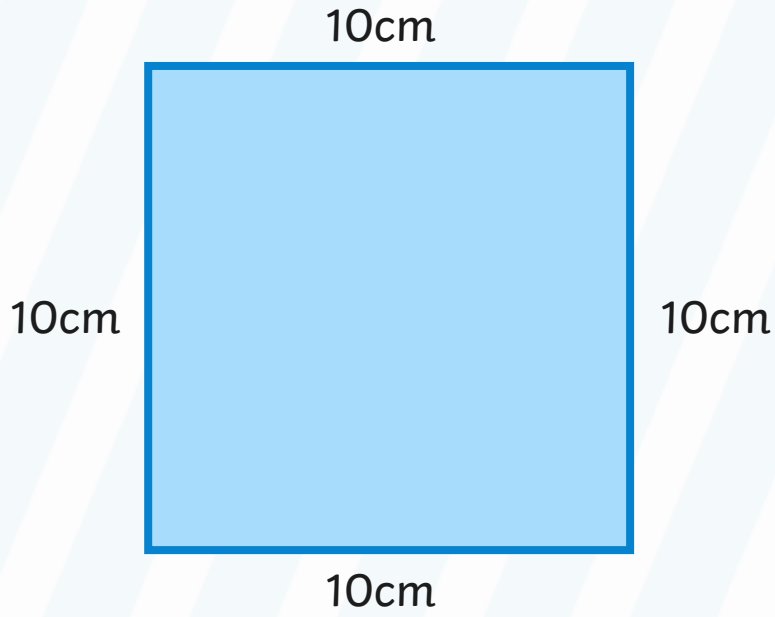
Double 10 add Double 5

20 + 10 = 30

How would you add the measurements?

Measure Perimeter

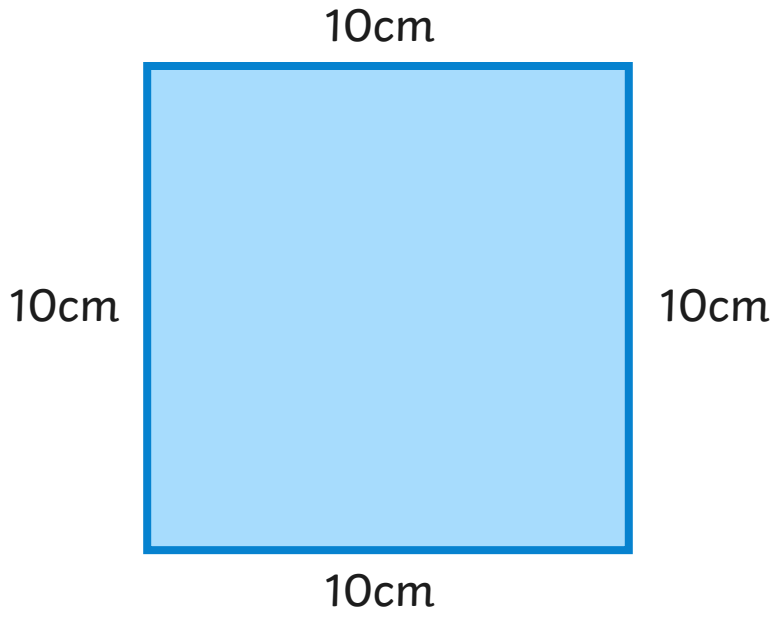
To calculate the perimeter of this shape, we would need to measure all 4 sides and add them together.



Let's measure side 4.
How long is the fourth side?

Measure Perimeter

10cm + 10cm + 10cm + 10cm = **40cm**



Add all the sides together to get the perimeter.

Perimeter = 40cm

How did you add the sides together to get the perimeter?

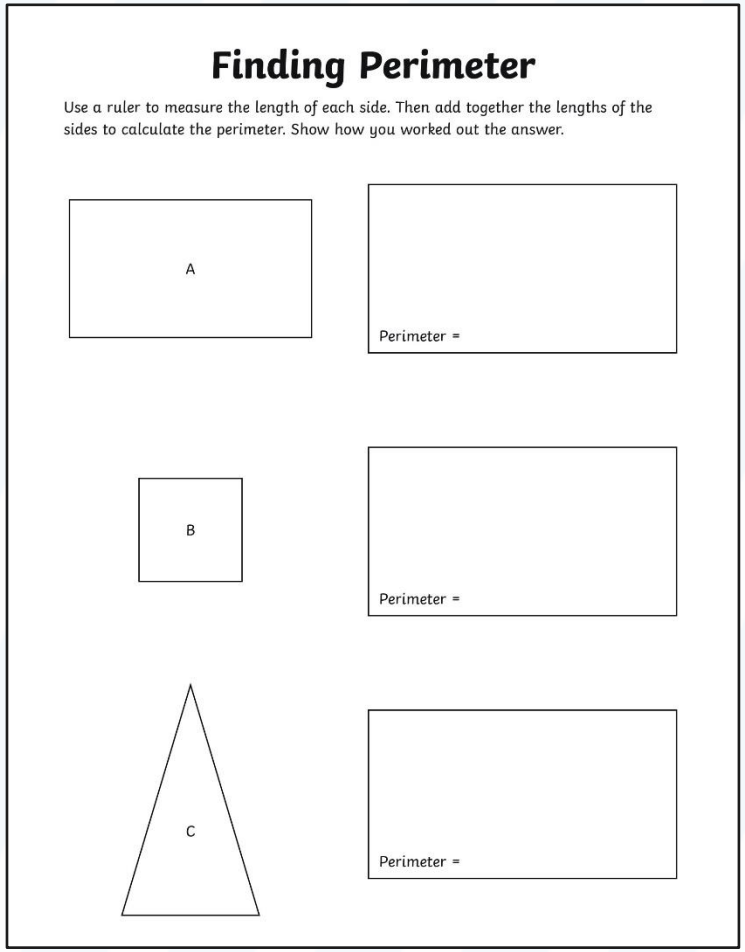
$\underbrace{10 + 10}_{20} + \underbrace{10 + 10}_{20} = 40$

What do you know about the sides of squares? They are equal, so we could use multiplication.

$4 \times 10 = 40$

Measure Perimeter

Use a ruler to measure the perimeter of the shapes on the **Find the Perimeter Sheet**.



Finding Perimeter

Use a ruler to measure the length of each side. Then add together the lengths of the sides to calculate the perimeter. Show how you worked out the answer.

A

Perimeter =

B

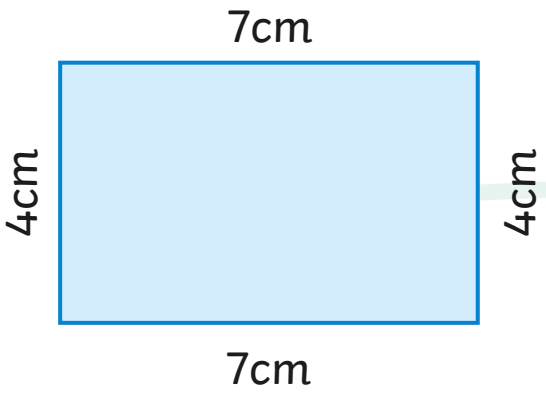
Perimeter =

C

Perimeter =

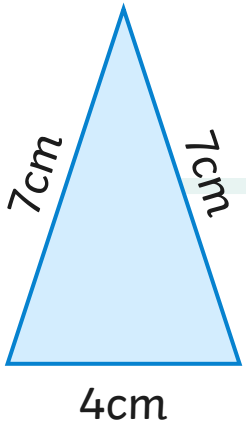
Measure Perimeter

Here are some ways the perimeter of the shapes could have been calculated.



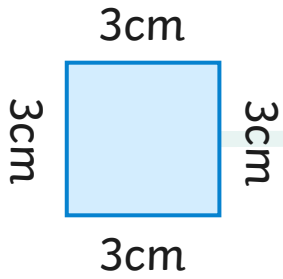
$\underbrace{7 + 4}_{11} + \underbrace{7 + 4}_{11}$

Perimeter: 22cm



$\underbrace{7 + 7 + 4}_{14 + 4 = 18}$

Perimeter: 18cm

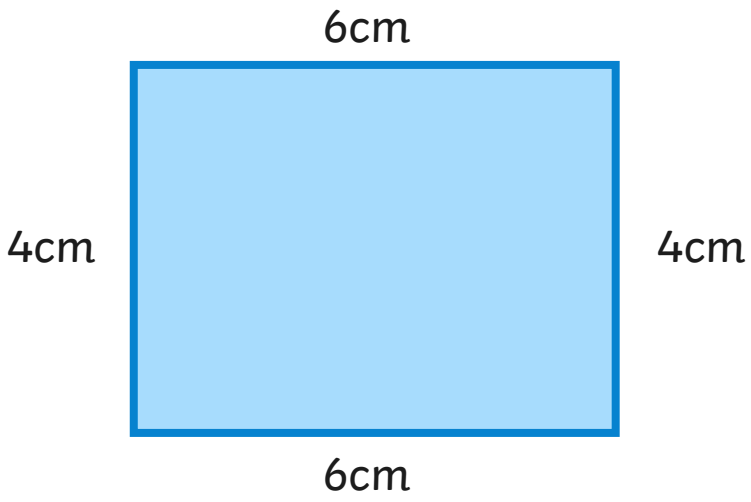


$4 \times 3 = 12$

Perimeter: 12cm

Same Perimeter

What is the perimeter of this shape?

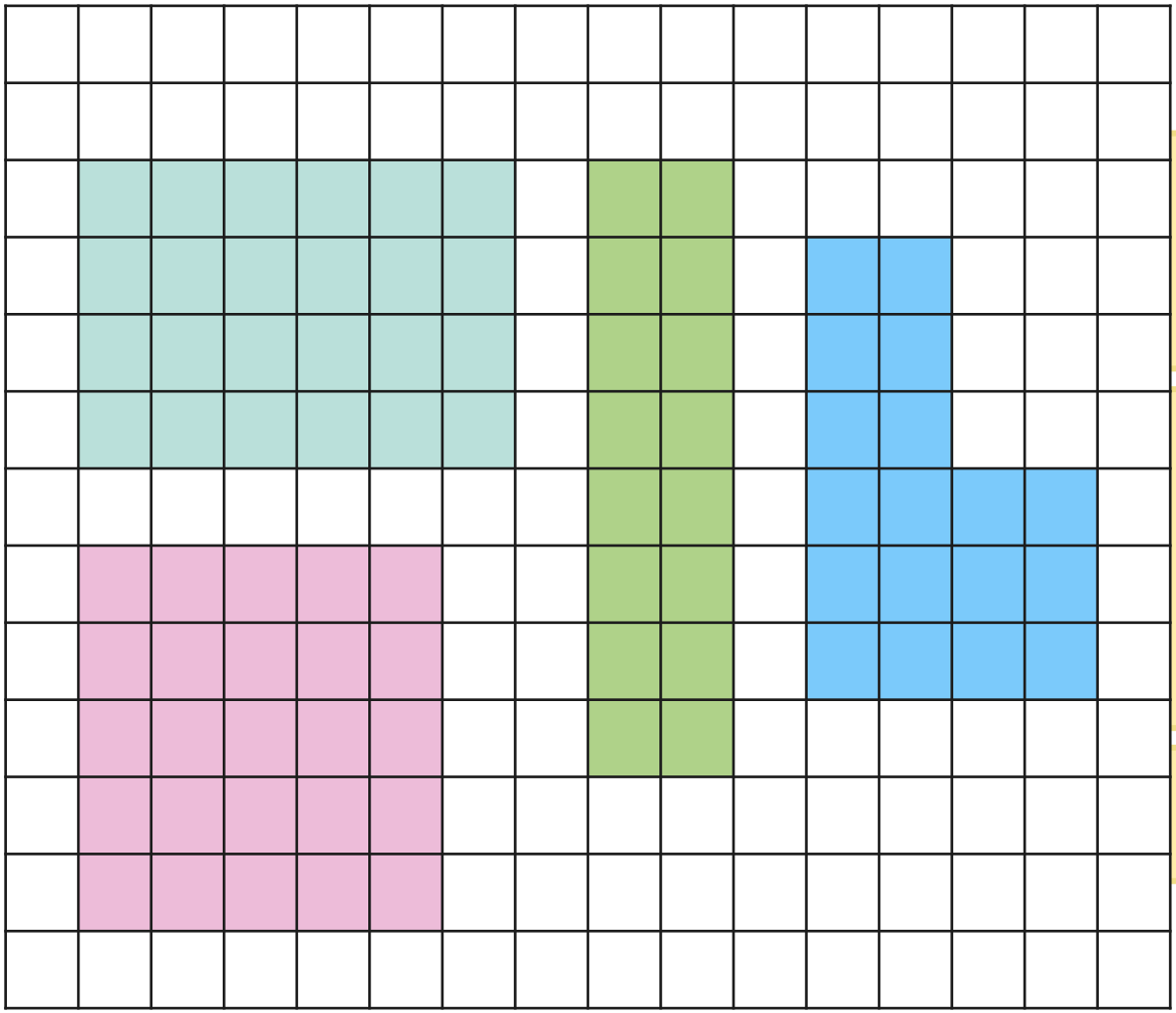


20cm

Do you think this is the only shape that has a perimeter of 20cm?

On a centimetre-squared grid, draw other shapes which have a perimeter of 20cm

Same Perimeter



Did you make any of these shapes?

Which of these shapes is different from the other shapes?

Why?

Measure Perimeter

Measure Perimeter

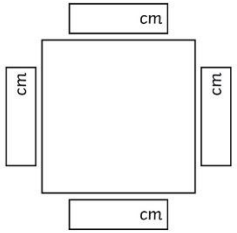
To calculate the perimeter of shapes.

1) Use your ruler to measure the length of each side.
Add together the lengths to find the perimeter.

a)

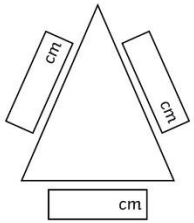
Perimeter =

b)

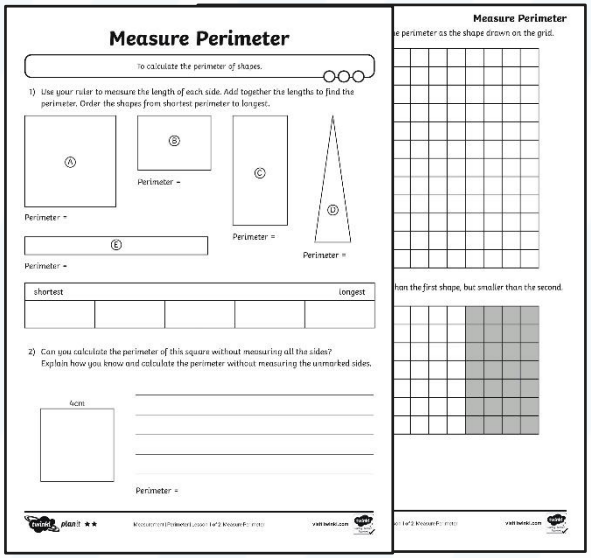


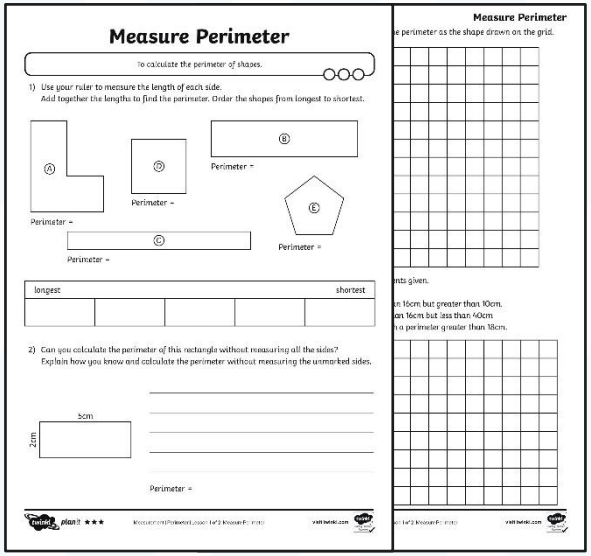
Perimeter =

c)



Perimeter =





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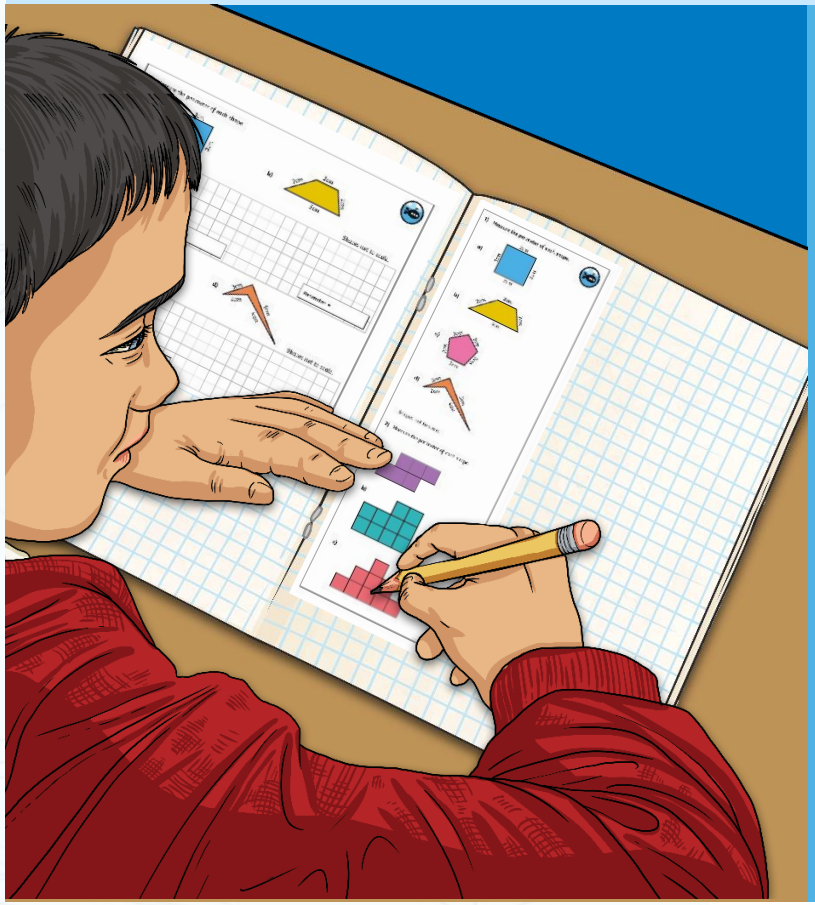
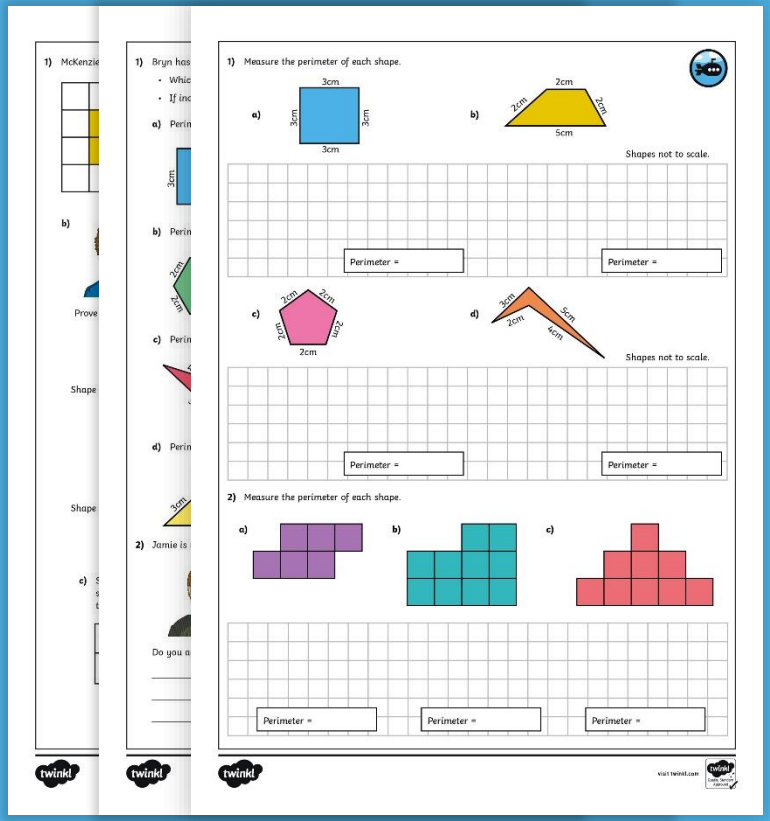
Diving into Mastery

Dive in by completing your own activity!



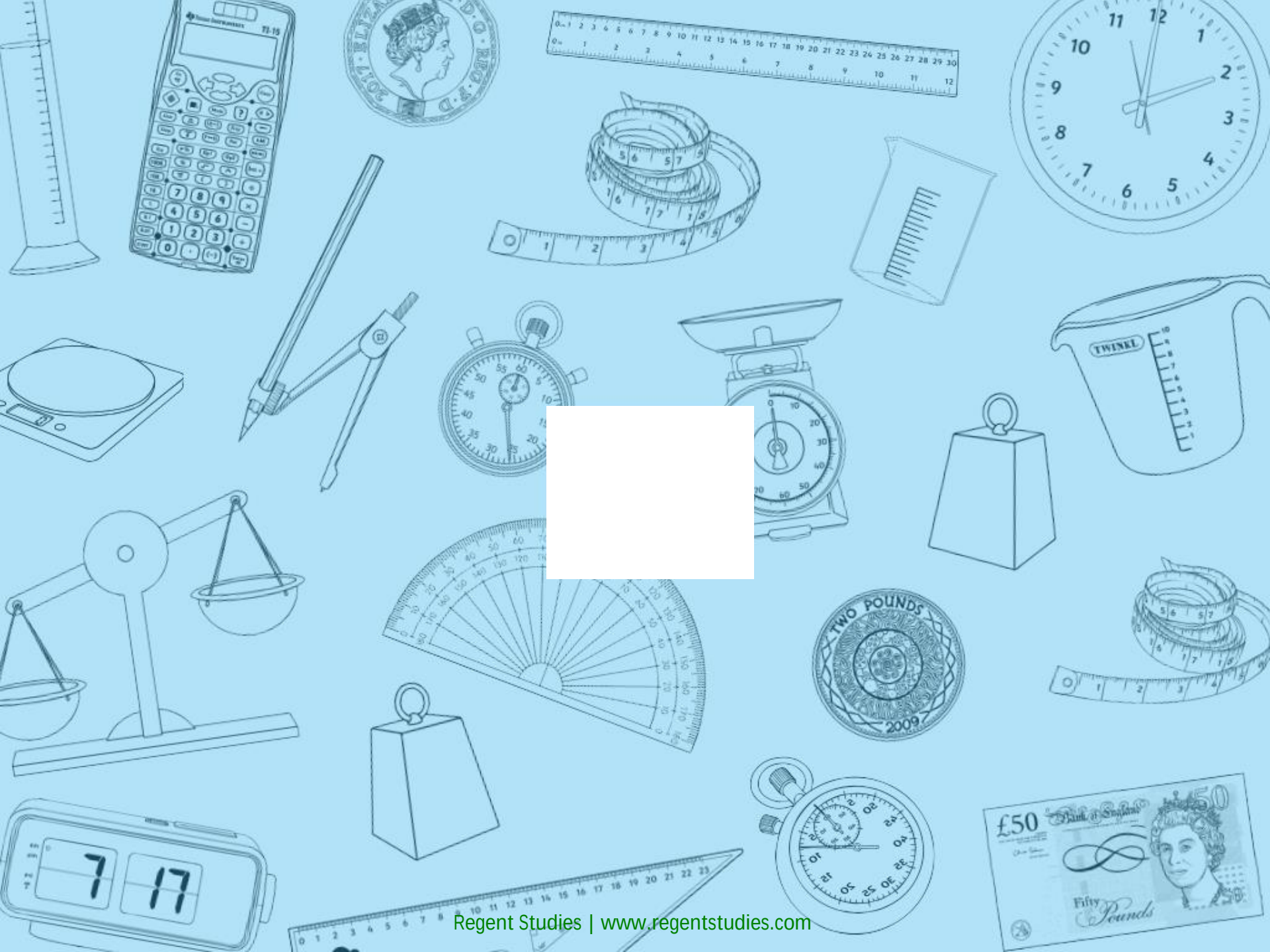


Aim

- To calculate the perimeter of shapes.

Success Criteria

- I can measure the length of the sides of shapes and calculate the perimeter.
- I can draw different shapes with the same perimeter.


TWINKL
TWO POUNDS
2009
£50
Fifty Pounds

1) a) 12cm

b) 11cm

c) 10cm

d) 14cm

2) a) 12cm

b) 14cm

c) 16cm

1) a) Incorrect. The perimeter should be 12cm.
3 + 3 + 3 + 3 = 12

b) Correct.

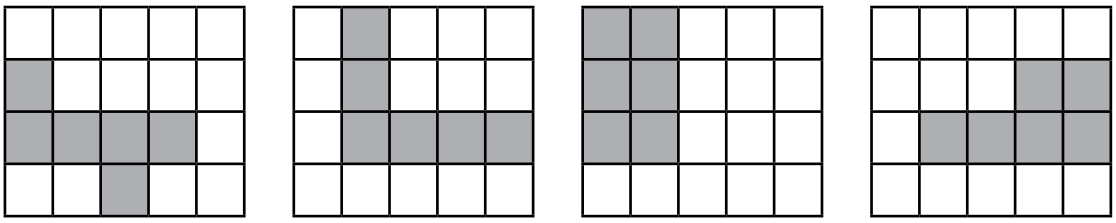
c) Correct.

d) Incorrect. The perimeter should be 14cm.
2 + 4 + 3 + 2 + 3 = 14

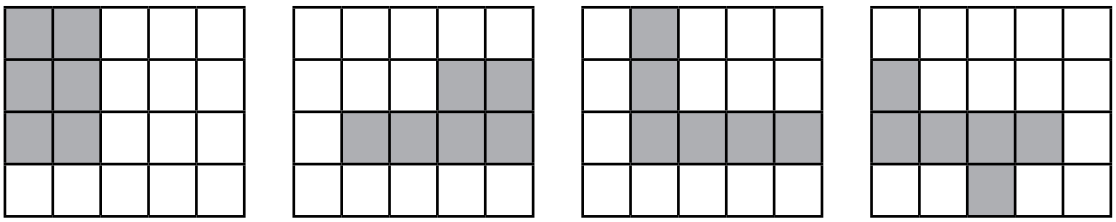
2) Jamie is incorrect. To find the perimeter of a rectangle, you need to measure one of the shorter and one of the longer sides and then double that total amount. The opposite sides would be same lengths. If Jamie doubled the total of the longest sides, his answer would be too large.

1) a) 12cm

b) There are many possible answers. Here are some examples:



c) Children's answers will vary depending on the shapes drawn in part b). For example:

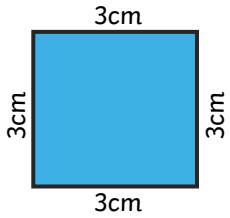


Shortest Perimeter			Longest Perimeter
C	D	B	A

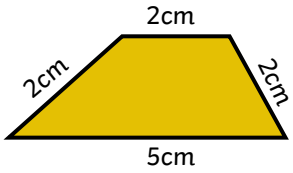
2) Children's answers will vary depending on the shapes drawn in question 1.

1) Measure the perimeter of each shape.

a)



b)

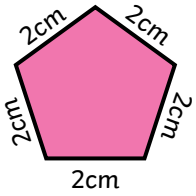


Shapes not to scale.

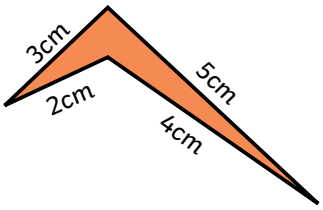
Perimeter =

Perimeter =

c)



d)



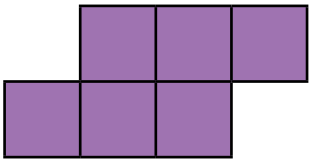
Shapes not to scale.

Perimeter =

Perimeter =

2) Measure the perimeter of each shape.

a)



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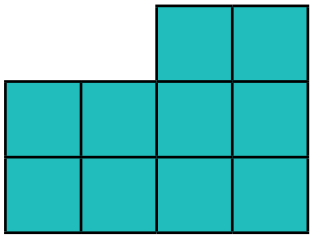

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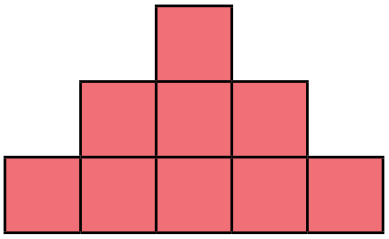


Perimeter =

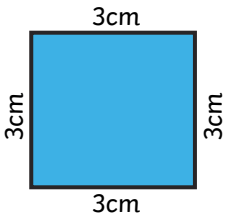
Perimeter =

Perimeter =

1) Bryn has measured the perimeter of each shape, but has made some mistakes.

- Which measurements are correct? Which are incorrect?
- If incorrect, what is the correct perimeter?

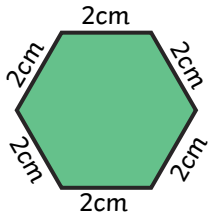
a) Perimeter = 9cm



☐ Correct ☐ Incorrect

_____

b) Perimeter = 12cm



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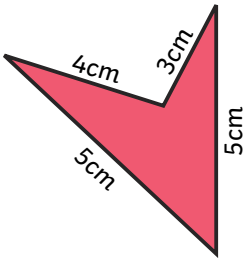
_____

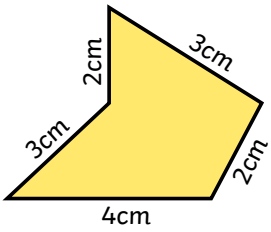
c) Perimeter = 17cm



☐ Correct ☐ Incorrect

_____

d) Perimeter = 18cm



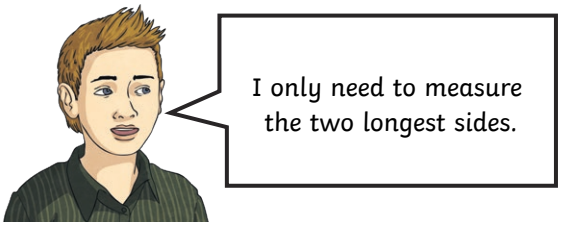
☐ Correct ☐ Incorrect

_____

Show your working out.

Shapes not to scale.

2) Jamie is measuring the perimeter of a rectangle.



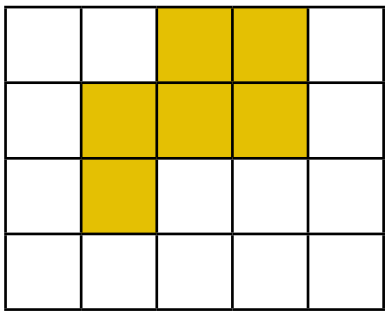
Do you agree? Explain your reasons.

_____

_____

_____

1) McKenzie has made this shape by shading 6 squares on a grid.



a) What is the perimeter of McKenzie's shape?

Perimeter =

b)

I think all shapes made of 6 squares on this grid will have the same perimeter.

Prove McKenzie is wrong by drawing 4 different shapes made up of 6 squares on these grids:

Shape A

Shape B

Shape C

Shape D

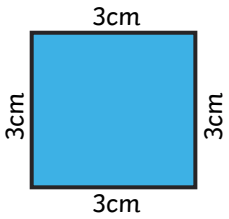
c) Sort your shapes into order from the shape with the shortest perimeter to the shape with the longest perimeter.

Shortest Perimeter			Longest Perimeter

2) Compare your shapes with those drawn by a friend. What similarities and differences can you see?

1) Measure the perimeter of each shape.

a)



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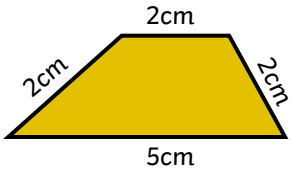

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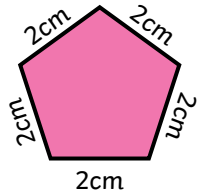
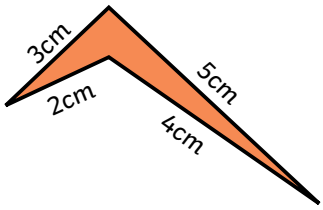


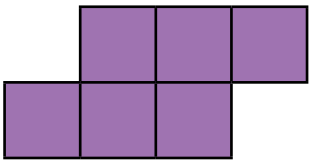
d)



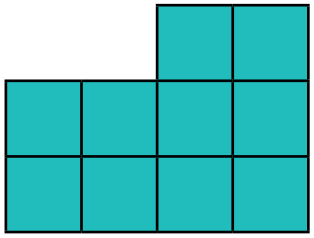
Shapes not to scale.

2) Measure the perimeter of each shape.

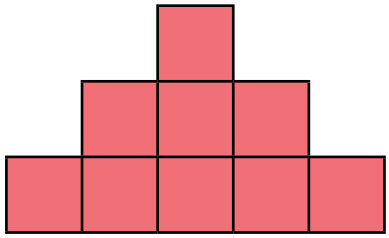
a)



b)

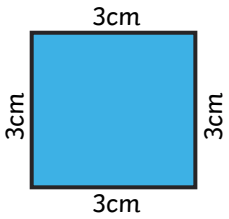


c)

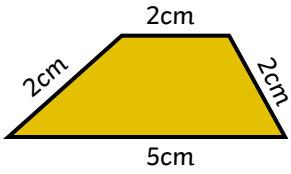


1) Measure the perimeter of each shape.

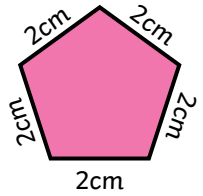
a)



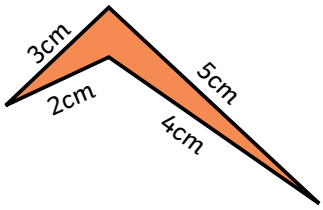
b)



c)



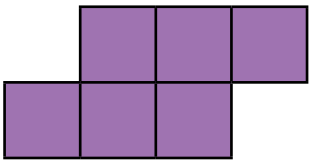
d)



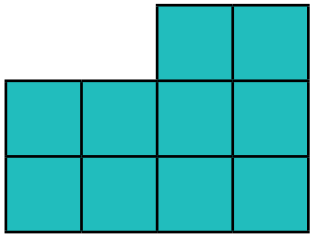
Shapes not to scale.

2) Measure the perimeter of each shape.

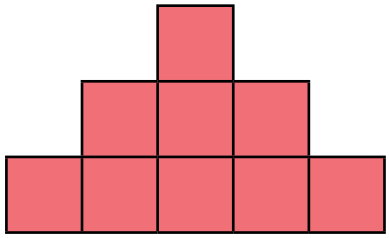
a)



b)



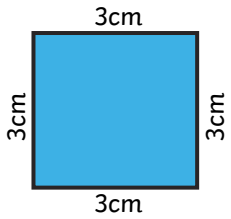
c)



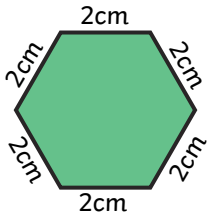
1) Bryn has measured the perimeter of each shape, but has made some mistakes.

- Which measurements are correct? Which are incorrect?
- If incorrect, what is the correct perimeter?

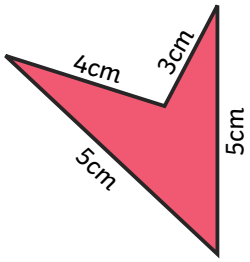
a) Perimeter = 9cm



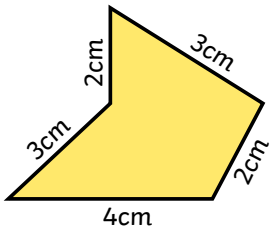
b) Perimeter = 12cm



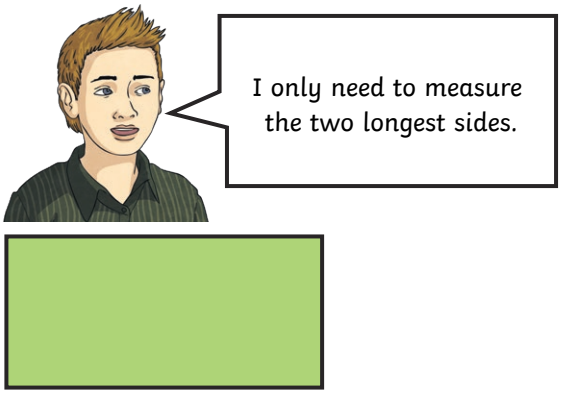
c) Perimeter = 17cm



d) Perimeter = 18cm



2) Jamie is measuring the perimeter of a rectangle.



Do you agree? Explain your reasons.

1) Bryn has measured the perimeter of each shape, but has made some mistakes.

- Which measurements are correct? Which are incorrect?
- If incorrect, what is the correct perimeter?

a) Perimeter = 9cm

b) Perimeter = 12cm

c) Perimeter = 17cm

d) Perimeter = 18cm

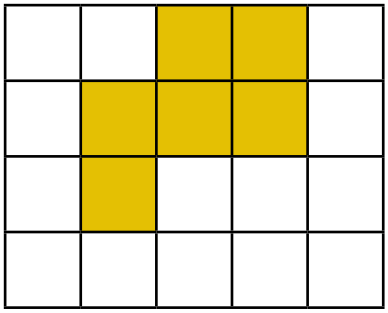
2) Jamie is measuring the perimeter of a rectangle.

I only need to measure the two longest sides.

Do you agree? Explain your reasons.

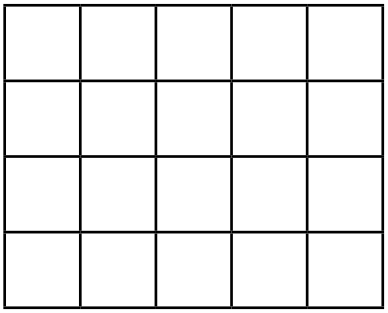
1) McKenzie has made this shape by shading 6 squares on a grid.

a) What is the perimeter of McKenzie's shape?



b)

Prove McKenzie is wrong by drawing 4 different shapes made up of 6 squares on a grid like this.



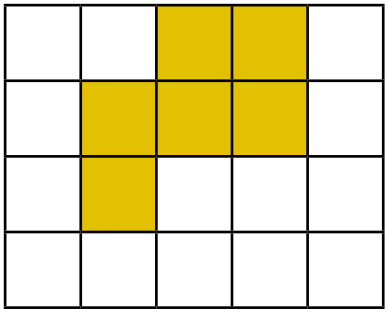
c) Label your shapes A, B, C, and D. Sort them into order from the shape with the shortest perimeter to the shape with the longest perimeter.

Shortest Perimeter			Longest Perimeter

2) Compare your shapes with those drawn by a friend. What similarities and differences can you see?

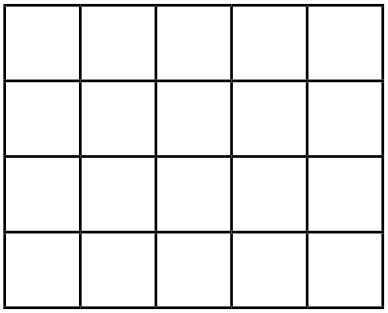
1) McKenzie has made this shape by shading 6 squares on a grid.

a) What is the perimeter of McKenzie's shape?



b)

Prove McKenzie is wrong by drawing 4 different shapes made up of 6 squares on a grid like this.



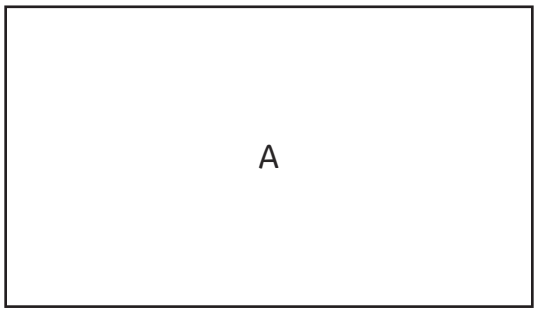
c) Label your shapes A, B, C, and D. Sort them into order from the shape with the shortest perimeter to the shape with the longest perimeter.

Shortest Perimeter			Longest Perimeter

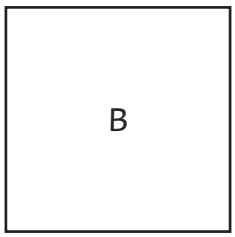
2) Compare your shapes with those drawn by a friend. What similarities and differences can you see?

Finding Perimeter

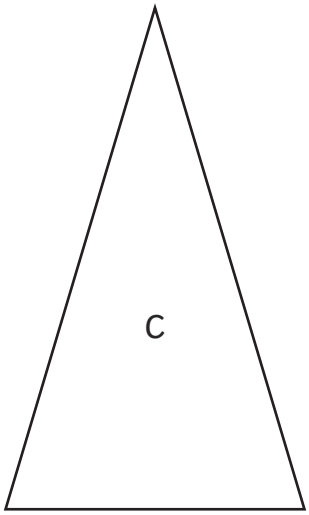
Use a ruler to measure the length of each side. Then add together the lengths of the sides to calculate the perimeter. Show how you worked out the answer.



Perimeter =



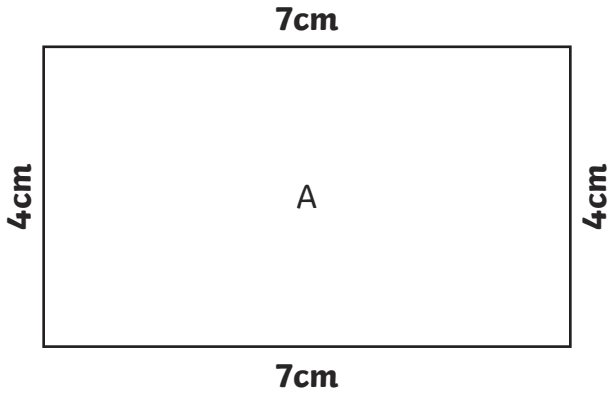
Perimeter =



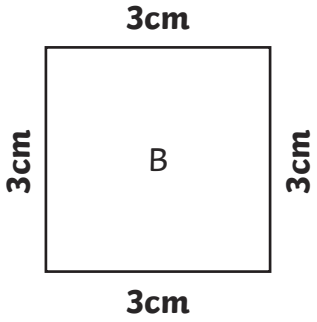
Perimeter =

Finding Perimeter **Answers**

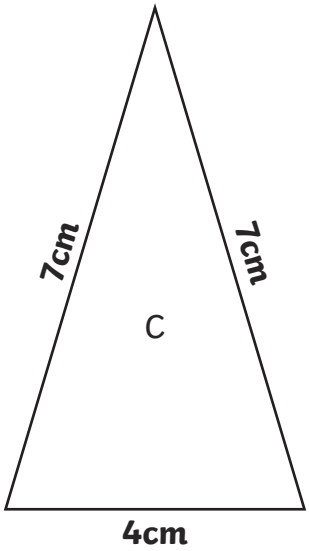
Use a ruler to measure the length of each side. Then add together the lengths of the sides to calculate the perimeter. Show how you worked out the answer.



Perimeter = **22cm**



Perimeter = **12cm**



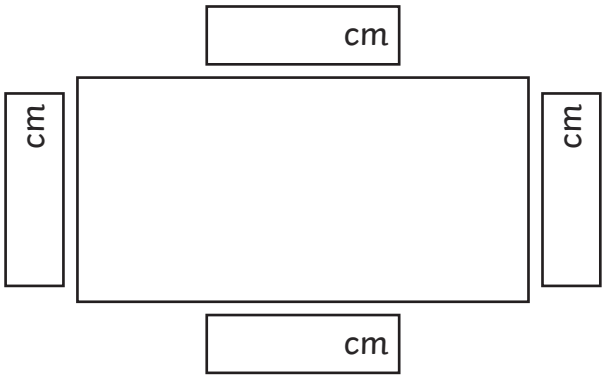
Perimeter = **18cm**

Measure Perimeter

To calculate the perimeter of shapes.

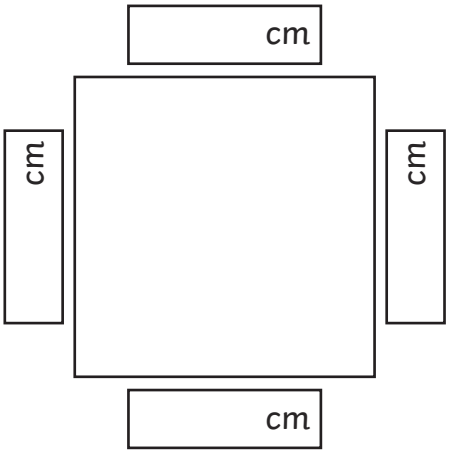
1) Use your ruler to measure the length of each side.
Add together the lengths to find the perimeter.

a)



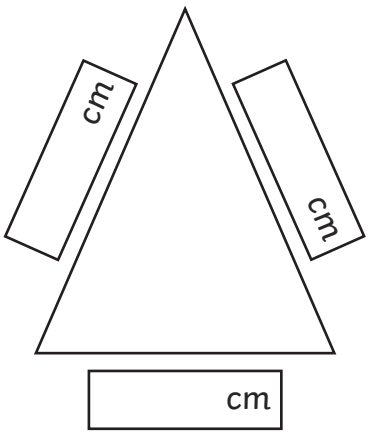
Perimeter =

b)



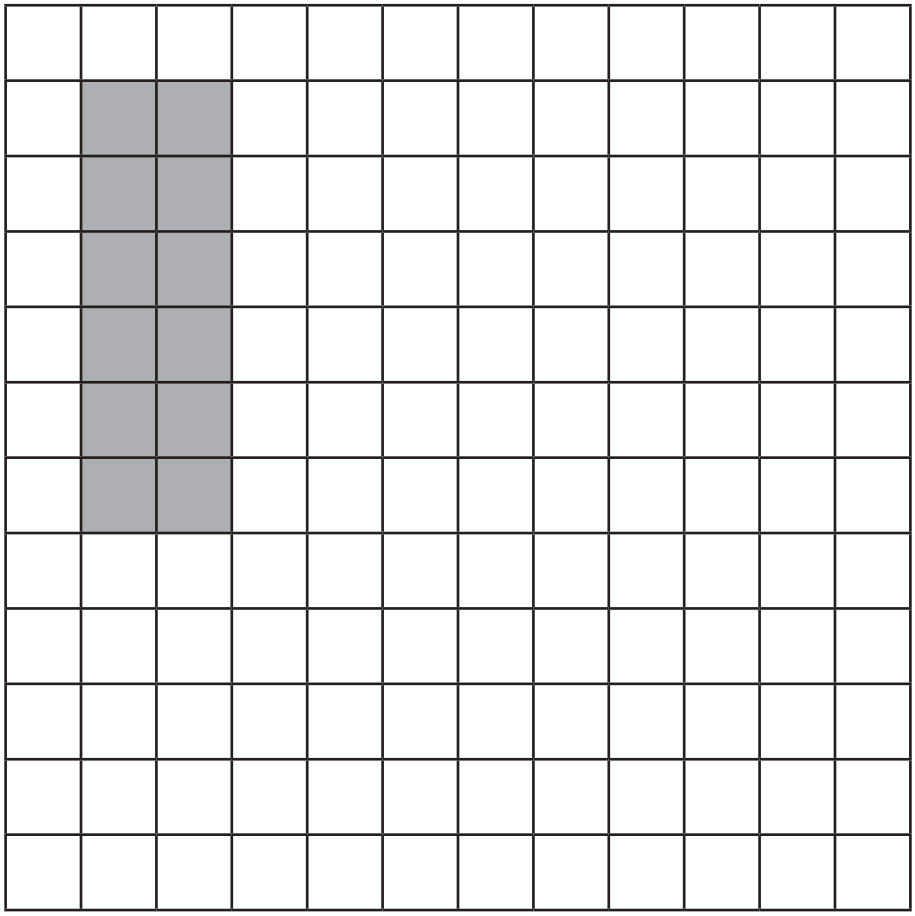
Perimeter =

c)



Perimeter =

2) A shape has been drawn on the grid which has a perimeter of 16cm.
Draw 3 different shapes which have a perimeter of 16cm.



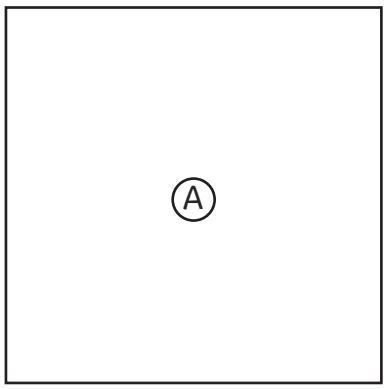
3) Find objects around the classroom. Measure the lengths of the sides and calculate the perimeter. Ask a friend to check your measurements.

Object	Sides	Perimeter

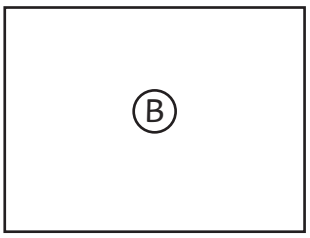
Measure Perimeter

To calculate the perimeter of shapes.

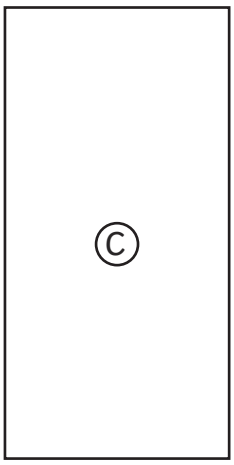
1) Use your ruler to measure the length of each side. Add together the lengths to find the perimeter. Order the shapes from shortest perimeter to longest.



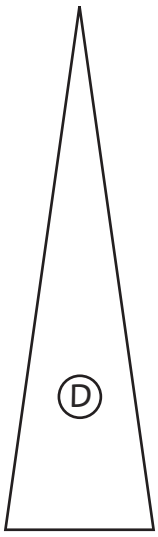
Perimeter =



Perimeter =



Perimeter =



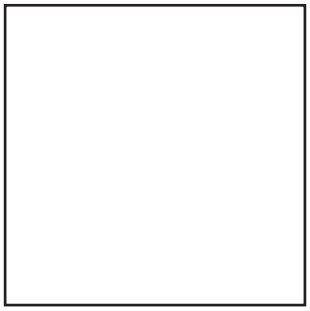
Perimeter =

Perimeter =

shortest				longest

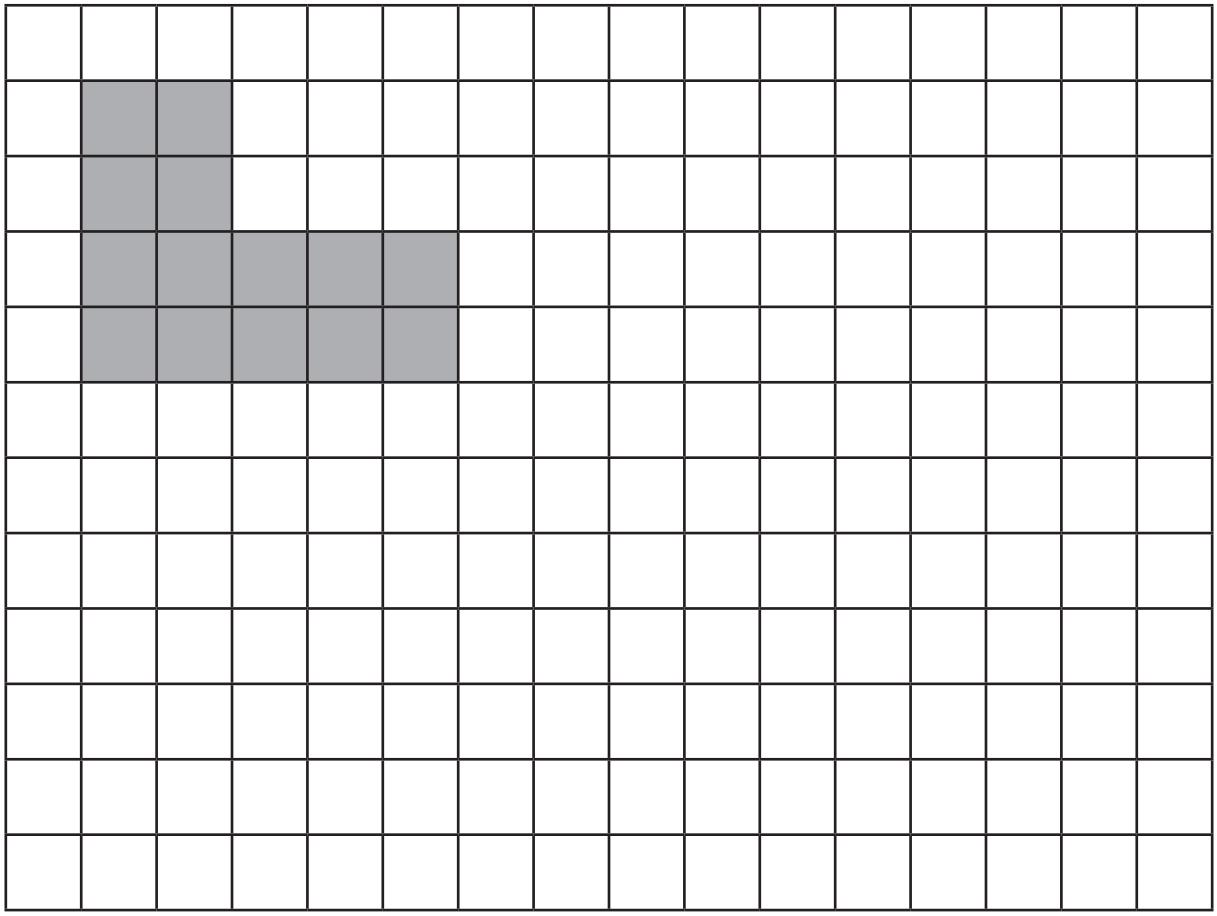
2) Can you calculate the perimeter of this square without measuring all the sides? Explain how you know and calculate the perimeter without measuring the unmarked sides.

4cm

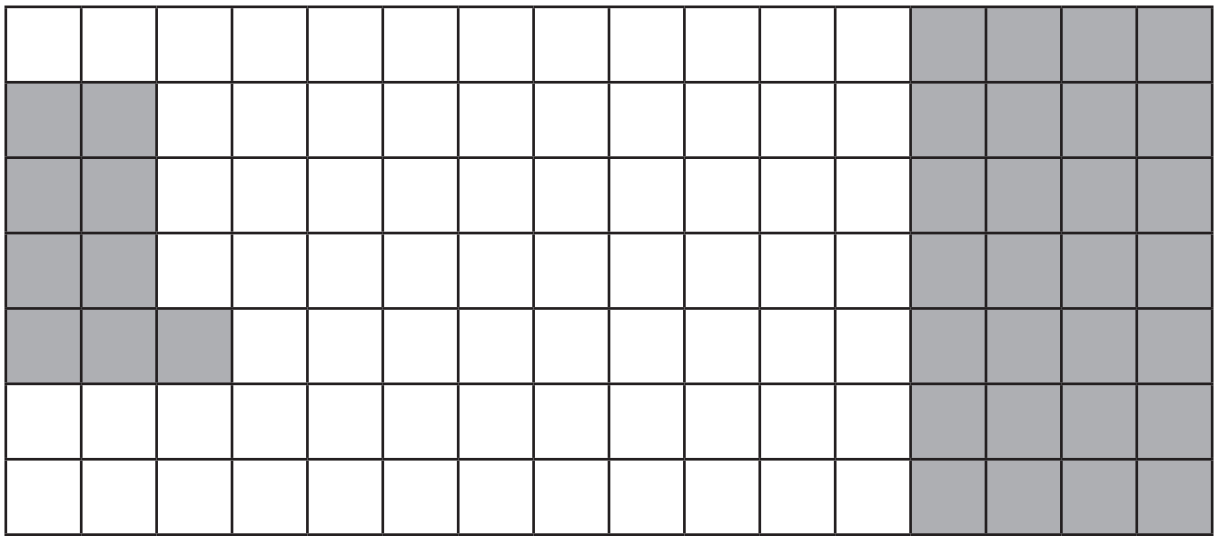


Perimeter =

3) Draw 3 different shapes which have the same perimeter as the shape drawn on the grid.



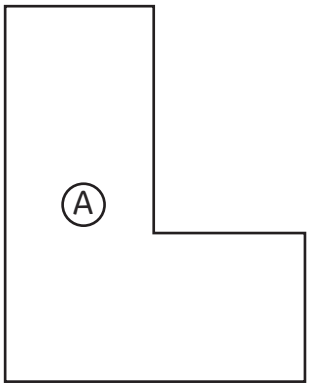
4) Draw a shape which has a perimeter greater than the first shape, but smaller than the second.



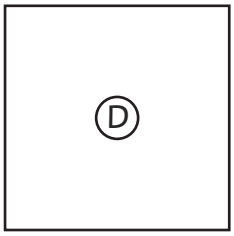
Measure Perimeter

To calculate the perimeter of shapes.

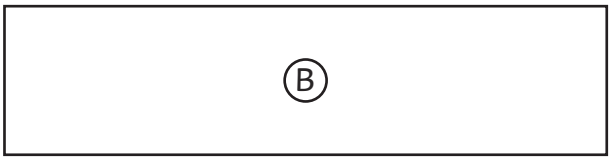
1) Use your ruler to measure the length of each side.
Add together the lengths to find the perimeter. Order the shapes from longest to shortest.



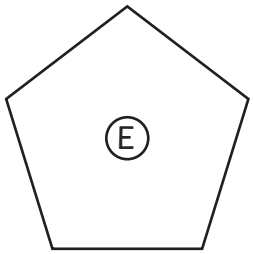
Perimeter =



Perimeter =



Perimeter =



Perimeter =

Perimeter =

longest				shortest

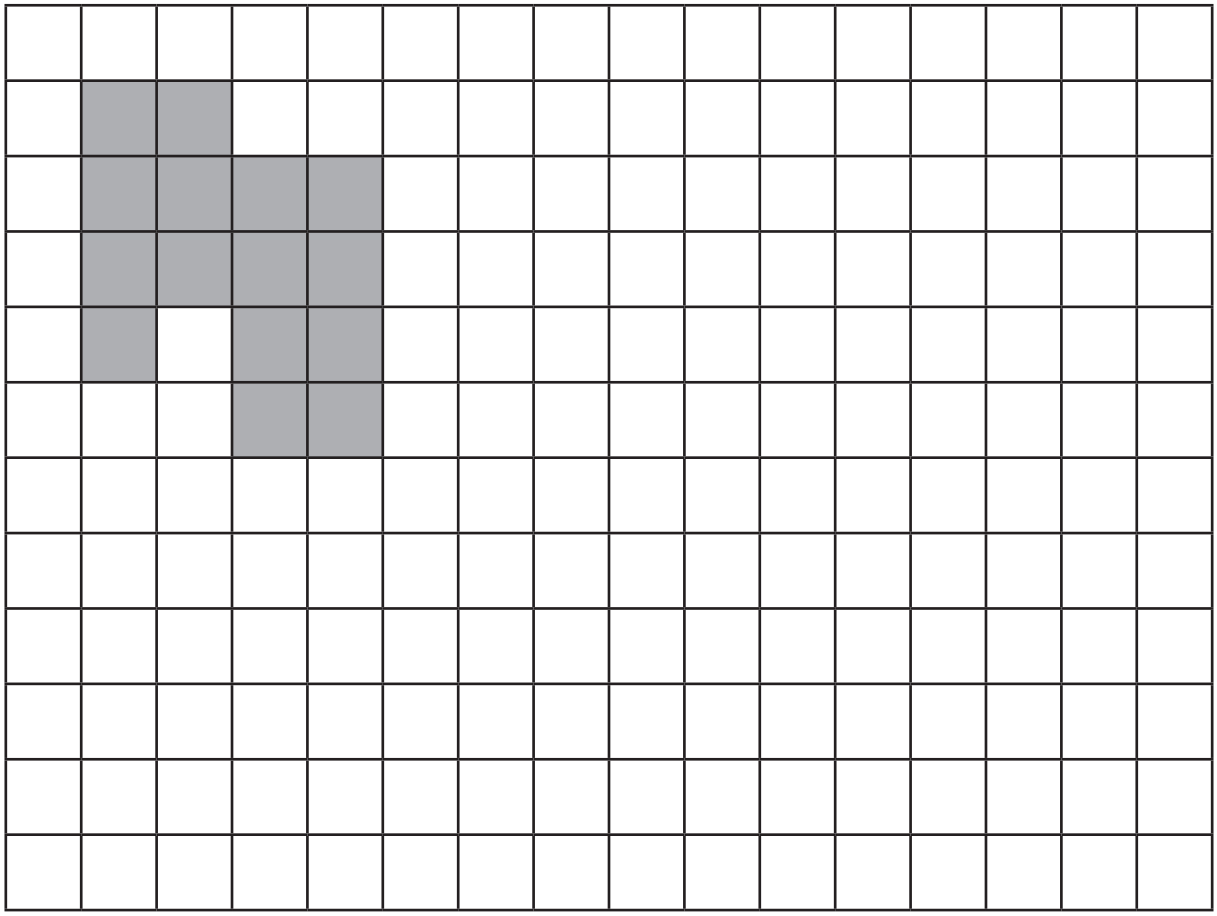
2) Can you calculate the perimeter of this rectangle without measuring all the sides?
Explain how you know and calculate the perimeter without measuring the unmarked sides.

5cm

2cm

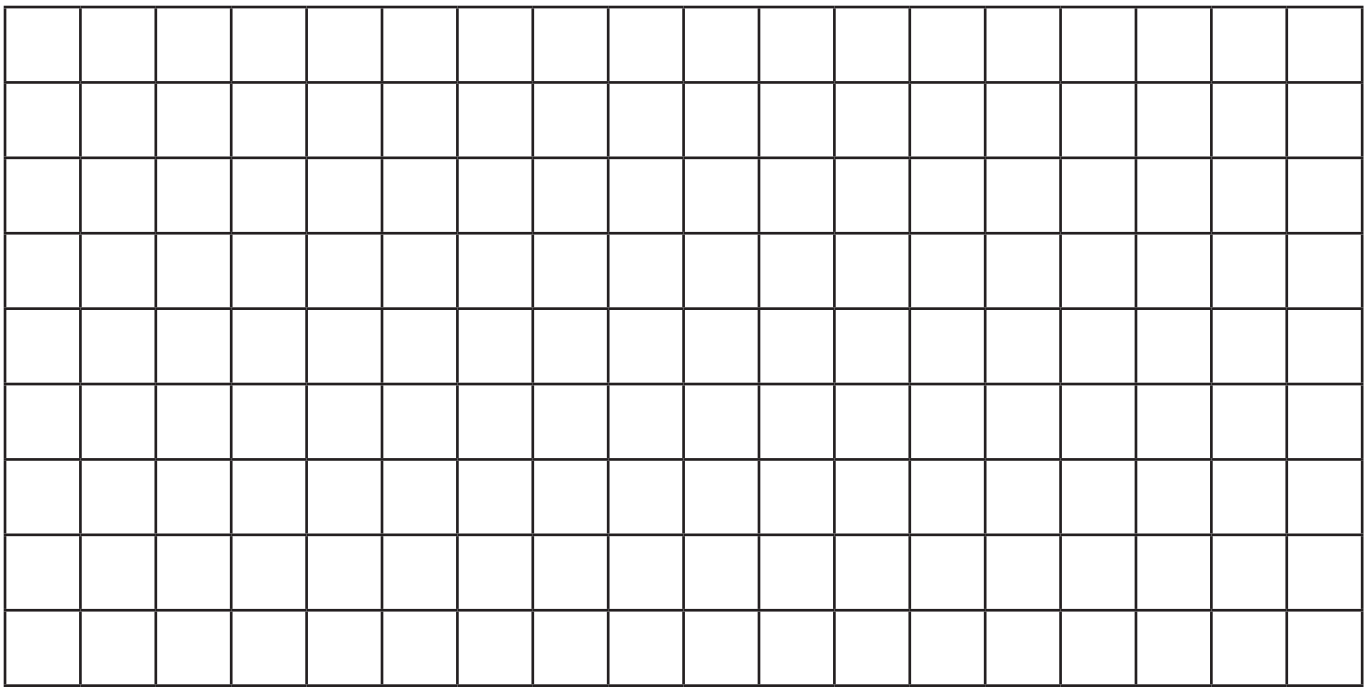
Perimeter =

3) Draw 3 different shapes which have the same perimeter as the shape drawn on the grid.



4) Draw shapes on the grid to match the statements given.

Shape A: a rectangle with a perimeter less than 16cm but greater than 10cm.
Shape B: a square with a perimeter greater than 16cm but less than 40cm
Shape C: a shape with more than 4 sides, with a perimeter greater than 18cm.

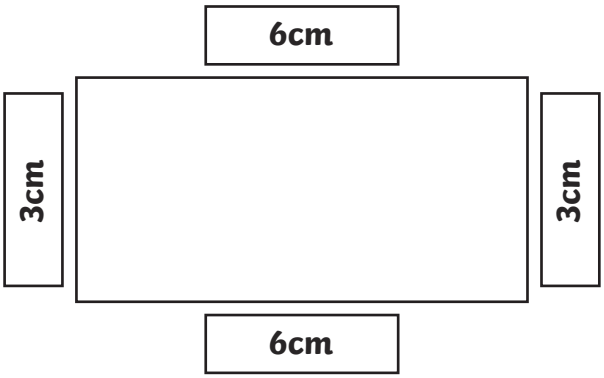


Measure Perimeter **Answers**

To calculate the perimeter of shapes.

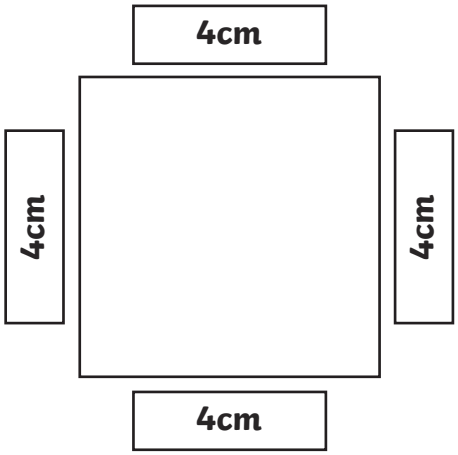
1) Use your ruler to measure the length of each side.
Add together the lengths to find the perimeter.

a)



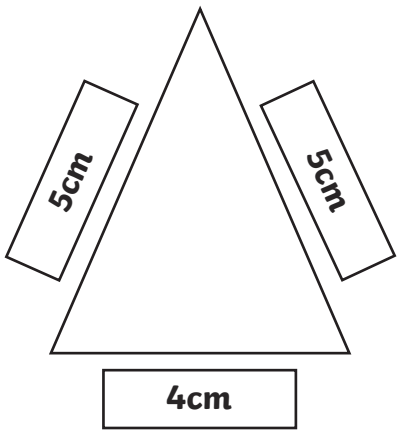
Perimeter = **18cm**

b)



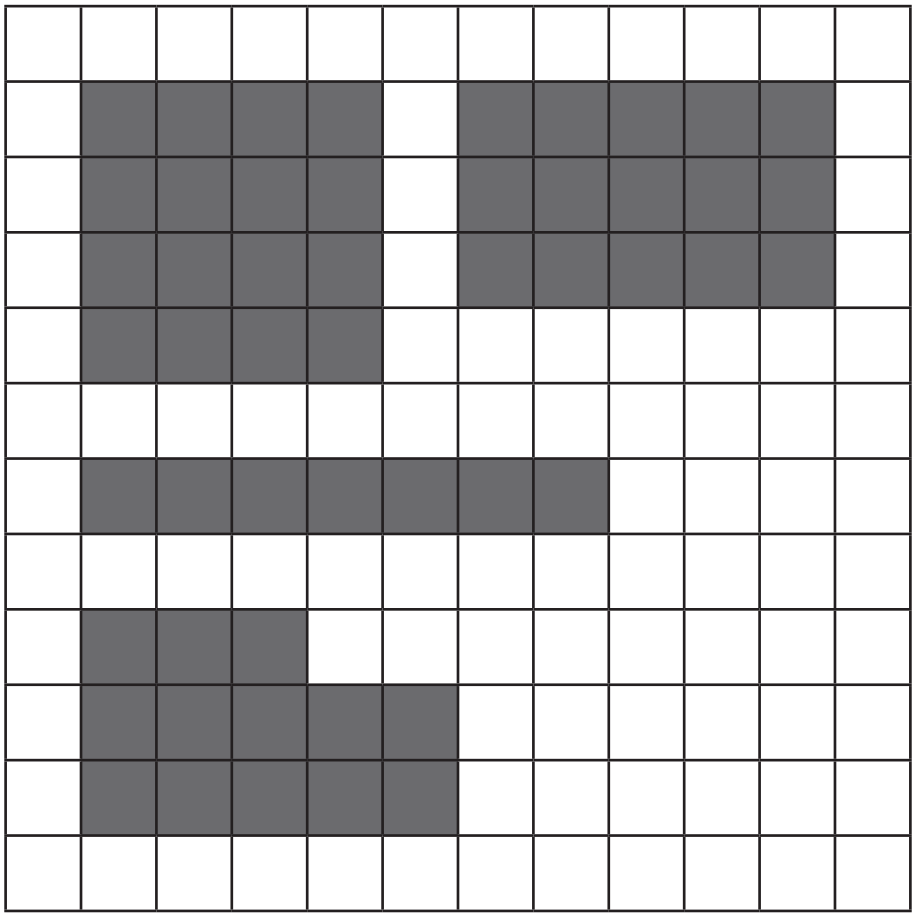
Perimeter = **16cm**

c)



Perimeter = **14cm**

2) Shapes drawn have a perimeter of 16cm. Example shapes:



3) Find objects around the classroom. Measure the lengths of the sides and calculate the perimeter. Ask a friend to check your measurements.

Multiple answers possible. Total of the sides equals the perimeter.

Measure Perimeter **Answers**

To calculate the perimeter of shapes.

1) Use your ruler to measure the length of each side. Add together the lengths to find the perimeter. Order the shapes from shortest perimeter to longest.

Shape A: Perimeter = 20cm

Shape B: Perimeter = 14cm

Shape C Perimeter = 18cm

Shape D: Perimeter = 16cm

Shape E: Perimeter = 22cm

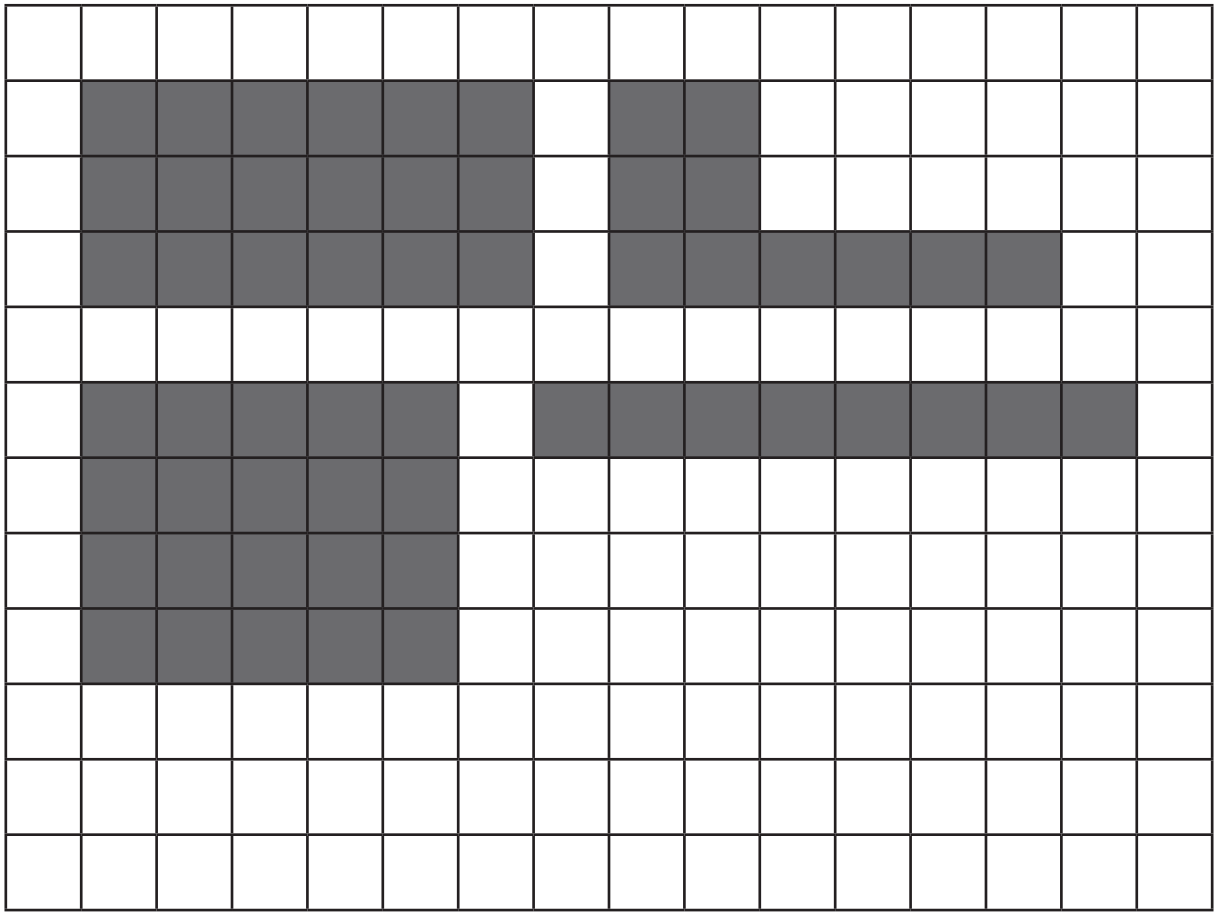
shortest				longest
B	**D**	**C**	**A**	**E**

2) Can you calculate the perimeter of this square without measuring all the sides? Explain how you know and calculate the perimeter without measuring the unmarked sides.

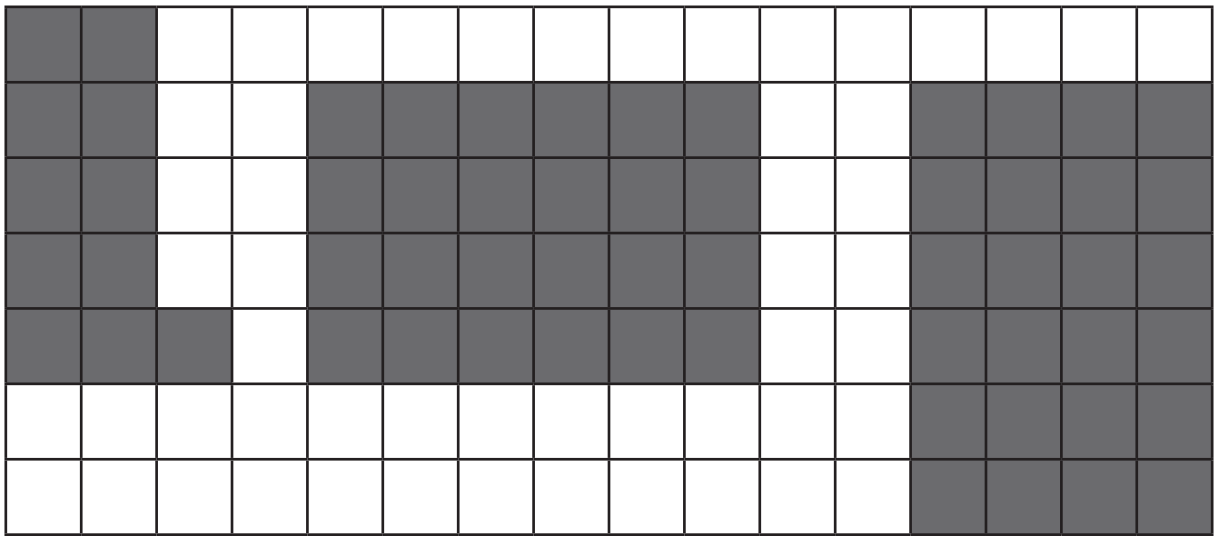
It is possible to calculate the perimeter of the square without measuring the length of all of the sides. As all sides of a square are equal, each side measures 4cm.

Perimeter = 16cm

3) Shapes drawn have a perimeter of 18cm. Example shapes:



4) Shape drawn has a perimeter greater than 14cm and less than 22cm. Example shape shown.



Measure Perimeter **Answers**

To calculate the perimeter of shapes.

1) Use your ruler to measure the length of each side.
Add together the lengths to find the perimeter. Order the shapes from longest to shortest.

Shape A: Perimeter = 18cm

Shape B: Perimeter = 20cm

Shape C Perimeter = 22cm

Shape D: Perimeter = 12cm

Shape E: Perimeter = 10cm

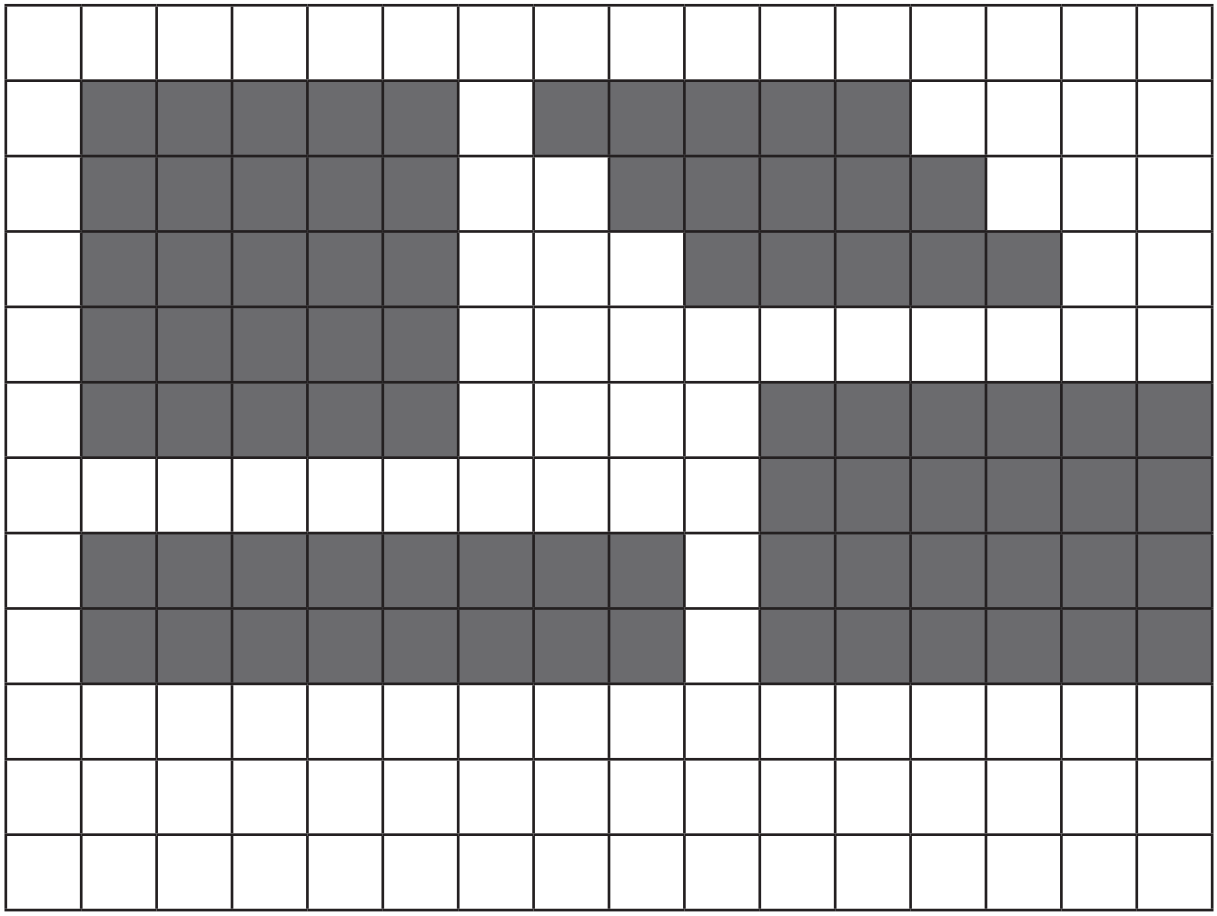
longest				shortest
C	**B**	**A**	**D**	**E**

2) Can you calculate the perimeter of this rectangle without measuring all the sides?
Explain how you know and calculate the perimeter without measuring the unmarked sides.

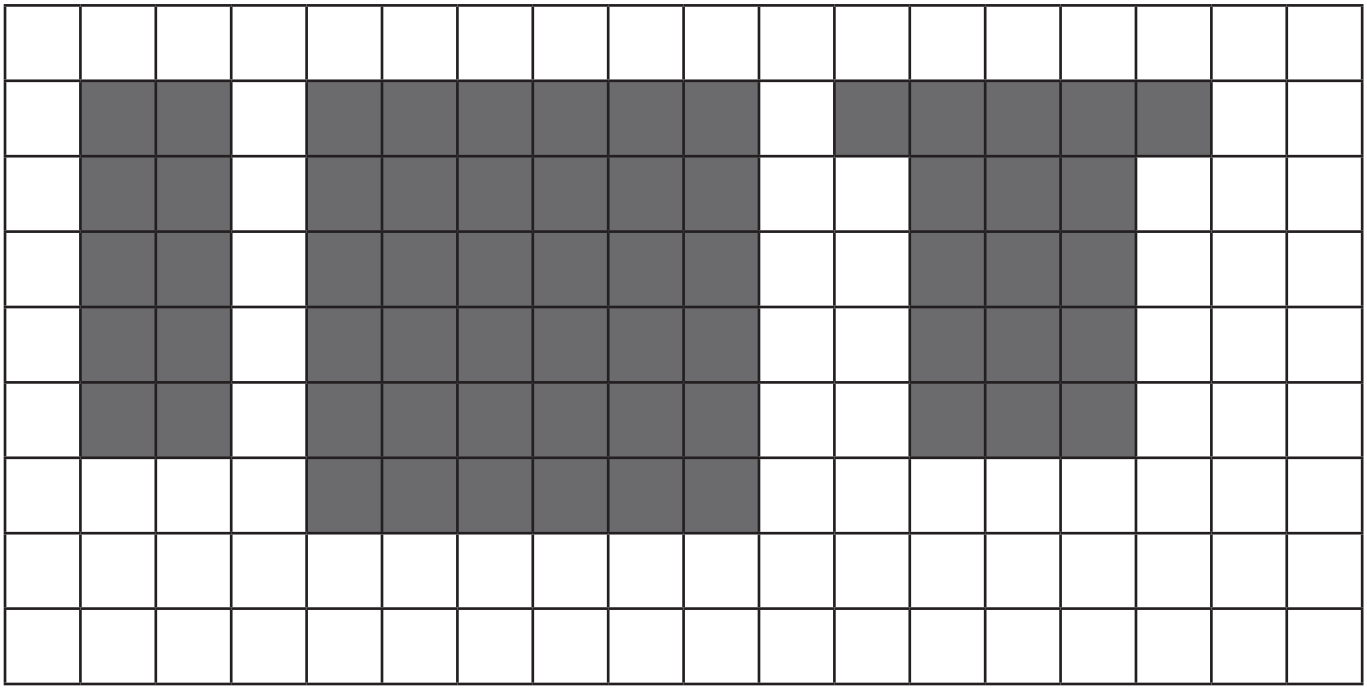
It is possible to calculate the perimeter of the rectangle without measuring the length of all of the sides. Opposite sides of the rectangle are equal.

Perimeter = 14cm

3) Shapes drawn have a perimeter of 20cm. Example shapes:



4) *Multiple shapes possible. Example shapes:*



Measurement | Measure Perimeter

To calculate the perimeter of shapes.		
I can measure the length of the sides of shapes and calculate the perimeter		
I can draw different shapes with the same perimeter.		

Measurement | Measure Perimeter

To calculate the perimeter of shapes.		
I can measure the length of the sides of shapes and calculate the perimeter		
I can draw different shapes with the same perimeter.		

Measurement | Measure Perimeter

To calculate the perimeter of shapes.		
I can measure the length of the sides of shapes and calculate the perimeter		
I can draw different shapes with the same perimeter.		

Measurement | Measure Perimeter

To calculate the perimeter of shapes.		
I can measure the length of the sides of shapes and calculate the perimeter		
I can draw different shapes with the same perimeter.		

Measurement | Measure Perimeter

To calculate the perimeter of shapes.		
I can measure the length of the sides of shapes and calculate the perimeter		
I can draw different shapes with the same perimeter.		

Measurement | Measure Perimeter

To calculate the perimeter of shapes.		
I can measure the length of the sides of shapes and calculate the perimeter		
I can draw different shapes with the same perimeter.		

Measurement | Measure Perimeter

To calculate the perimeter of shapes.		
I can measure the length of the sides of shapes and calculate the perimeter		
I can draw different shapes with the same perimeter.		

Measurement | Measure Perimeter

To calculate the perimeter of shapes.		
I can measure the length of the sides of shapes and calculate the perimeter		
I can draw different shapes with the same perimeter.		