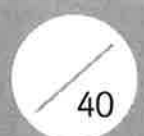
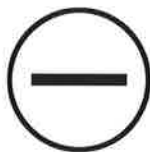


Year 6

Mathematics

Arithmetic: Paper 2

Name	
Date	



total marks

$25 \times 6 =$

1 mark

 $901 + 100 =$ [illegible]

1 mark

 $231 \times 4 =$ A large grid of graph paper, approximately 20 units wide and 10 units high. A rectangular box is drawn on the right side of the grid, spanning from the 15th vertical line to the 20th vertical line and from the 3rd horizontal line to the 5th horizontal line. The box is empty and has a black border.

1 mark



**Total for
this page**

$$6.3 - 0.2 =$$
A large grid of graph paper, approximately 20 units wide and 10 units high. A small rectangle is drawn on the right side of the grid, spanning 4 units in width and 2 units in height. The rectangle is positioned such that its left edge is 16 units from the left edge of the grid, its right edge is 20 units from the left edge, its top edge is 8 units from the bottom edge, and its bottom edge is 10 units from the bottom edge.
$$564 - 300 =$$
A 20x10 grid of squares. A rectangle is drawn in the bottom right corner, spanning 5 squares horizontally and 3 squares vertically. The rectangle is located in the bottom right corner of the grid, starting from the 15th column and 7th row from the top-left, and ending at the 20th column and 10th row. $81 \div 9 =$ A 20x10 grid of squares. A black rectangle is drawn in the bottom right corner, spanning 5 squares horizontally and 3 squares vertically. The rectangle is located in the bottom right corner of the grid, with its top-left corner at the intersection of the 15th vertical line and the 7th horizontal line from the bottom.

7

$$\boxed{} = 587 + 3927$$

1 mark

8

$$756 \div 1 =$$

1 mark

9

$$\frac{3}{8} + \frac{7}{8} =$$

1 mark

Total for
this page

$$2.81 + 0.006 =$$
A large grid of 20 columns and 10 rows of squares, intended for drawing a rectangle. $3^3 =$ A blank grid with a rectangular box on the right side. The grid is composed of 20 columns and 10 rows of squares. A rectangular box, outlined in black, is positioned on the right side of the grid, spanning 4 columns and 2 rows. It is located in the bottom right corner of the grid area.
$$810 \div 9 =$$
[illegible]

$$67.1 \times 100 =$$
A large grid of squares, 20 units wide and 10 units high, intended for drawing a rectangle. The grid is composed of thin black lines on a white background.

1 mark

$$5.03 \div 100 =$$
A 20x10 grid of squares. A rectangle is drawn in the bottom right corner, spanning 5 squares horizontally and 3 squares vertically. The rectangle is located in the bottom right corner of the grid, with its top-left corner at the intersection of the 15th vertical line and the 7th horizontal line from the bottom. The rectangle is outlined in black and is empty.

1 mark

 $7462 + 9024 =$ A large grid of graph paper, consisting of 20 columns and 10 rows of squares. A rectangular box is drawn on the right side of the grid, spanning 4 columns and 2 rows, starting from the 17th column and the 8th row.

1 mark

Total for this page

16

$300 \times 9 =$

[illegible]

1 mark

17

$$3.71 \times 5 =$$

[illegible]

1 mark

18

$$\frac{5}{12} - \frac{1}{12} =$$

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1 mark

Total for this page

$$6732 \div 8 =$$

1 mark

 $3408 - 573 =$

1 mark

$$50\% \text{ of } 2350 =$$
A 20x10 grid of squares. A rectangle is drawn in the bottom right corner, spanning 5 squares horizontally and 3 squares vertically. The rectangle is located in the bottom right corner of the grid, starting from the 15th vertical line and the 7th horizontal line from the bottom, extending to the 20th vertical line and the 10th horizontal line from the bottom.

1 mark

Total for
this page

22

$$60\ 100 - 900 =$$

--	--

1 mark

23

$$14.4 - 6.59 =$$

[illegible]

1 mark

24

$$\frac{1}{4} \times \frac{1}{6} =$$

[illegible]

1 mark

Total for
this page

25 | $309\,712 - 69\,087 =$

1 mark

26 | 70% of 250 =

1 mark



Total for
this page

27

$76 \times 31 =$

	7	6
x	3	1



2 marks

28

$\frac{3}{5} + 1\frac{1}{6} =$



1 mark

Total for
this page

29

$$16 \times 1\frac{3}{4} =$$

A 20x10 grid with a rectangle in the bottom right corner. The rectangle is 5 units wide and 3 units high, starting from the 15th column and 7th row, extending to the 20th column and 10th row.

1 mark

30

$$\frac{4}{5} \div 2 =$$

A 20x10 grid with a rectangle in the bottom right corner. The rectangle is 5 units wide and 3 units high, starting from the 15th column and 7th row, extending to the 20th column and 10th row.

1 mark

Total for
this page

31

$2520 \div 15 =$

1 5 2 5 2 0

2 marks

32

$2\frac{1}{3} - \frac{2}{5} =$

1 mark

Total for
this page

$2 + 6 \times 4 =$ A blank grid for drawing a rectangle. The grid is 20 units wide and 10 units high. A rectangle is drawn in the bottom right corner, spanning from the 15th vertical line to the 20th vertical line and from the 1st horizontal line to the 3rd horizontal line. The rectangle is 5 units wide and 2 units high.

1 mark

$$2308 \times 45 =$$

A large grid for drawing a graph. The grid is 20 units wide and 20 units high. The x-axis is labeled 'x' and the y-axis is labeled 'y'. The origin (0,0) is at the bottom-left corner. The x-axis has tick marks every 1 unit, and the y-axis has tick marks every 1 unit. The grid lines are labeled with numbers 1 through 20. The x-axis labels are at the bottom, and the y-axis labels are on the left side. The grid is divided into four quadrants by the x and y axes. The top-right quadrant is shaded gray. The bottom-left quadrant is white. The top-left quadrant is white. The bottom-right quadrant is white. The grid is used for plotting the graph of the function $y = 2x^2 - 3x + 8$.

2 marks

Total for
this page

35 $\frac{3}{7} \div 2 =$

$$\frac{3}{7} \div 2 =$$

A 20x10 grid is shown. A rectangle is drawn in the bottom right corner, spanning 5 units wide and 3 units high. The rectangle is outlined in black and is empty.

36 | $2912 \div 52 =$

$$2912 \div 52 =$$

A grid with a sequence of numbers and a box. The numbers are 5, 2, 2, 9, 1, 2, followed by a box.

5	2	2	9	1	2	
---	---	---	---	---	---	--



Answer Sheet: Key Stage 2: Arithmetic Paper 2



Guidance: Children will have 30 minutes for this test. Long division and long multiplication questions are worth **2 marks** each. Children will be awarded 2 marks for a correct answer. They may get 1 mark for showing a formal method. All other questions are worth 1 mark each.

question	answer	marks
1	150	1
2	1001	1
3	924	1
4	6.1	1
5	264	1
6	9	1
7	4514	1
8	756	1
9	$\frac{10}{8}$ or $\frac{5}{4}$ or $1\frac{1}{4}$	1
10	2.816	1
11	27	1
12	90	1
13	6710	1
14	0.0503	1
15	16 486	1
16	2700	1
17	18.55	1
18	$\frac{1}{3}$ or $\frac{4}{12}$	1
19	841.5 or 841r4	1
20	2835	1
21	1175	1

question	answer	marks
22	59 200	1
23	7.81	1
24	$\frac{1}{24}$	1
25	240 625	1
26	175	1
27	2356	2
28	$1\frac{23}{30}$	1
29	28	1
30	$\frac{2}{5}$	1
31	168	2
32	$1\frac{14}{15}$	1
33	26	1
34	103 860	2
35	$\frac{3}{14}$	1
36	56	2
		Total 40

Teaching Tues 2 March

Shapes – Same Area

Notes and Guidance

Children will find and draw rectilinear shapes that have the same area.

Children will use their knowledge of factors to draw rectangles with different areas. They will make connections between side lengths and factors.

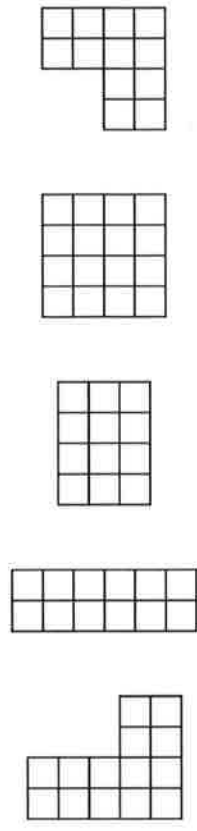
Mathematical Talk

- What do we need to know in order to work out the area of a shape?
- Why is it useful to know your times-tables when calculating area?
- Can you have a square with an area of 48 cm²? Why?
- How can factors help us draw rectangles with a specific area?

Varied Fluency

Sort the shapes into the Carroll diagram.

	Quadrilateral	Not a quadrilateral
Area of 12 cm ²		
Area of 16 cm ²		



Now draw another shape in each section of the diagram.

How many rectangles can you draw with an area of 24 cm² where the side lengths are integers?

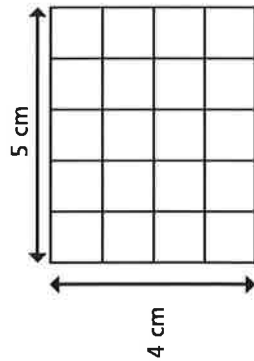
What do you notice about the side lengths?

Using integer side lengths, draw as many rectangles as possible that give the following areas:

- 17 cm²
- 25 cm²
- 32 cm²

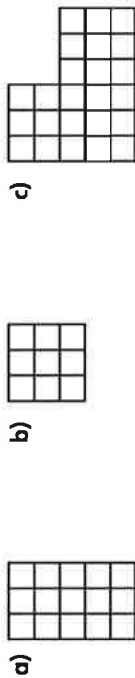
Shapes – same area

- Use the diagram to help you complete the sentences.



The length of the rectangle is cm.
 The width of the rectangle is cm.
 The total number of squares in the rectangle is
 The area of the rectangle is cm^2

- Work out the areas of the shapes. Each square represents 1 cm^2

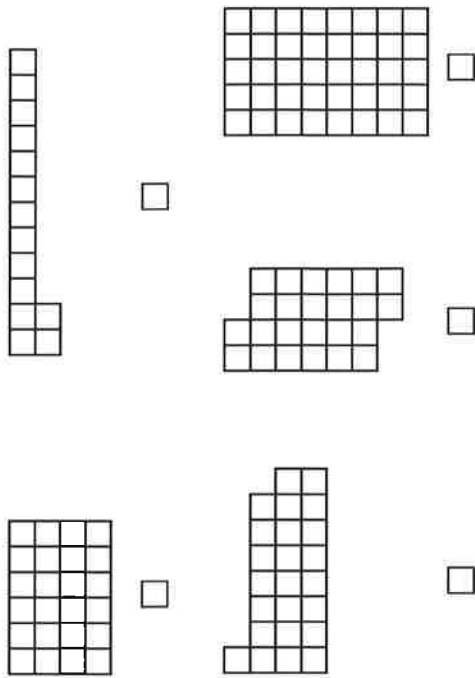


a) cm^2
 b) cm^2
 c) cm^2

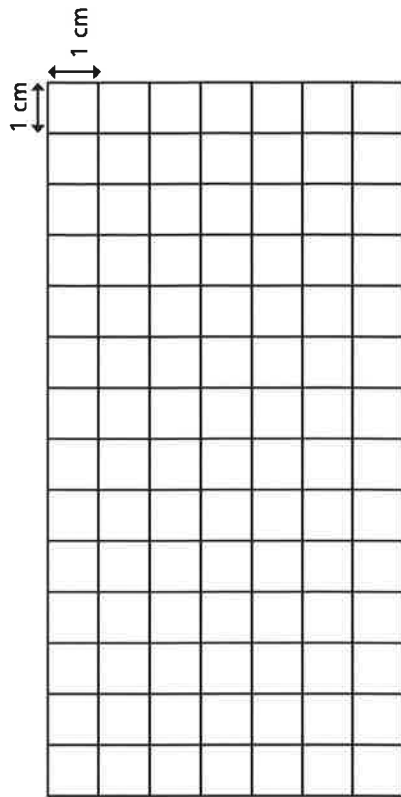
What do you notice?

Tues 2 March

- Tick the shapes that have an area of 24 cm^2 . Each square represents 1 cm^2

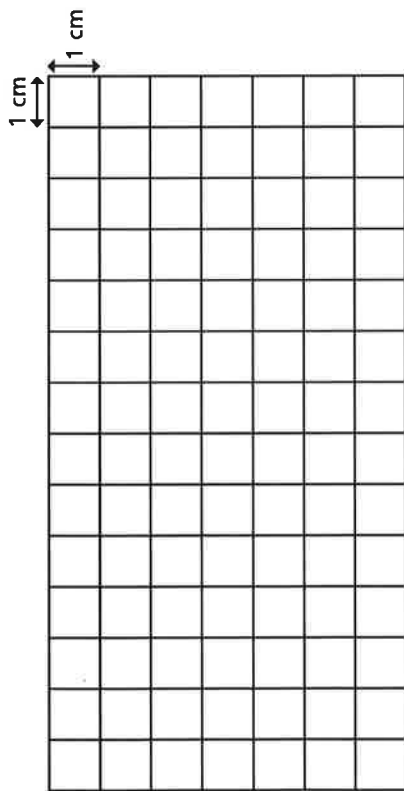


- a) Draw two different rectangles that have an area of 8 cm^2
 Label the side lengths of your rectangles.



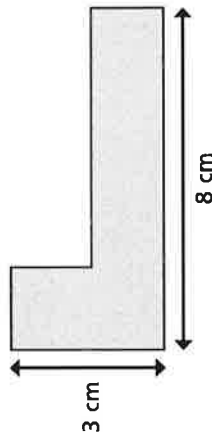
- b) Write the factors of 8 _____
 What do you notice? Talk about it with a partner.

- 5 Draw two different rectilinear shapes that have an area of 12 cm^2



Compare shapes with a partner.

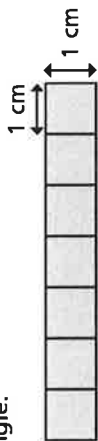
- 6 Rosie is finding the area of this shape.



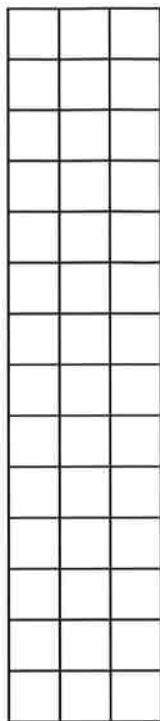
To find the area of the shape, you can multiply 3 by 8, so the area must be 24 cm^2

Do you agree with Rosie? _____
Explain your answer. _____

- 7 Here is a rectangle.



- a) Work out the area of the rectangle. area = cm^2
b) Draw a different rectilinear shape that has the same area.

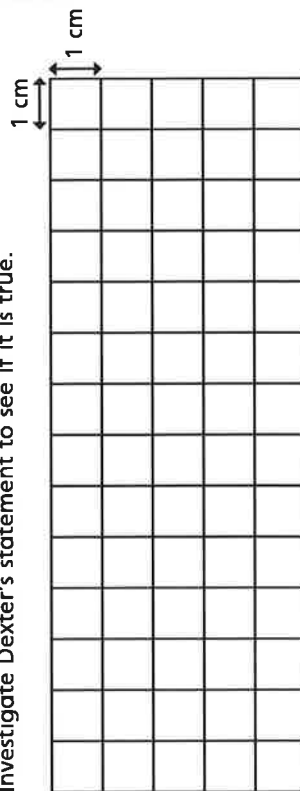


Compare answers with a partner.

- 8

It is impossible to have a rectilinear shape with an even area if all its sides are odd numbers.

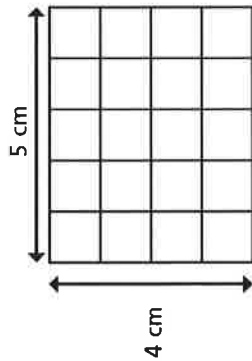
Investigate Dexter's statement to see if it is true.



Compare your findings with a partner.

Shapes – same area

- 1 Use the diagram to help you complete the sentences.



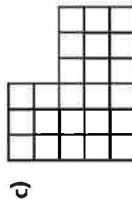
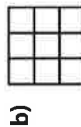
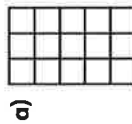
The length of the rectangle is cm.

The width of the rectangle is cm.

The total number of squares in the rectangle is

The area of the rectangle is cm²

- 2 Work out the areas of the shapes. Each square represents 1 cm²



cm²

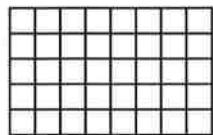
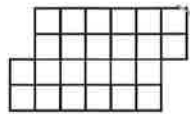
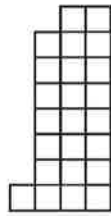
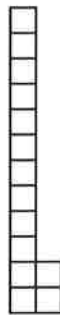
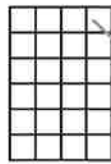
cm²

cm²

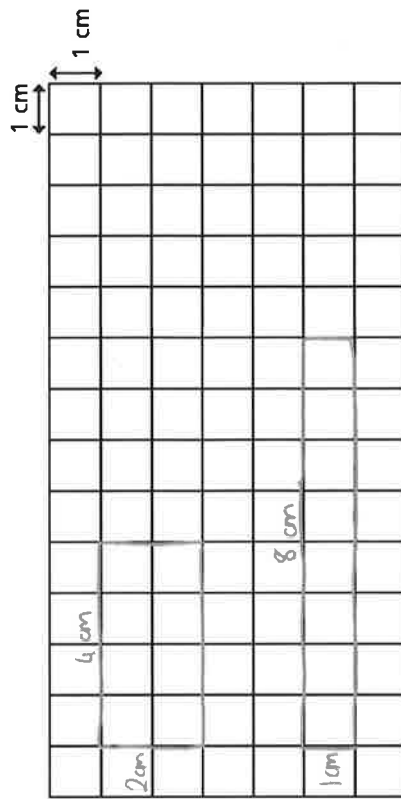
What do you notice?

Answers Tues 2 March

- 3 Tick the shapes that have an area of 24 cm². Each square represents 1 cm²



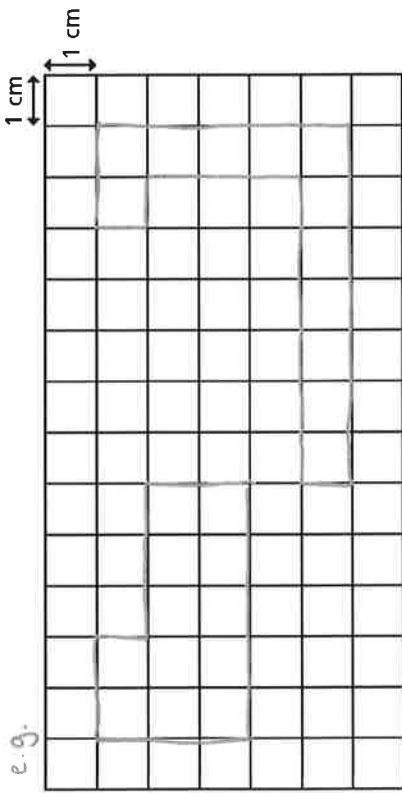
- 4 a) Draw two different rectangles that have an area of 8 cm²
Label the side lengths of your rectangles.



- b) Write the factors of 8 1, 2, 4, 8

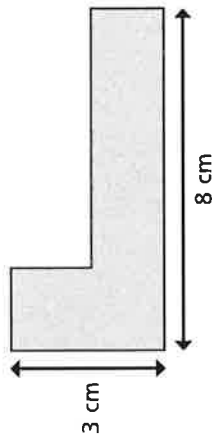
What do you notice? Talk about it with a partner.

- 5 Draw two different rectilinear shapes that have an area of 12 cm^2



Compare shapes with a partner.

- 6 Rosie is finding the area of this shape.

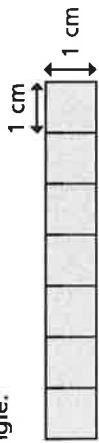


To find the area of the shape, you can multiply 3 by 8, so the area must be 24 cm^2

Do you agree with Rosie? No
Explain your answer.

It is not a rectangle.

- 7 Here is a rectangle.



a) Work out the area of the rectangle. area = 7 cm^2

b) Draw a different rectilinear shape that has the same area.

e.g.

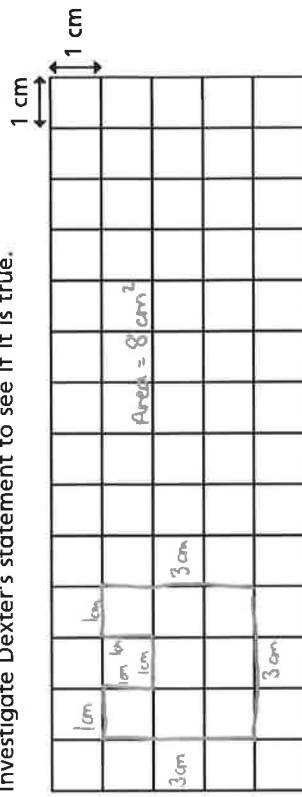


Compare answers with a partner.

8

It is impossible to have a rectilinear shape with an even area if all its sides are odd numbers.

Investigate Dexter's statement to see if it is true.



Compare your findings with a partner.

Mastery Tues 2 March

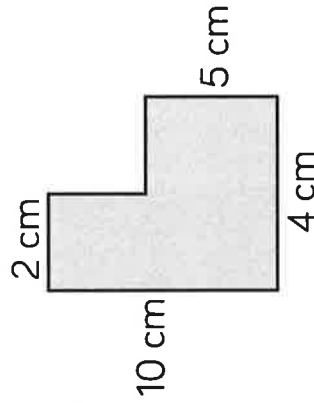
Shapes – Same Area

Reasoning and Problem Solving

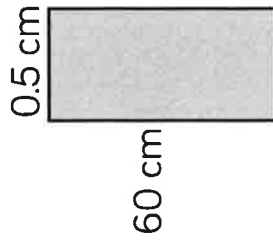
Rosie and Dexter are drawing shapes with an area of 30cm^2



Rosie's shape



Dexter's shape



Who is correct?

Explain your reasoning.

Both are correct.

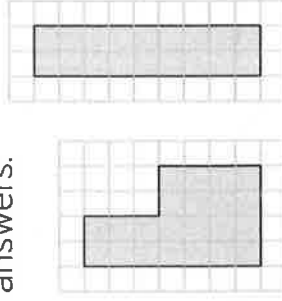
Dexter's shape:
 $60\text{ cm} \times 0.5\text{ cm}$
 $= 30\text{ cm}^2$

Rosie's shape:
 $2\text{ cm} \times 10\text{ cm}$
 $= 20\text{ cm}^2$
 $5\text{ cm} \times 2\text{ cm}$
 $= 10\text{ cm}^2$
 $20\text{ cm}^2 + 10\text{ cm}^2$
 $= 30\text{ cm}^2$
Could be split differently.

Three children are given the same rectilinear shape to draw.

Amir says, "The smallest length is 2 cm."
Alex says, "The area is less than 30 cm^2 ."
Annie says, "The perimeter is 22 cm."

What could the shape be?
How many possibilities can you find?



Children can use squared paper to explore. Possible answers:

Always, Sometimes, Never?

If the area of a rectangle is odd then all of the lengths are odd.

Sometimes –
 15 cm^2 could be
5 cm and 3 cm or
60 cm and
0.25 cm

Teaching Wed 3 March.

Area and Perimeter

Notes and Guidance

Children should calculate area and perimeter of rectilinear shapes. They must have the conceptual understanding of the formula for area by linking this to counting squares. Writing and using the formulae for area and perimeter is a good opportunity to link back to the algebra block.

Children explore that shapes with the same area can have the same or different perimeters.

Mathematical Talk

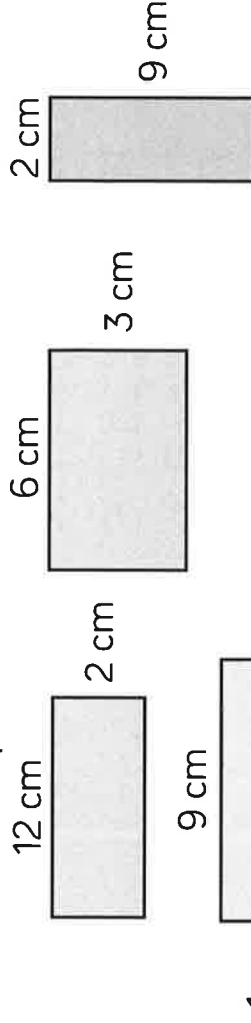
What is the difference between the area and perimeter of a shape?

How do we work out the area and perimeter of shapes?
Can you show this as a formula?

Can you have 2 rectangles with an area of 24 cm^2 but different perimeters?

Varied Fluency

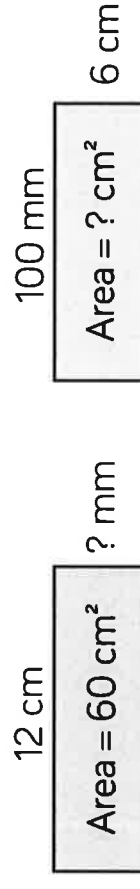
Look at the shapes below.



Do any of the shapes have the same area?

Do any of the shapes have the same perimeter?

Work out the missing values.



Draw two rectilinear shapes that have an area of 36 cm^2 but have different perimeters.

What is the perimeter of each shape?

Area and perimeter

1 Use the words to complete the sentences.

perimeter cm^2 m
 area m^2 inside around

_____ is the amount of space _____ a two-dimensional shape. It can be measured in units such as _____ or _____

_____ is the distance _____ a two-dimensional shape. It can be measured in units such as _____ or _____

2 Work out the areas and perimeters of the shapes.

a)

perimeter = cm
 area = cm^2

b)

perimeter = cm
 area = cm^2

Wed 3 March

3 Work out the missing values.

a)

area = 32 cm^2
 perimeter = cm

b)

area = cm^2
 perimeter = 40 cm

c)

area = m^2
 perimeter = 36 m

4 Work out the areas and perimeters of the shapes.

Shape A

area = cm^2
 perimeter = cm

Shape B

area = cm^2
 perimeter = cm

What do you notice?

5

If you start with a rectilinear shape, when you increase the area, the perimeter will increase.



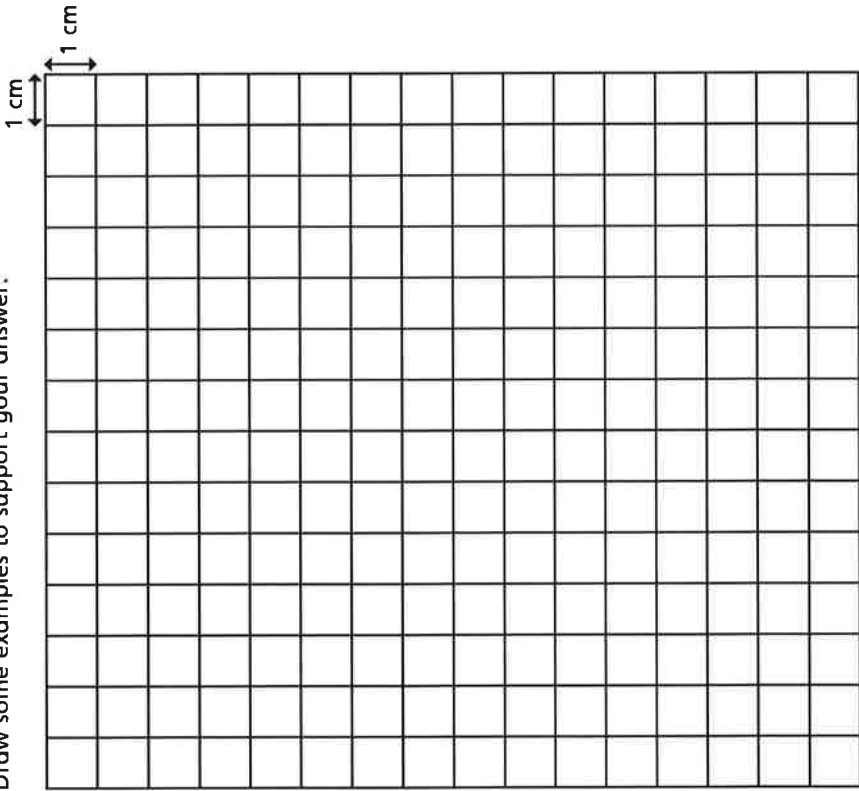
Tommy

It depends on the shape.

Amir



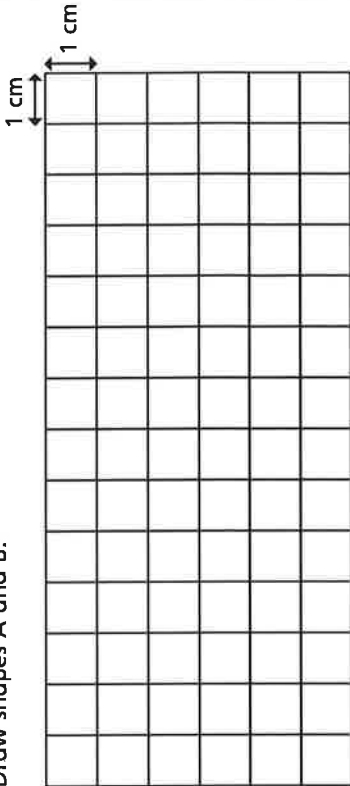
Who do you agree with? _____
Draw some examples to support your answer.



6

- Two rectilinear shapes, A and B, each have an area of 12 squares.
- Shape A has the largest perimeter possible.
 - Shape B has the smallest perimeter possible.

Draw shapes A and B.



What do you notice?

7

- Mr Jones has 50 m of fencing.
He wants to make a rectilinear enclosure using all the fencing.
- Draw an example of a shape he could make. Give units on your diagram.

b) What is the greatest possible area of the enclosure?

c) What is the smallest possible area of the enclosure?

Area and perimeter

1 Use the words to complete the sentences.

perimeter

cm²

cm

m

area

m²

inside

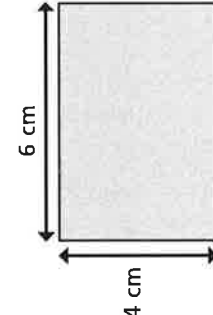
around

Area is the amount of space inside a two-dimensional shape. It can be measured in units such as cm² or m²

Perimeter is the distance around a two-dimensional shape. It can be measured in units such as cm or m

2 Work out the areas and perimeters of the shapes.

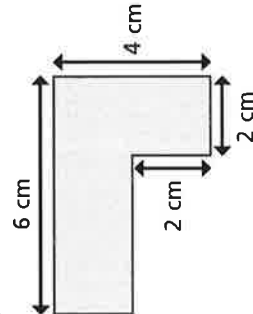
a)



perimeter = 20 cm

area = 24 cm²

b)



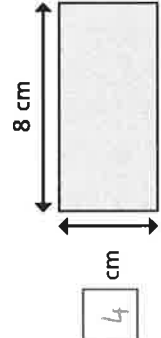
perimeter = 20 cm

area = 16 cm²

Wed 3 March answers.

3 Work out the missing values.

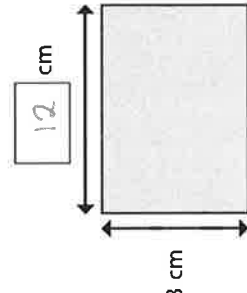
a)



area = 32 cm²

perimeter = 24 cm

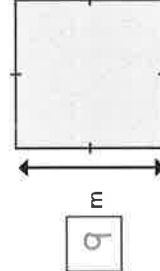
b)



area = 96 cm²

perimeter = 40 cm

c)

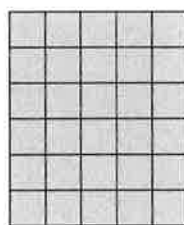


area = 81 m²

perimeter = 36 m

4 Work out the areas and perimeters of the shapes.

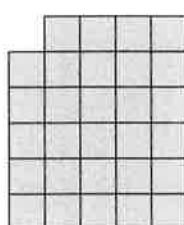
Shape A



area = 30 cm²

perimeter = 22 cm

Shape B



area = 24 cm²

perimeter = 22 cm

What do you notice?

5

If you start with a rectilinear shape, when you increase the area, the perimeter will increase.



Tommy

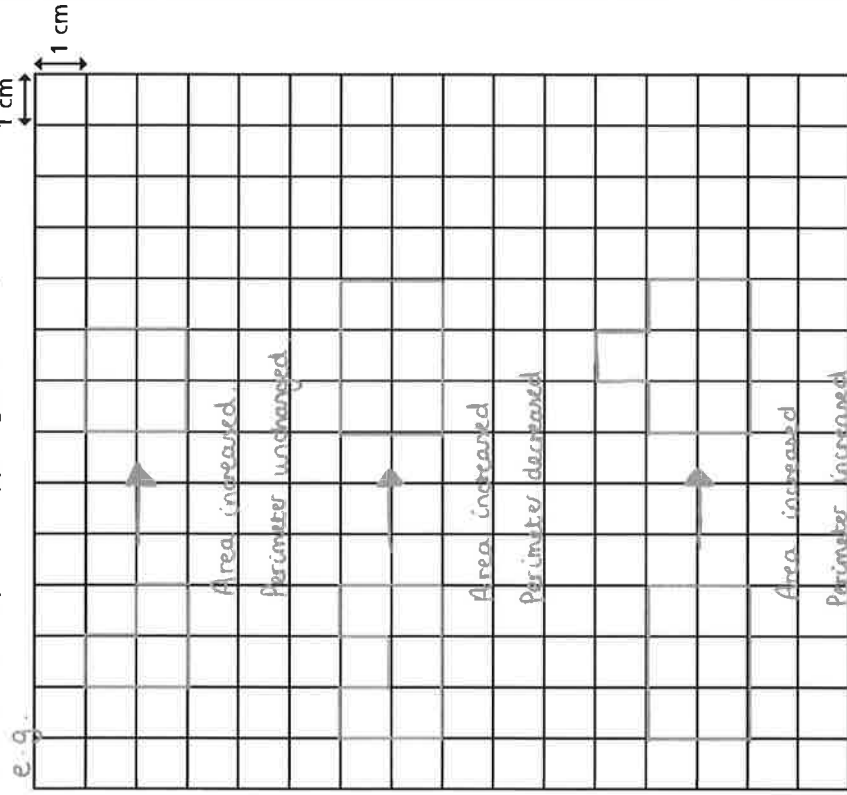
Amir



It depends on the shape.

Who do you agree with? Amir

Draw some examples to support your answer.

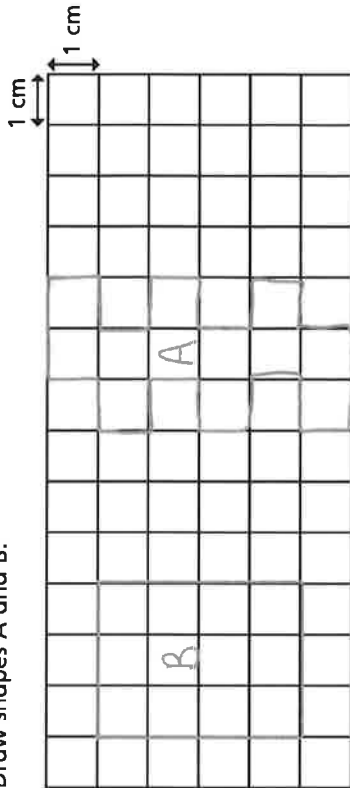


6

Two rectilinear shapes, A and B, each have an area of 12 squares.

- Shape A has the largest perimeter possible.
- Shape B has the smallest perimeter possible.

Draw shapes A and B.



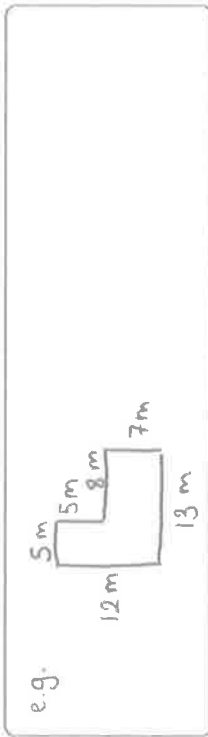
What do you notice?

7

Mr Jones has 50 m of fencing.

He wants to make a rectilinear enclosure using all the fencing.

- a) Draw an example of a shape he could make. Give units on your diagram.



- b) What is the greatest possible area of the enclosure?

156 m²

- c) What is the smallest possible area of the enclosure?

24 m²

Mastery Wed 3 March

Area and Perimeter

Reasoning and Problem Solving

True or false? Two rectangles with the same perimeter can have different areas. Explain your answer.	True. Children explore this by drawing rectangles and comparing both area and perimeter.																				
A farmer has 60 metres of perimeter fencing. For every 1 m² he can keep 1 chicken. How can he arrange his fence so that the enclosed area gives him the greatest area?	The greatest area is a 15 m x 15 m square, giving 225 m² Children may create rectangles by increasing one side by 1 unit and decreasing one side by 1 unit e.g. 16 x 14 = 224 m² 17 x 13 = 221 m²																				
																					
	Tommy has a 8 cm x 2 cm rectangle. He increases the length and width by 1 cm. <table border="1"><thead><tr><th>Length</th><th>Width</th><th>Area</th></tr></thead><tbody><tr><td>8</td><td>2</td><td></td></tr><tr><td>9</td><td>3</td><td></td></tr></tbody></table> He repeats with a 4 cm x 6 cm rectangle. <table border="1"><thead><tr><th>Length</th><th>Width</th><th>Area</th></tr></thead><tbody><tr><td>4</td><td>6</td><td></td></tr><tr><td></td><td></td><td></td></tr></tbody></table> What do you notice happens to the areas? Can you find any other examples that follow this pattern? Are there any examples that do not follow the pattern?	Length	Width	Area	8	2		9	3		Length	Width	Area	4	6						
Length	Width	Area																			
8	2																				
9	3																				
Length	Width	Area																			
4	6																				
	If the sum of the length and width is 10, then the area will always increase by 11 Children may use arrays to explore this: <table border="1"><tr><td>●●●●●</td><td>●●●●●</td></tr><tr><td>●●●●●</td><td>●●●●●</td></tr><tr><td>●●●●●</td><td>●●●●●</td></tr><tr><td>●●●●●</td><td>●●●●●</td></tr><tr><td>●●●●●</td><td>●●●●●</td></tr><tr><td>●●●●●</td><td>●●●●●</td></tr><tr><td>●●●●●</td><td>●●●●●</td></tr><tr><td>●●●●●</td><td>●●●●●</td></tr><tr><td>●●●●●</td><td>●●●●●</td></tr><tr><td>●●●●●</td><td>●●●●●</td></tr></table> The red and green will always total 10 and the yellow will increase that by 1 to 11	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●
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Thurs 4 March
Teaching

Area of a Triangle (1)

Notes and Guidance

Children will use their previous knowledge of approximating and estimating to work out the area of different triangles by counting.

Children will need to physically annotate to avoid repetition when counting the squares.

Children will begin to see the link between the area of a triangle and the area of a rectangle or square.

Mathematical Talk

How many whole squares can you see?

How many part squares can you see?

What could we do with the parts?

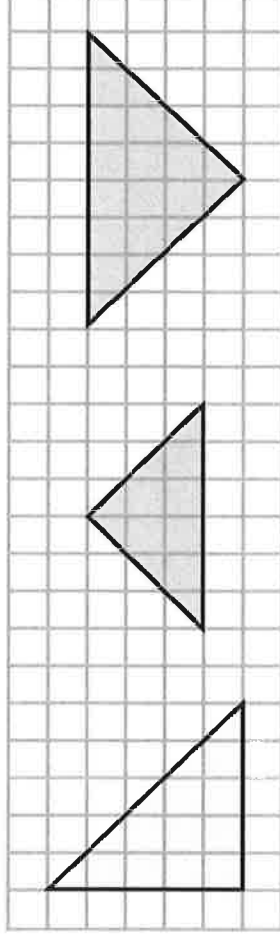
What does estimate mean?

Why is your answer to this question an **estimate** of the area?

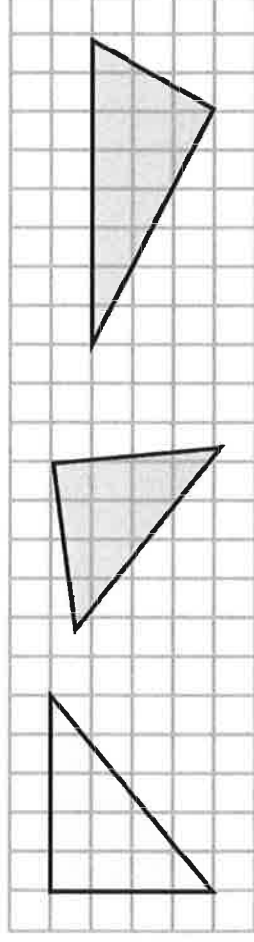
Revisit the idea that a square is a rectangle when generalising how to calculate the area of a triangle.

Varied Fluency

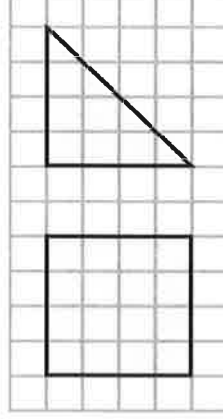
Count squares to calculate the area of each triangle.



Estimate the area of each triangle by counting squares.



Calculate the area of each shape by counting squares.



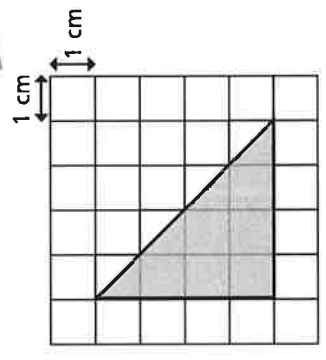
What do you notice about the area of the triangle compared to the area of the square?
Does this always happen?

Explore this using different rectangles.

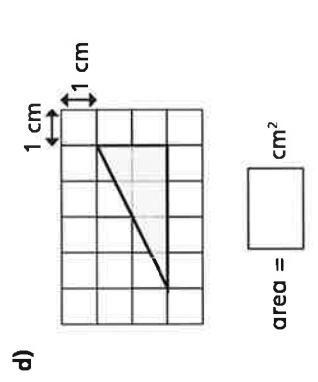
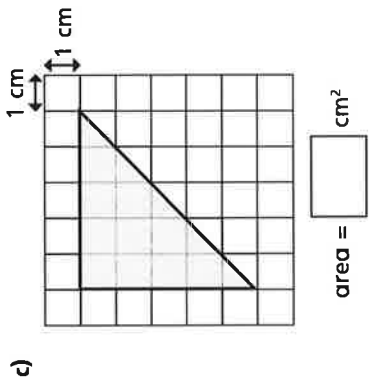
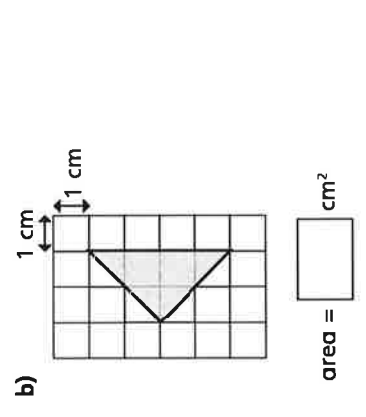
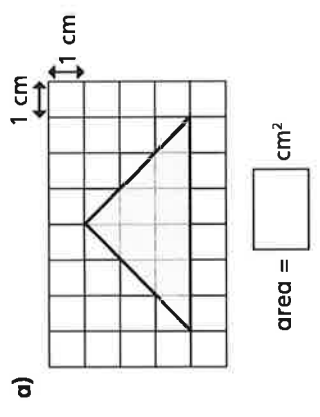
Thurs 4 March

Area of a triangle (1)

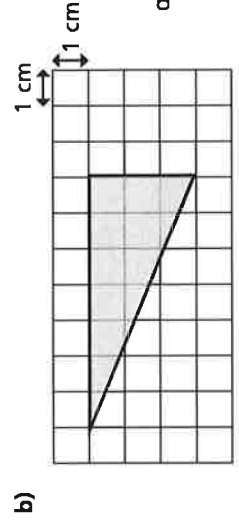
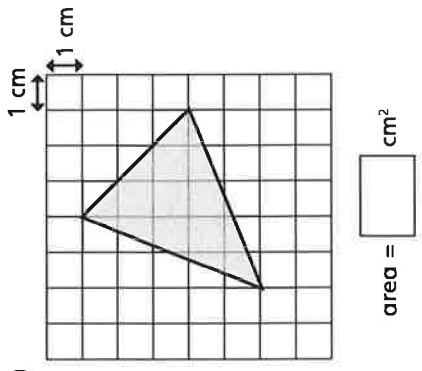
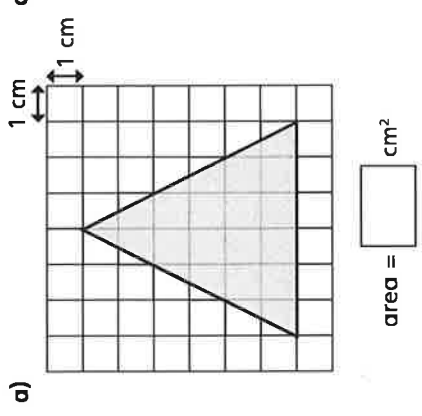
- Complete the sentences to describe the triangle.
 The triangle has full squares.
 The triangle has half squares.
 The area of the triangle is cm^2



- Count squares to work out the area of each triangle.

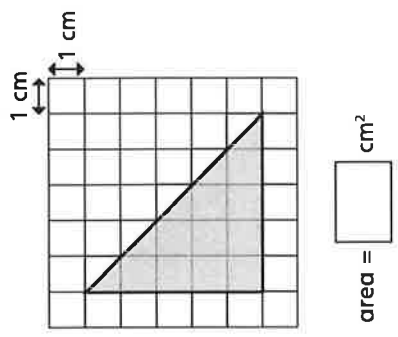
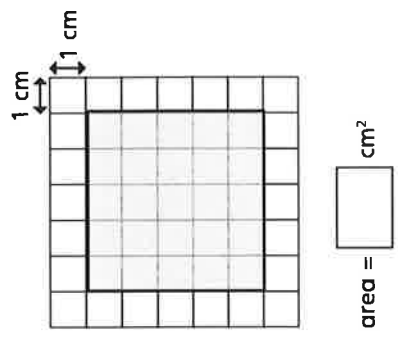


- Count squares to estimate the area of each triangle.

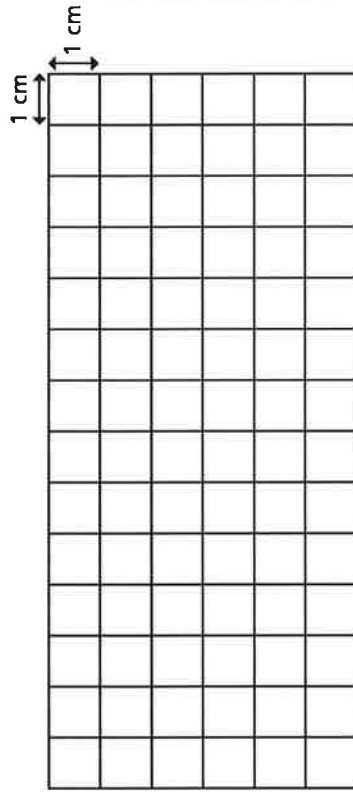


Why are your answers estimates?

- Work out the areas of the shapes by counting squares.

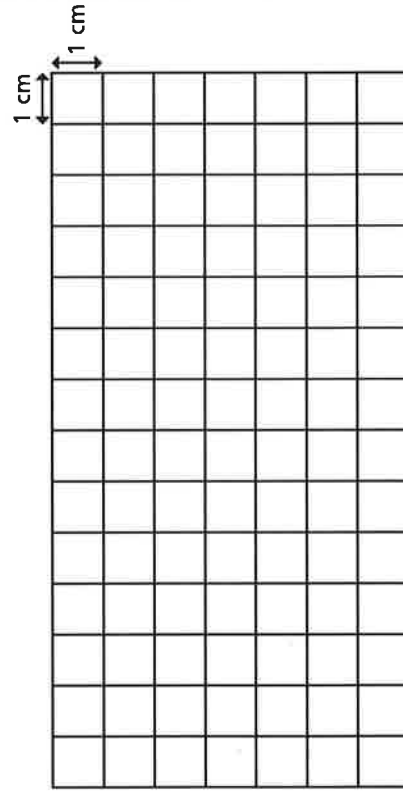


- b) What do you notice about your answers to part a)?
Explore this using other rectangles.



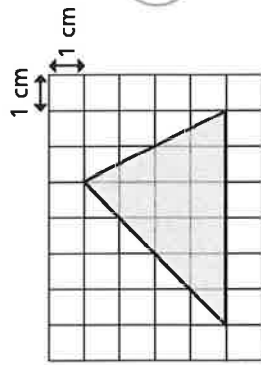
- c) Write your findings.

- 5 Draw a triangle that has an area of approximately 15 cm²



Compare answers with a partner.

6



I estimate the size of the triangle to be about 16 cm²

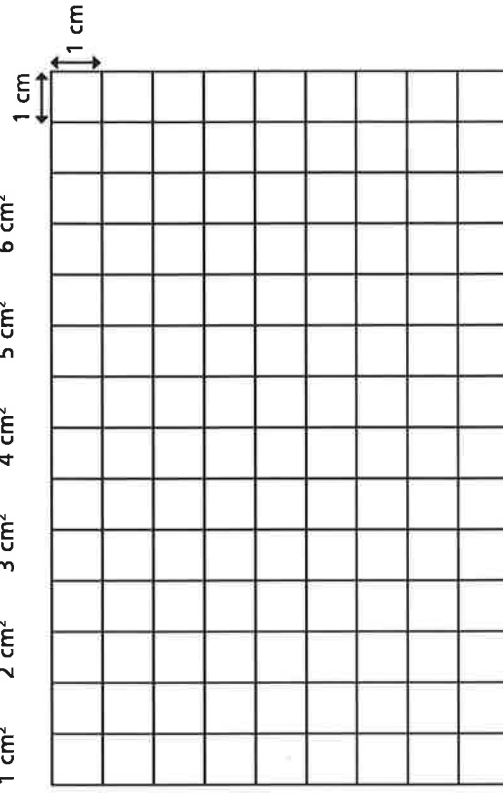


Do you agree with Eva's estimate? _____
Talk about it with a partner.

7

Draw triangles with these areas.

1 cm² 2 cm² 3 cm² 4 cm² 5 cm² 6 cm²



Talk to a partner about the best strategies for drawing the triangles.

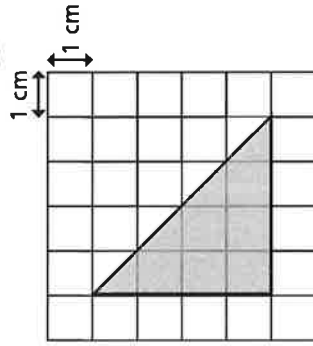
Area of a triangle (1)

- 1 Complete the sentences to describe the triangle.

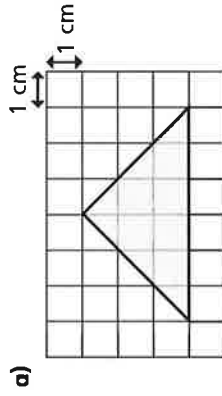
The triangle has full squares.

The triangle has half squares.

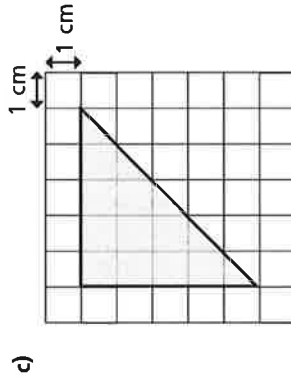
The area of the triangle is cm^2



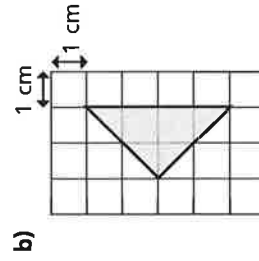
- 2 Count squares to work out the area of each triangle.



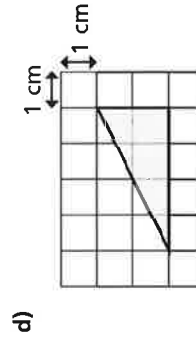
area = cm^2



area = cm^2



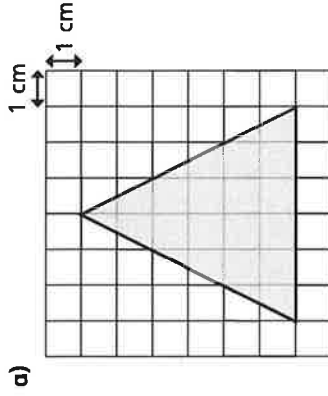
area = cm^2



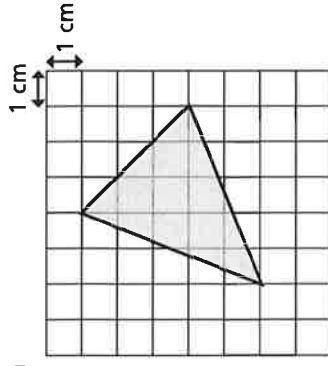
area = cm^2

Answers 4 This March.

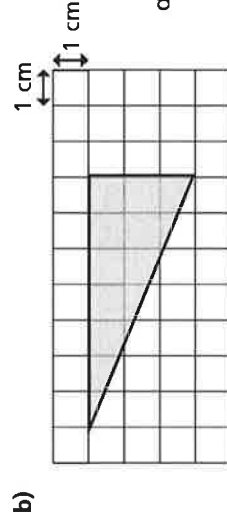
- 3 Count squares to estimate the area of each triangle.



area = cm^2



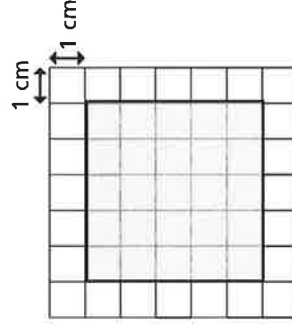
area = cm^2



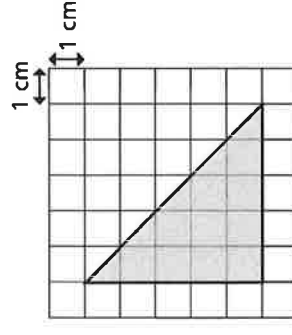
area = cm^2

Why are your answers estimates?

- 4 a) Work out the areas of the shapes by counting squares.



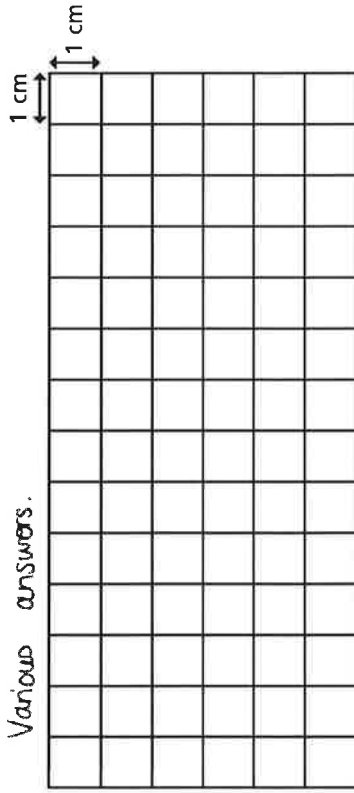
area = cm^2



area = cm^2

- b) What do you notice about your answers to part a)?
Explore this using other rectangles.

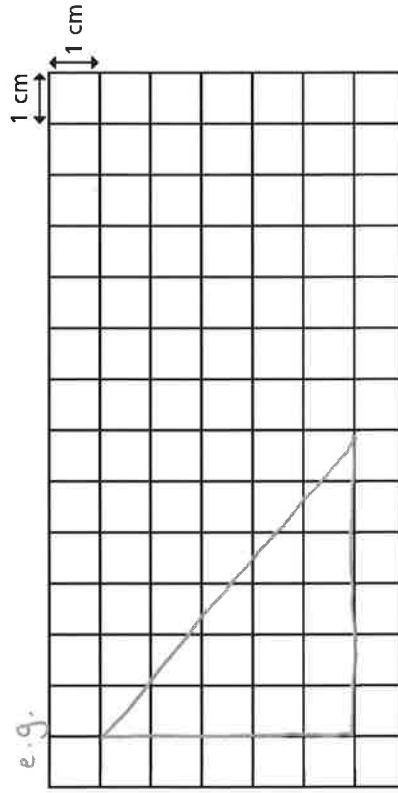
Various answers.



- c) Write your findings.

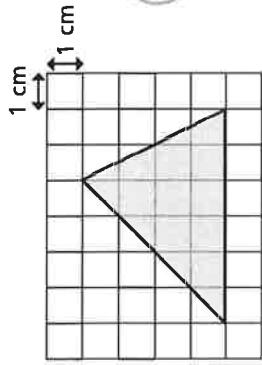
E.g. The area of a triangle is half the area
of a rectangle (with same base/height)

- 5 Draw a triangle that has an area of approximately 15 cm^2



Compare answers with a partner.

6



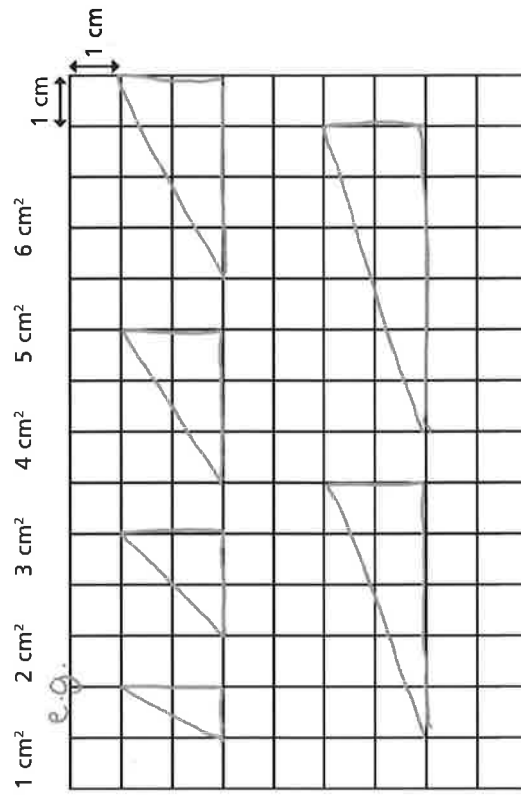
I estimate the size of the
triangle to be about 16 cm^2



Do you agree with Eva's estimate? No
Talk about it with a partner.

7

Draw triangles with these areas.

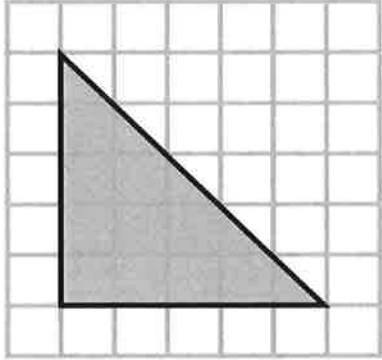
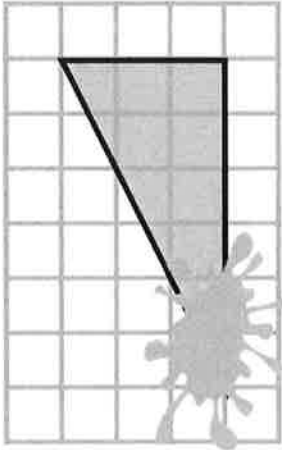


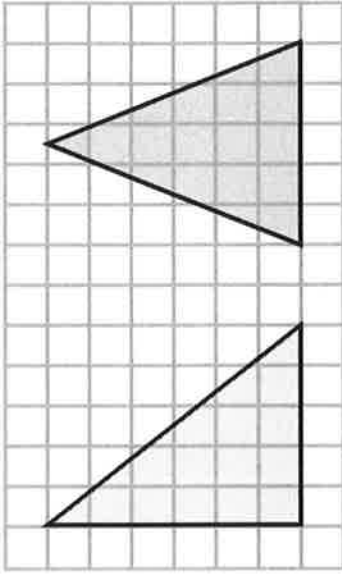
Talk to a partner about the best strategies for drawing
the triangles.

Mastery Thurs 4 March

Area of a Triangle (1)

Reasoning and Problem Solving

 Mo says the area of this triangle is 15cm^2. Is Mo correct? If not, explain his mistake.	Mo is incorrect because he has counted the half squares as whole squares.
Part of a triangle has been covered. Estimate the area of the whole triangle. 	9 cm^2

What is the same about these two triangles? What is different? 	Both triangles have an area of 15 cm^2 The triangle on the left is a right angled triangle and the triangle on the right is an isosceles triangle.
Can you create a different right angled triangle with the same area?	Children could draw a triangle with a height of 10 cm and a base of 3 cm, or a height of 15 cm and a base of 2 cm.

Teaching Fri 5th March

Area of a Triangle (2)

Notes and Guidance

Children use their knowledge of finding the area of a rectangle to find the area of a right-angled triangle. They see that a right-angled triangle with the same length and perpendicular height as a rectangle will have an area half the size. Using the link between the area of a rectangle and a triangle, children will learn and use the formula to calculate the area of a triangle.

Mathematical Talk

What is the same/different about the rectangle and triangle?

What is the relationship between the area of a rectangle and the area of a right-angled triangle?

What is the formula for working out the area of a rectangle or square?

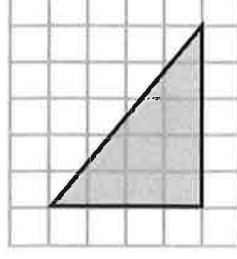
How can you use this formula to work out the area of a right-angled triangle?

Varied Fluency



Estimate the area of the triangle by counting the squares.

Make the triangle into a rectangle with the same height and width. Calculate the area.



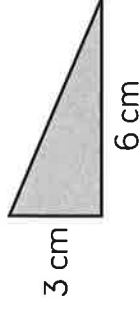
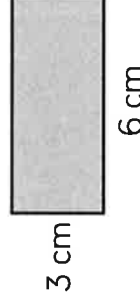
The area of the triangle is _____ the area of the rectangle.



If l represents length and h represents height:

$$\text{Area of a rectangle} = l \times h$$

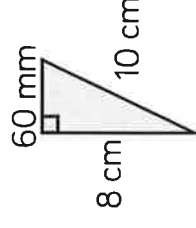
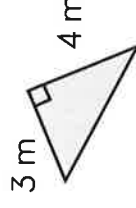
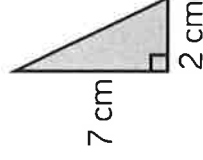
Use this to calculate the area of the rectangle.



What do you need to do to your answer to work out the area of the triangle?

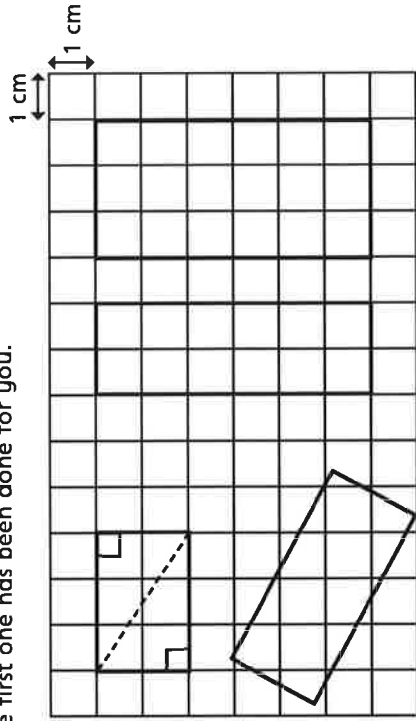
Therefore, what is the formula for the area of a triangle?

Calculate the area of these triangles.

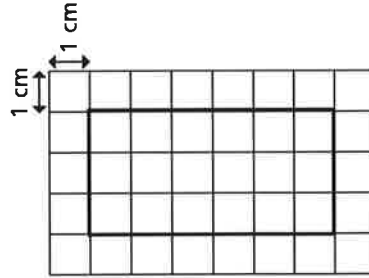


Area of a triangle (2)

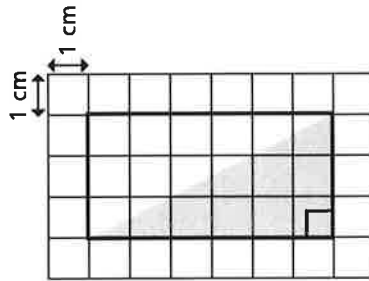
- 1 Divide each rectangle into two right-angled triangles.
The first one has been done for you.



- 2 a) Calculate the area of the rectangle and the triangle.



area = cm²

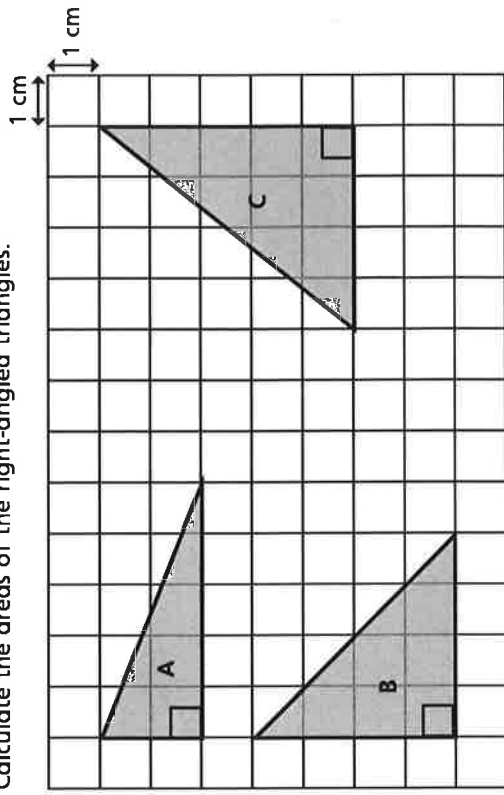


area = cm²

- b) Explain how you worked out the area of the right-angled triangle.

Fri 5 March

- 3 Calculate the areas of the right-angled triangles.

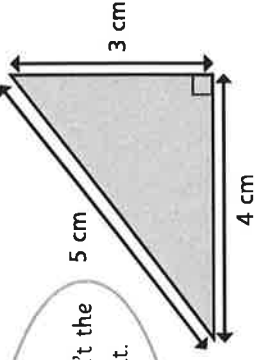


triangle A = cm² triangle C = cm²

triangle B = cm²

- 4 Whitney is calculating the area of the triangle using the formula.

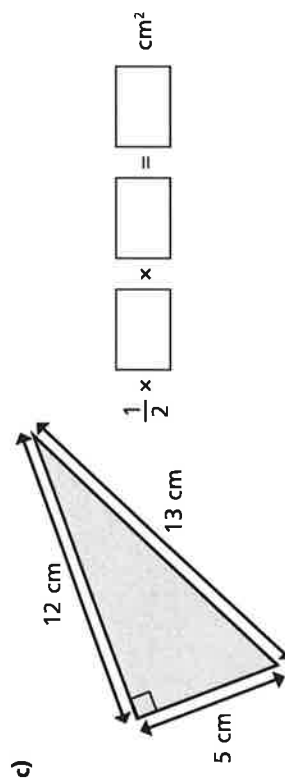
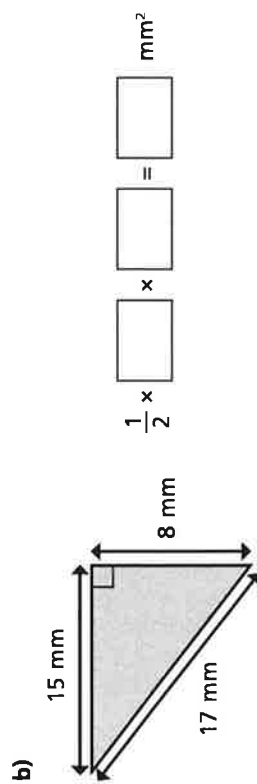
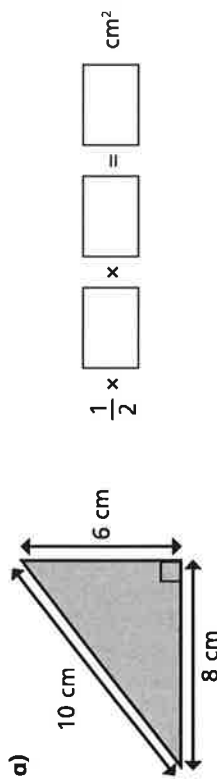
$$\text{Area} = \frac{1}{2} \times \text{base} \times \text{perpendicular height}$$



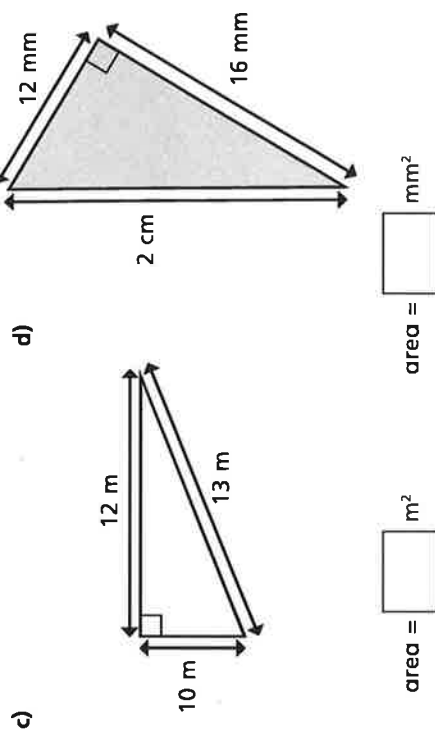
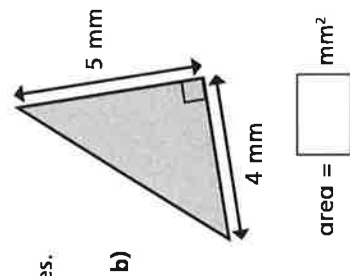
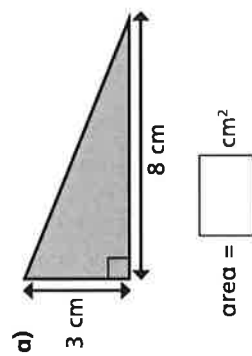
The area is $\frac{1}{2} \times 4 \times 3$.
You can ignore the 5 because it isn't the base or the perpendicular height.

Do you agree with Whitney? _____
Talk about it with a partner.

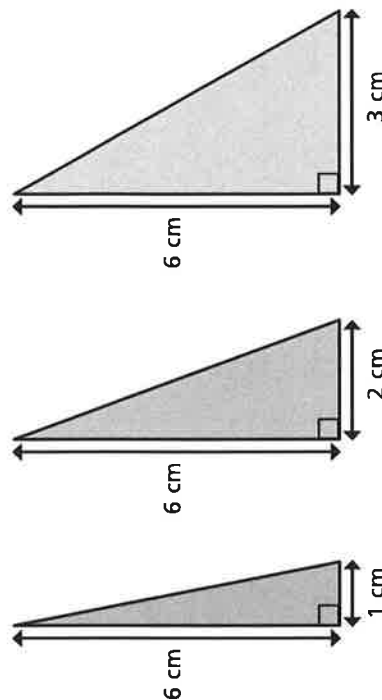
- 5 Insert the correct numbers into the formula to calculate the area of the triangle.



- 6 Calculate the areas of the triangles.



- 7 The width of the right-angled triangles is increasing by 1 cm.

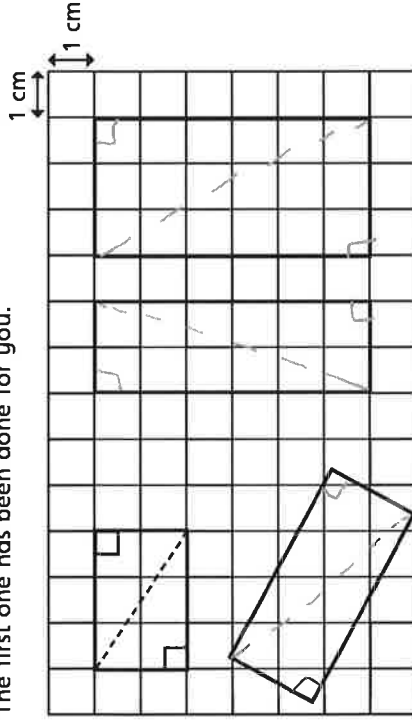


Investigate the pattern for the areas.

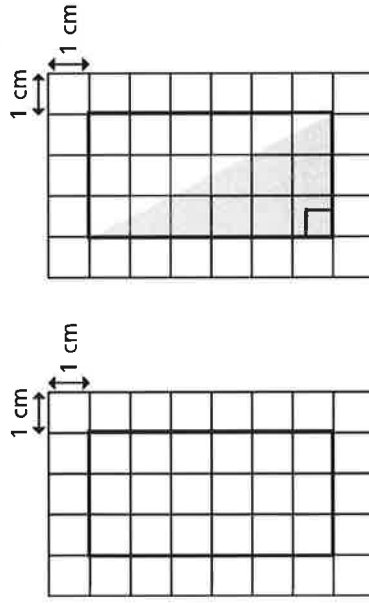
What happens to the pattern if the length and width increase?

Area of a triangle (2)

- 1 a) Divide each rectangle into two right-angled triangles.
The first one has been done for you.



- 2 a) Calculate the area of the rectangle and the triangle.

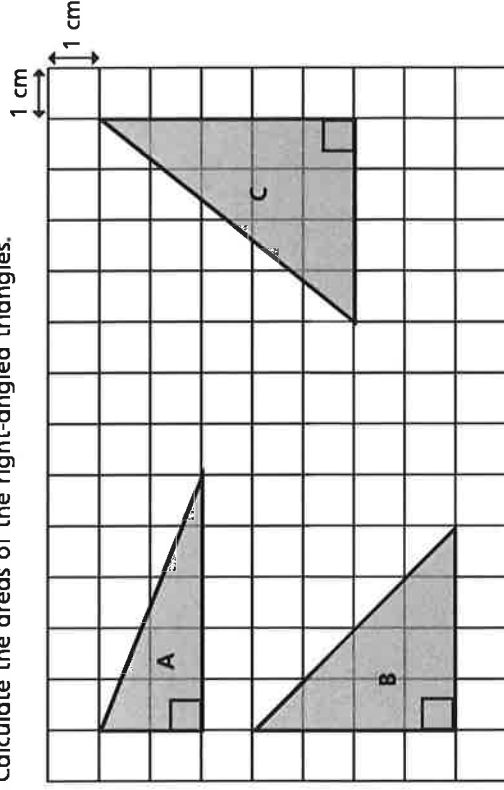


area = cm² area = cm²

- b) Explain how you worked out the area of the right-angled triangle.

Answers Fri 5 March

- 3 Calculate the areas of the right-angled triangles.

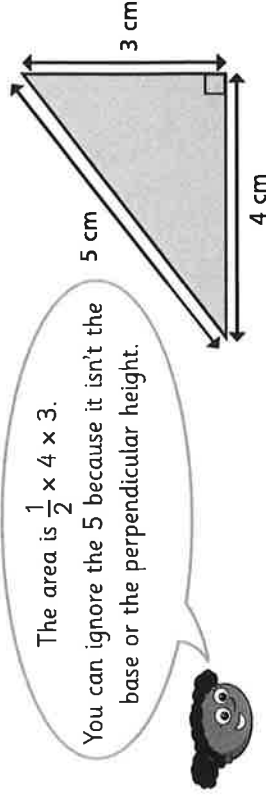


triangle A = cm² triangle C = cm²

triangle B = cm²

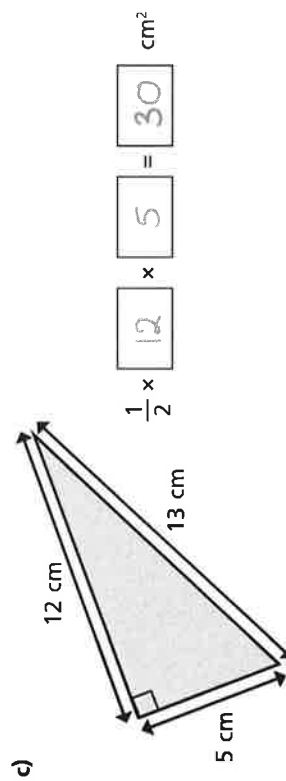
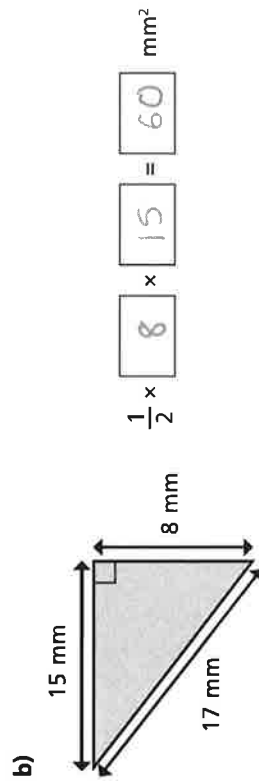
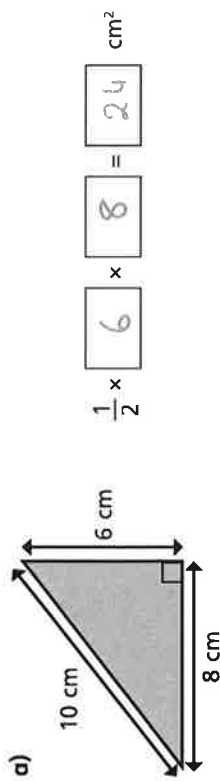
- 4 Whitney is calculating the area of the triangle using the formula.

Area = $\frac{1}{2} \times \text{base} \times \text{perpendicular height}$

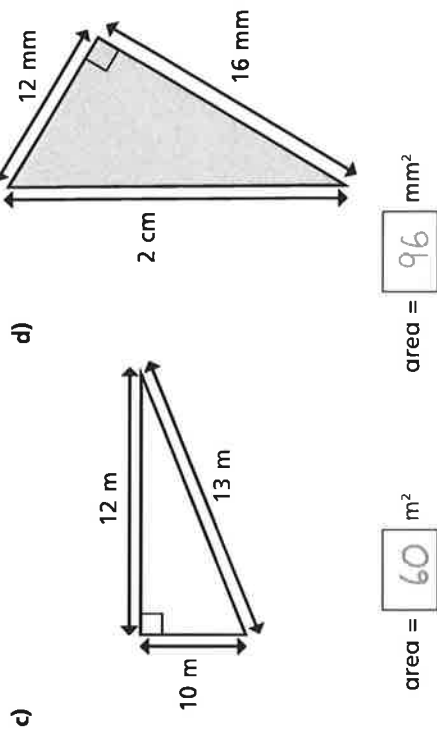
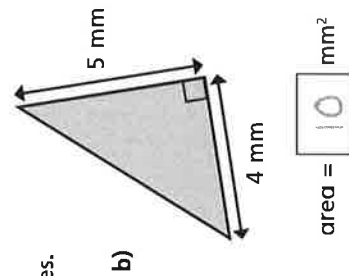
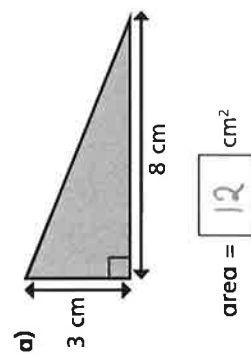


Do you agree with Whitney? Yes
Talk about it with a partner.

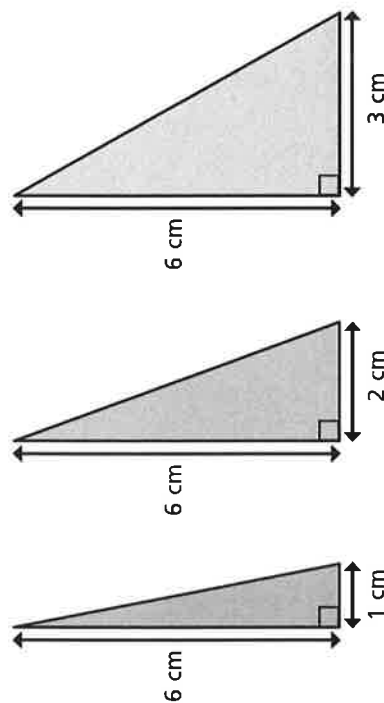
- 5 Insert the correct numbers into the formula to calculate the area of the triangle.



- 6 Calculate the areas of the triangles.



- 7 The width of the right-angled triangles is increasing by 1 cm.



Investigate the pattern for the areas.

What happens to the pattern if the length and width increase?

Mastery Fri 5 March

Area of a Triangle (2)

Reasoning and Problem Solving

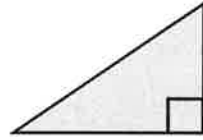
Annie is calculating the area of a right-angled triangle.

I only need to know the length of any two sides to calculate the area of a triangle.



Do you agree with Annie? Explain your answer.

Annie is incorrect as it is not sufficient to know **any** two sides, she needs the base and perpendicular height. Children could draw examples and non-examples.



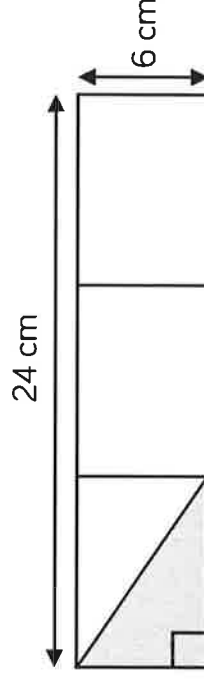
$$\text{Area} = 54 \text{ cm}^2$$

What could the length and the height of the triangle be?

How many different integer possibilities can you find?

Possible answers:
Height: 18 cm
Base: 6 cm
Height: 27 cm
Base: 4 cm
Height: 12 cm
Base: 9 cm

Calculate the area of the shaded triangle.



Mo says,

I got an answer of 72 cm^2



Do you agree with Mo?
If not, can you spot his mistake?

The area of the shaded triangle is 24 cm^2
Mo is incorrect as he has just multiplied the two numbers given and divided by 2, he hasn't identified the correct base of the triangle.

Kingsmoor Lockdown English work: Week 8

Day 1 Monday 1 st March	
Reading	Read your assigned book on GetEpic. They are differentiated to match your Reading Range on AR. Class code: wng9901 Take the week to read it through and then have a go at the quiz on Friday.
Spelling and handwriting	Read the spelling information sheet carefully. Practise the list of homophone words ending in -se or -ce taking note which is the verb and which is the noun. Secure and Mastery: find an additional 10 spellings to practise. Complete the handwriting sheet.
Writing	Look in your Talk for Writing booklet Treasure and complete activities 11 and 12. You are beginning to write your story today. Try and complete the first section of your plan today: the opening

Day 2 Tuesday 2nd March	
Reading	Read your assigned book on GetEpic. They are differentiated to match your Reading Range on AR. Class code: wng9901 Take the week to read it through and then have a go at the quiz on Friday.
Spelling	Practise the list of homophone words ending in -se or -ce taking note which is the verb and which is the noun. Secure and Mastery: find an additional 10 spellings to practise. Complete the handwriting sheet.
Writing	Edit your work from yesterday then start to write the next section: the build-up and dilemma.

Day 3 Wednesday 3rd March	
Reading	Read your assigned book on GetEpic. They are differentiated to match your Reading Range on AR. Class code: wng9901

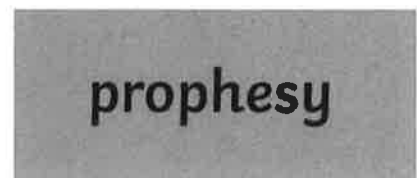
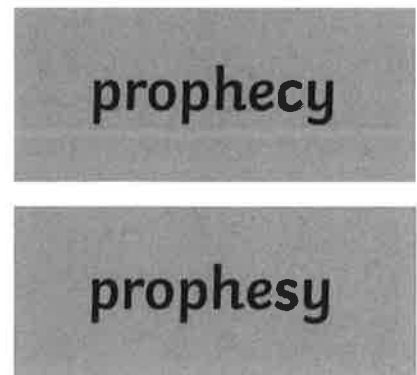
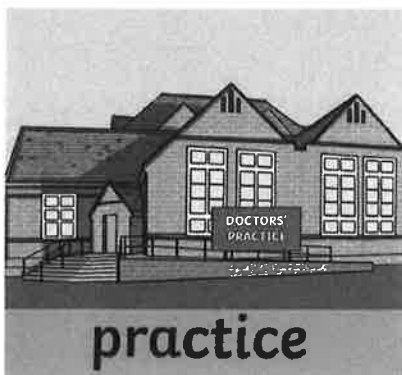
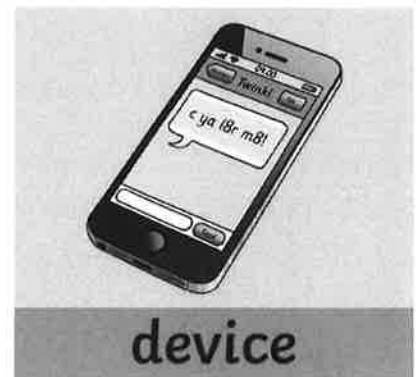
	Take the week to read it through and then have a go at the quiz on Friday.
Spelling	Complete the homophones Match-up activity.
Writing	Edit your work from yesterday then start to write the next section: the resolution and ending.

Day 4 Thursday 4th March	
Reading	Read your assigned book on GetEpic. They are differentiated to match your Reading Range on AR. Class code: wng9901 Take the week to read it through and then have a go at the quiz on Friday.
Spelling	Practise your weekly list of spellings.
Writing	Edit your work from yesterday then begin to publish. This will roll over to tomorrow's session.

Day 5 Friday 5 th March	
Reading	Read your assigned book on GetEpic. They are differentiated to match your Reading Range on AR. Class code: wng9901 Take the week to read it through and then have a go at the quiz on Friday.
Spelling	Ask an adult to test you on the spelling of the words you have been practising this week.
Writing and handwriting	Finish publishing your work in neat and assess your work.

For this week's spellings...

We are looking at some of the most commonly misused homophones in the English language.



If the word ends in **ce** or **cy**, then it is a noun.

If the word ends in **se** or **sy**, then it is a verb.

Be careful!



Mon 1st March

Cursive Handwriting Practice

Practise your weekly spelling words using cursive handwriting.

advice

advise

device

devise

licence

license

practice

practise

prophecy

prophesy

Tues 2nd March

Cursive Handwriting Practice

Practise your weekly spelling words using cursive handwriting.

advice

advise

device

devise

licence

license

practice

practise

prophecy

prophesy

Wed 3rd March

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Practise your weekly spelling words using cursive handwriting.

advice

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devise

licence

license

practice

practise

prophecy

prophesy

Thurs 4th March

Homophones: Match up!

This week, we are learning all about the very tricky homophone words ending in ce/cy and se/sy. Can you match the correct noun or verb to the correct sentence?

advice	advise	device	devise	licence
license	practice	practise	prophecy	prophesy

1. Feeling confused, the student went to the guidance counsellor for _____ on which subject to study at college.
2. After passing his driving test, Leon now had a full driving _____.
3. As she was preparing for her X-Factor audience, Poppy tried hard to _____ her singing and dancing.
4. After seeing their wonderful performance, the football manager felt able to _____ that his team would win the league.
5. Sweating profusely, the international secret agent tried hard to deactivate the explosive _____.
6. Whilst stroking his cat, the evil Dr Why began to _____ a plan to capture Superman.
7. As a former Olympic champion, Billy's gymnastics coach was able to confidently _____ him on his technique on the parallel bars.
8. Whilst searching the department of mystery, Harry Potter found the _____ about him and Lord Voldemort's future.
9. At 3 o'clock, the children were asked to line up at the door ready for singing _____ in the school hall.
10. After years of medical testing, the British Medical Council were able to _____ the use of the new medicine.

Challenge Task

Can you explain why each of the sentences uses a comma?

Homophones: Match up! Answers

This week, we are learning all about the very tricky homophone words ending in ce/cy and se/sy. Can you match the correct noun or verb to the correct sentence?

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Challenge Task

Can you explain why each of the sentences uses a comma?

The commas are used to demarcate either a subordinate clause or fronted adverbial at the beginning of each sentence- these usually explain the time, place or manner of what is happening in the main clause.



Kingsmoor online links for Pack 8 WC 1 March 2021

Accelerated reader: If you would like to take quizzes on the books you have read over lockdown, please log on to our school AR URL. This is a temporary address that you will be able to access during lockdown.

Monday

For maths: www.trockstars.com www.mymaths.com

For English: <https://www.activelearnprimary.co.uk/login> <https://www.getepic.com/>

Tuesday

For maths: www.trockstars.com www.mymaths.com Y5 <https://vimeo.com/464199475> Y6 <https://vimeo.com/499979721>

For English: <https://www.activelearnprimary.co.uk/login> <https://www.getepic.com/>

For French: <https://www.youtube.com/watch?v=fZR66TjirDc>

Wednesday

For maths: www.trockstars.com www.mymaths.com Y5 <https://vimeo.com/464199069> Y6 <https://vimeo.com/506227199>

For English: <https://www.activelearnprimary.co.uk/login> <https://www.getepic.com/>

For art: <https://artfulparent.com/printmaking-ideas-kids/>

Thursday

For maths: www.trockstars.com www.mymaths.com Y5 <https://vimeo.com/464197707> Y6 <https://vimeo.com/507596408>

For English: <https://www.activelearnprimary.co.uk/login> <https://www.getepic.com/>

Friday

For maths: www.trockstars.com www.mymaths.com Y5 <https://vimeo.com/466529487> Y6 <https://vimeo.com/507597205> For English: <https://www.activelearnprimary.co.uk/login> <https://www.getepic.com/> <https://soundcloud.com/talkforwriting/city/s-UmP7BEbB2cG>

Kingsmoor additional enrichment activities and links if you choose

For those of you looking for extra activities that your children could be doing throughout the week try these:

Writing

<https://authorfy.com/10minutechallenges/>

There are lots of authors reading their extracts of their books online in short videos on this website. They set 10 minutes writing or illustration activities to complete.

Reading

www.getepic.com

Our Class Code is: **wng9901**

This site has hundreds of books to read online and also has a feature where you can follow the text and listen at the same time. There are fiction and non-fiction, poetry and playscripts to enjoy. The books are linked up to AR levels so your child can select from their current reading range. The children have written their reading ranges in their planners so it should be easy to locate books at their reading level. Open from 9am – 4pm every day.

www.oxfordowl.co.uk

There are a range of books here to read as ebooks.



Maths

<https://www.topmarks.co.uk/maths-games/hit-the-button>

This website is great for practising key skills of halving, doubling, multiplying and dividing. It's fast and fun.

Other Enrichment Ideas:

Look at BBC Bitesize which has updated its website with lessons and activities for each and every subject at school, from French to DT!

<https://www.bbc.co.uk/bitesize/levels/zbr9wmn>

[https://www.bbc.co.uk/iplayer/group/p089njzd?xtor=CS8-1000-\[Discovery Cards\]-\[Multi Site\]-\[SL08\]-\[PS IPLAYER~N~~P BitesizeDaily\]](https://www.bbc.co.uk/iplayer/group/p089njzd?xtor=CS8-1000-[Discovery Cards]-[Multi Site]-[SL08]-[PS IPLAYER~N~~P BitesizeDaily])

BiteSize Daily is a series of videos on IPlayer that are designed to support our children through lockdown. They have guest presenters on everything from performing magic tricks to PE lessons

History

<https://www.britishmuseum.org/collection>

Have a look at the different collections that can be seen at the museum. You can even go on a virtual tour to look at some of the exhibitions.

Geography

<https://www.natgeokids.com/uk/category/discover/>

Discover some cool facts about our world with National Geographic Kids website.

Art

<https://www.tate.org.uk/kids>

Look at The Tate Gallery Kids website for fun things to do and make based on real works of art. Have a look at some of the artists and play games and quizzes.

DT

<https://www.theschoolrun.com/5-at-home-design-and-technology-projects-for-primary-children>

If you are feeling crafty and up for some design and technology, this website offers parents suggestions on how to get creative at home. You can design and build everything from money boxes to egg cosies!

PE

www.youtube.com

Log in to do a daily Joe Wicks workout or Cosmic Kids Yoga.

Science

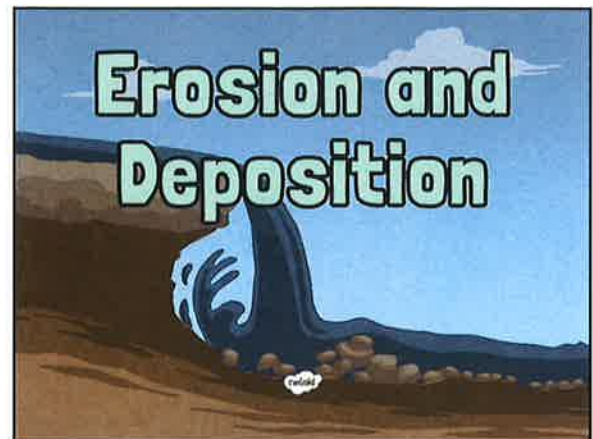
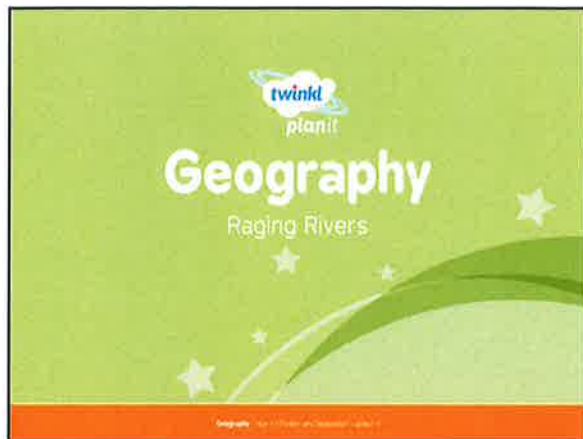
<https://www.nhm.ac.uk/take-part/try-this-at-home.html>

Try looking at the Natural History Museum website for ideas on how to get creative with our natural world.

RE

<https://www.bbc.co.uk/bitesize/subjects/z7hs34j> This website has information about six of the main religions and also humanism. Watch the videos and take part in the activities.

Mon 1st March



Aim

- I can describe the key features of a river system.
- I can use atlases and maps to identify the key features of a river system.

Success Criteria

- I can describe how water erodes a river bank.
- I can describe how deposition changes the shape of a river.
- I can tell you how meanders form.
- I can tell you how an oxbow lake forms.
- I can describe how waterfalls are formed.
- I can identify meanders on a map and photograph.
- I can identify oxbow lakes on a map and photograph.

What Can You Remember?

Questions

What part of a river's course is shown?

What features can you see?

How would you describe the river?

- Speed
- Features
- Valley shape
- Channel width




What Can You Remember?

Questions

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Erosion and Deposition

Why don't rivers travel in straight lines?

- They have to avoid obstacles as they flow downhill.
- People have altered river courses over time.

Erosion and deposition can change the shape of a river.

- What do you think erosion and deposition are?




Meanders



Press the play button to watch this video which explains how meanders form.





Oxbow Lakes



Watch this video which shows what happens to meanders over time:

- As meanders grow, sometimes the water can erode away so much of the river's banks that two meanders will merge together.
- When this happens, the water will take this newer, shorter route and not travel around the previous course.
- Over time, deposition of the river's load will block off the old part of the river, and an oxbow lake will form.



Oxbow Lakes



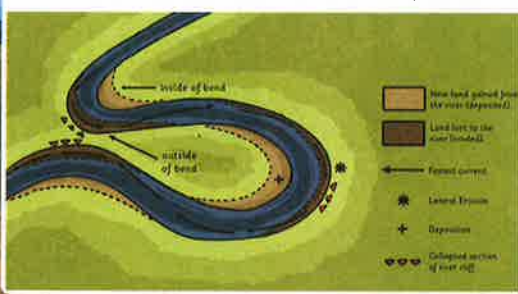
- The map and aerial photograph show the same part of the River Trent.
- Can you see the oxbow lake?
- As the river no longer supplies the lake with water, it is not shown on the map.



Let's Make it Real



What happened: on the inside of the curve? On the outside of the curve?



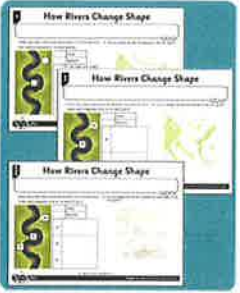
How Rivers Change Shape

Activity

Label your river diagram to show where erosion and deposition occur on the river.

Challenge: Can you annotate the maps to show where meanders and oxbow lakes are formed?

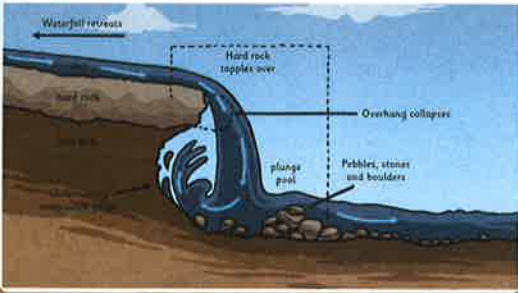




Waterfalls



What would happen to the shape of this waterfall over time?



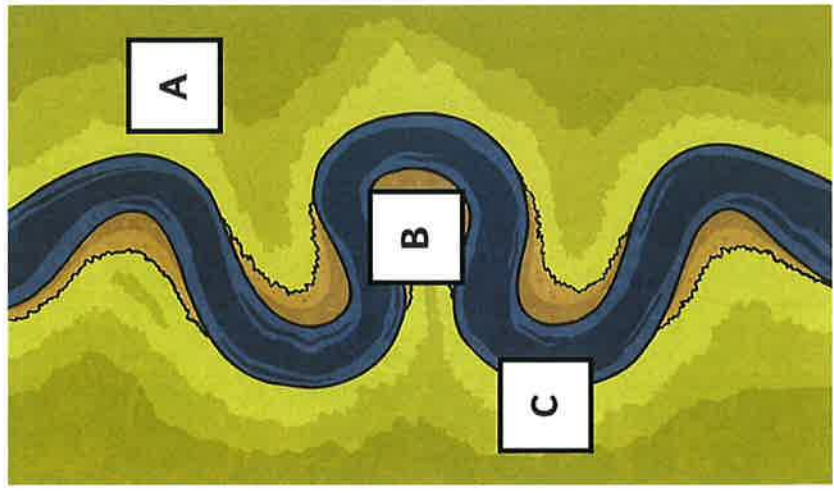


How Rivers Change Shape

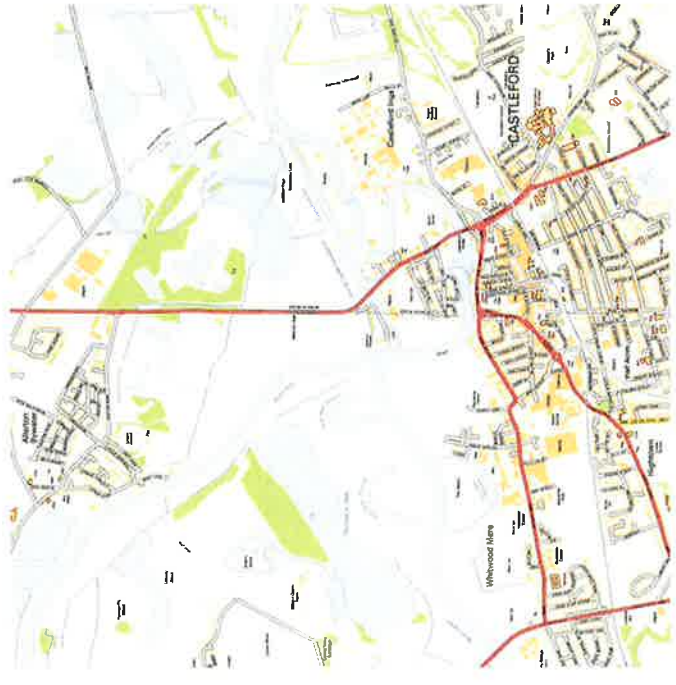
I can describe the key features of a river system.

I can use atlases and maps to identify the key features of a river system.

1. Create a key to show where erosion and deposition occur in the river below. Then explain what is happening to the river at point A, B and C.
2. Can you identify and label the meanders and oxbow lakes on this river system?



	Erosion	Deposition
A		
B		
C		



Mon March 1st



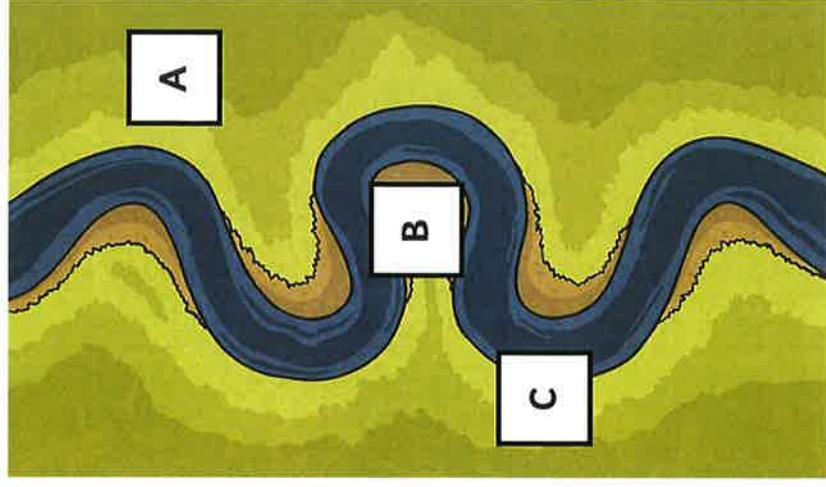
How Rivers Change Shape **Answers**

I can describe the key features of a river system.

I can use atlases and maps to identify the key features of a river system.

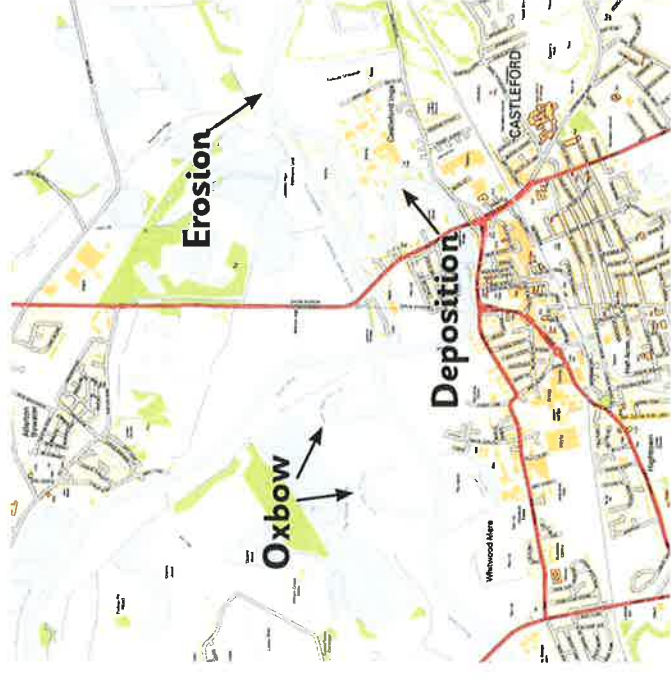
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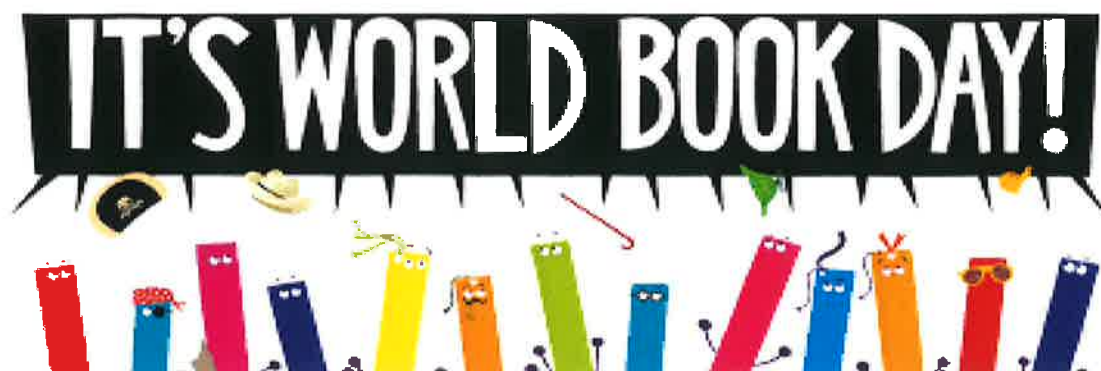
Children's answers may include:



A & C	Erosion
B	Deposition

A	The river flows more quickly here. It has more energy. It wears away the side of the bank, widening and deepening the channel.
B	The rivers flows more slowly here. It doesn't have much energy to carry its load. The load is deposited, making the channel less deep.
C	The river flows more quickly here. It has more energy. It wears away the side of the bank, widening and deepening the channel.





Thursday 4th March is World Book Day 2021!

Lockdown won't stop us! We will continue to celebrate our love of reading! Dress up as your favourite book character and don't forget to Tweet us pictures of your fabulous costumes. All the staff will be joining in as usual.

There are all sorts of activities going on so please look at the World Book Day website for ideas:

www.worldbookday.com

Head over to 'Share a Story Corner' and listen to some books read aloud by their author, or watch videos from the 'Author and Illustrator Academy' which has lots of exciting challenges and activities from the likes of Tom Fletcher and Katherine Rundell, to make reading even more fun and interactive.

As always, we will be holding a HEPS competition. This year, your challenge is to decorate an egg as a character of a well-known story. You can present your egg in a scene if you wish or just present it in an eggcup. Tweet your competition entries by 9am Friday 5th March and we'll let you know the winner on Twitter by the end of the day.



We are hoping our World Book Day £1 vouchers will arrive in time to go home with the next home learning packs on Friday 5th March, or if lockdown ends, we can give them out at school. You can exchange these for the £1 World Book Day books at supermarkets, including our local Tesco. It looks like there are some great choices this year!

