Lesson 1 - WALT measure perimeter

LET'S LEARN

Lesson 2 WALT calculate the perimeter on a grid

Lesson 3 WALT calculate the perimeter of a rectangle

Lesson 4 WALT calculate the perimeter of rectilinear shapes

Lesson 5 WALT calculate perimeter

Recap Session (20mins)
Multiples

Recap Session (20mins)
Common Factors

WEEK 13 - MATHS

Marking Priority
Best work to indepth mark

Day 1

WALT: measure the perimeter

00:50 - 9:20

Using a ruler! Q1-3

What is perimeter?

Measuring the perimeter Q4-5

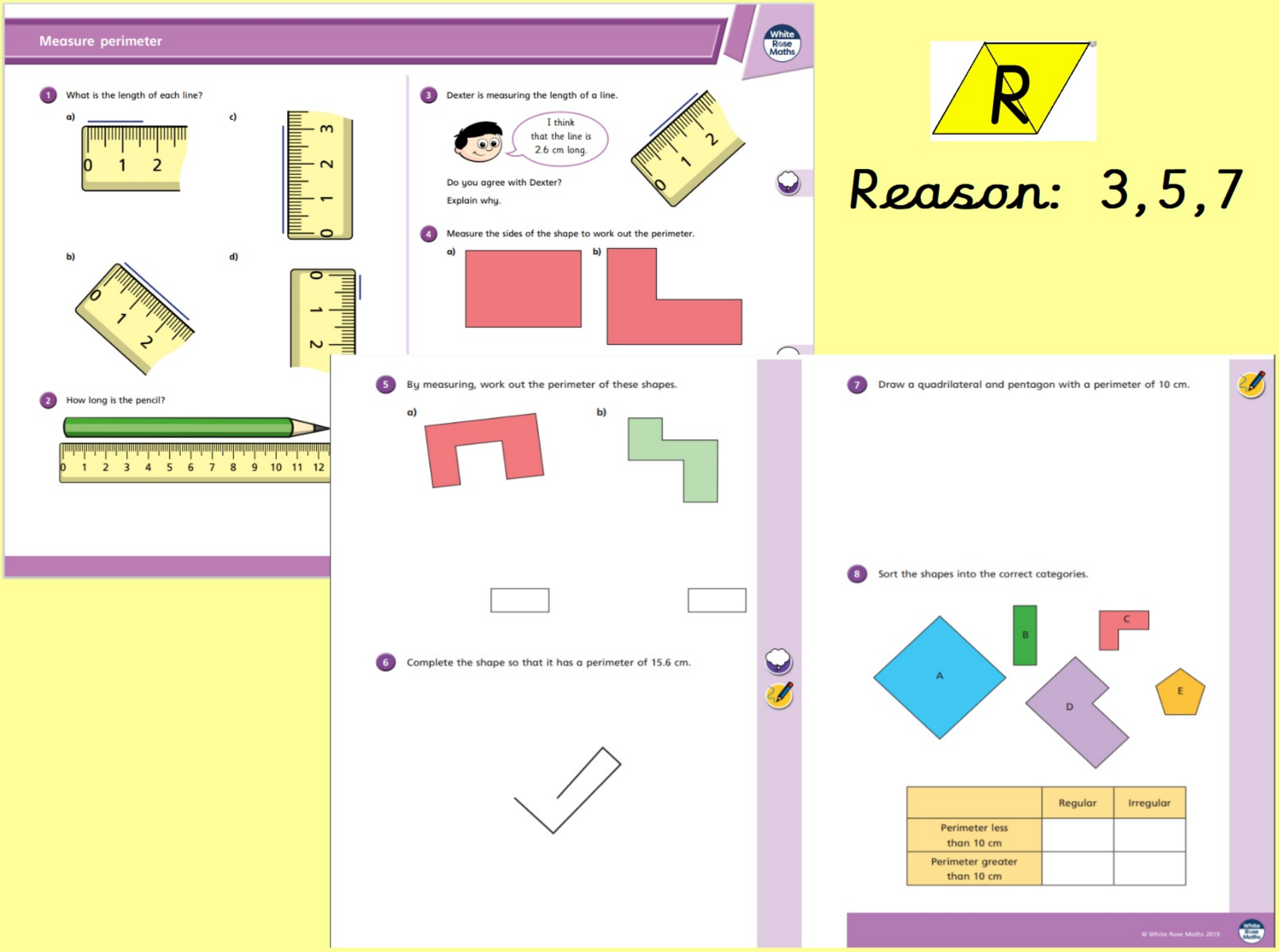
* can model using a visualiser

Vocabulary

- measure
- perimeter
- length
- width
- centimetre (cm)
- millimetre (mm)
- rectilinear

1cm=10mm

Perimeter is the length around a closed 2D shape



Measure perimeter

1. What is the length of each line?

2. How long is the pencil?

3. Dexter is measuring the length of a line.

Do you agree with Dexter?
Explain why.

4. Measure the sides of the shape to work out the perimeter.

5. By measuring, work out the perimeter of these shapes.

6. Complete the shape so that it has a perimeter of 15.6 cm.

7. Draw a quadrilateral and pentagon with a perimeter of 10 cm.

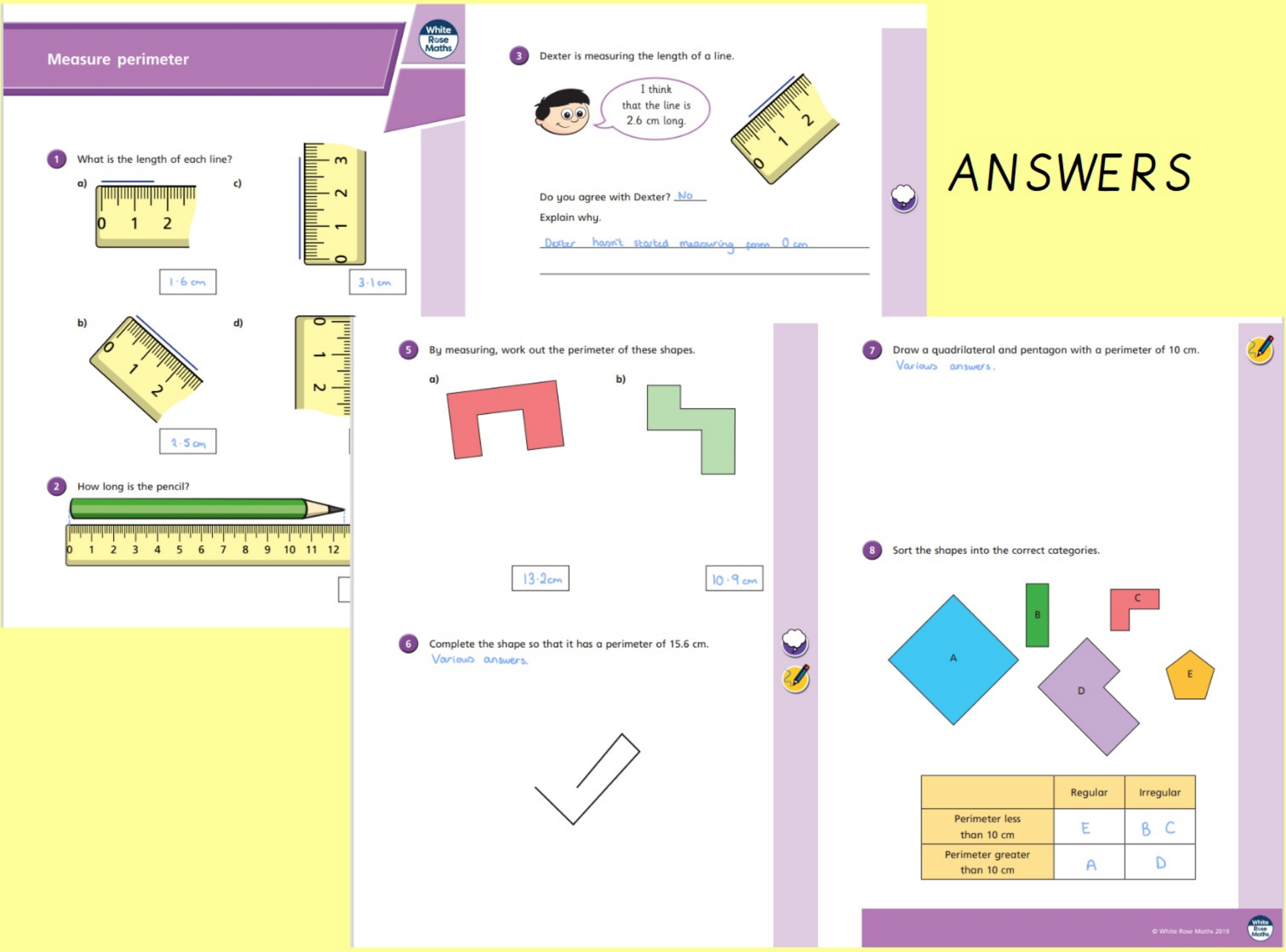
8. Sort the shapes into the correct categories.

	Regular	Irregular
Perimeter less than 10 cm		
Perimeter greater than 10 cm		

© White Rose Maths 2019

Reason: 3,5,7

ANSWERS



Measure perimeter

1. What is the length of each line?

a) 1·6 cm

b) 2·5 cm

c) 3·1 cm

d)

2. How long is the pencil?

3. Dexter is measuring the length of a line.

Do you agree with Dexter? No

Explain why.

Dexter hasn't started measuring from 0 cm.

5. By measuring, work out the perimeter of these shapes.

a) 13·2cm

b) 10·9 cm

6. Complete the shape so that it has a perimeter of 15.6 cm.

Various answers.

7. Draw a quadrilateral and pentagon with a perimeter of 10 cm.

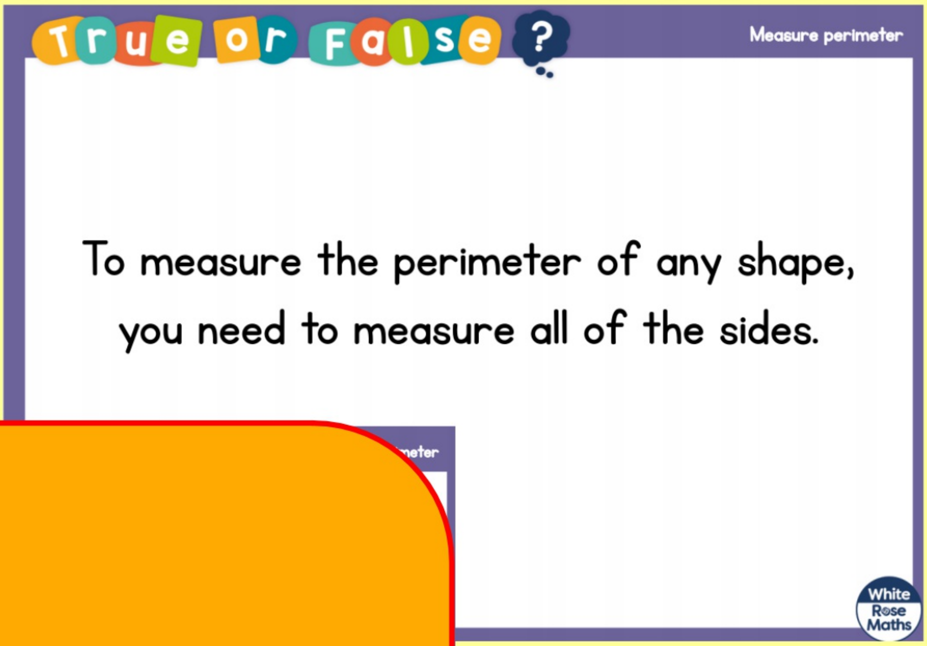
Various answers.

8. Sort the shapes into the correct categories.

	Regular	Irregular
Perimeter less than 10 cm	E	B C
Perimeter greater than 10 cm	A	D

© White Rose Maths 2019

Plenary


True or False ?
Measure perimeter
White Rose Maths

To measure the perimeter of any shape, you need to measure all of the sides.

Discuss

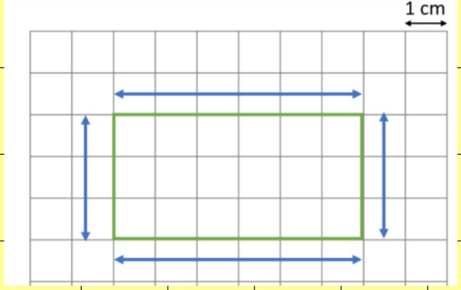
Lesson 2

WALT: calculate the perimeter on a grid

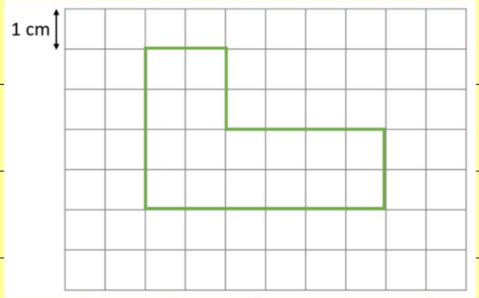
Mega Challenge

Calculate the perimeter:

1)



2)

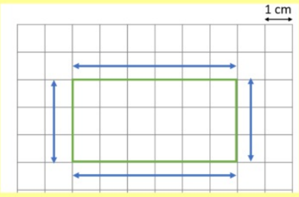


Vocabulary

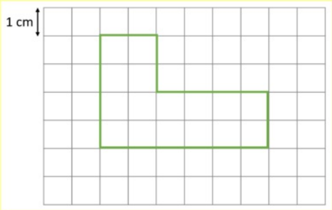
- measure
- perimeter
- length
- width
- centimetre (cm)
- millimetre (mm)
- rectilinear

Perimeter is the length around a closed 2D shape

WALT: calculate the perimeter on a grid



1) 18cm



2) 20cm

If you correctly answered all of the mega challenge questions, move on to the class questions.

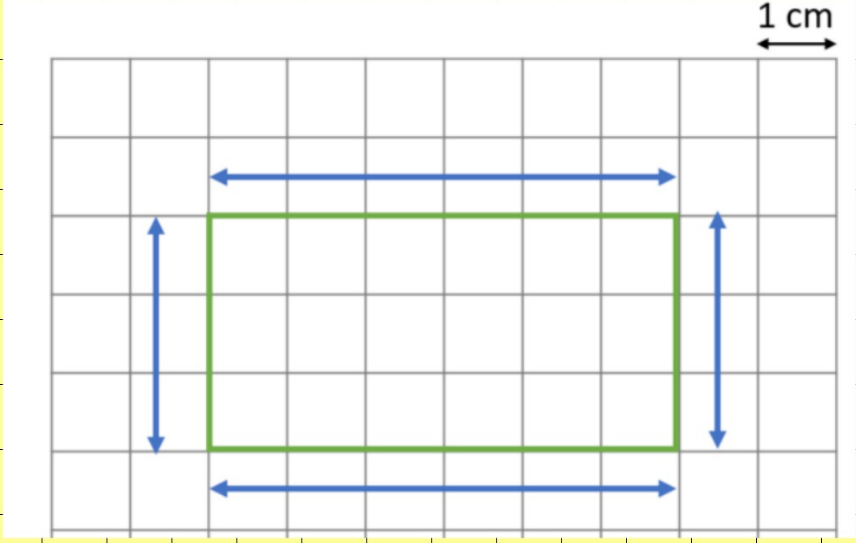
If you did not answer all the mega challenge correctly, stay with me to learn mor

Class questions - see next slide!

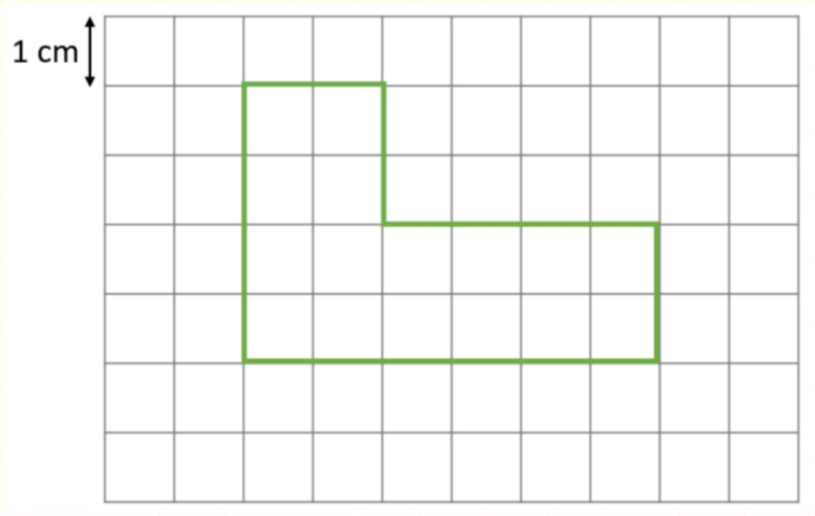
REASON AND PEER MARK FOR EVERY QUESTION!

I DO

WALT: calculate the perimeter on a grid

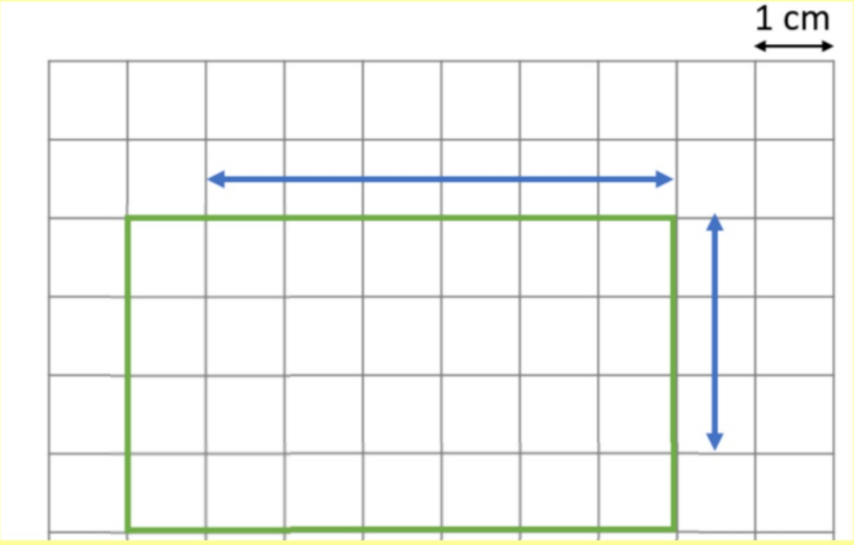


WALT: calculate the perimeter on a grid

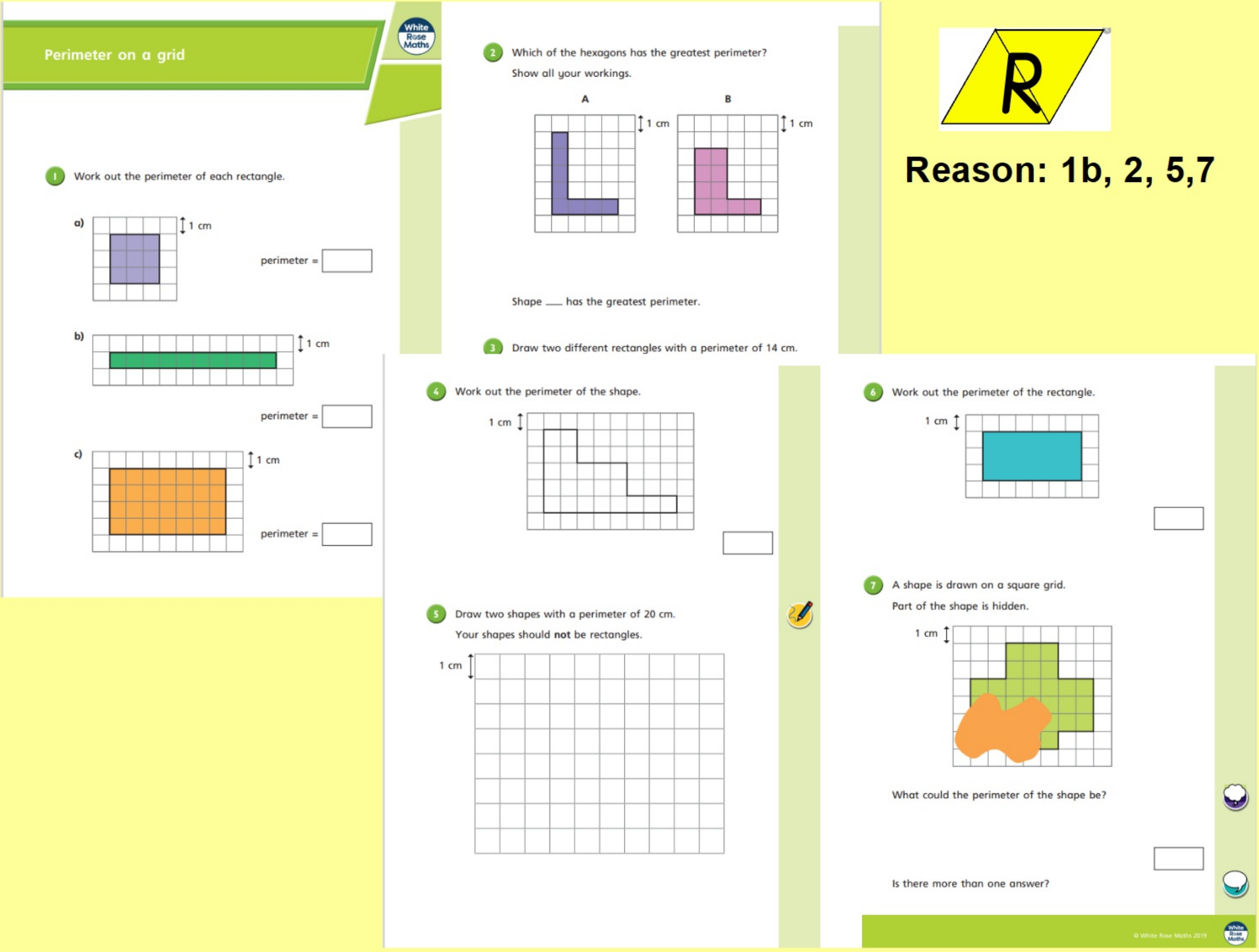


WE DO

Calculate the perimeter.



YOU DO



Perimeter on a grid

1. Work out the perimeter of each rectangle.

a)

perimeter =

b)

perimeter =

c)

perimeter =

2. Which of the hexagons has the greatest perimeter?

Show all your workings.

Shape ___ has the greatest perimeter.

3. Draw two different rectangles with a perimeter of 14 cm.

4. Work out the perimeter of the shape.

5. Draw two shapes with a perimeter of 20 cm.

Your shapes should **not** be rectangles.

6. Work out the perimeter of the rectangle.

7. A shape is drawn on a square grid.

Part of the shape is hidden.

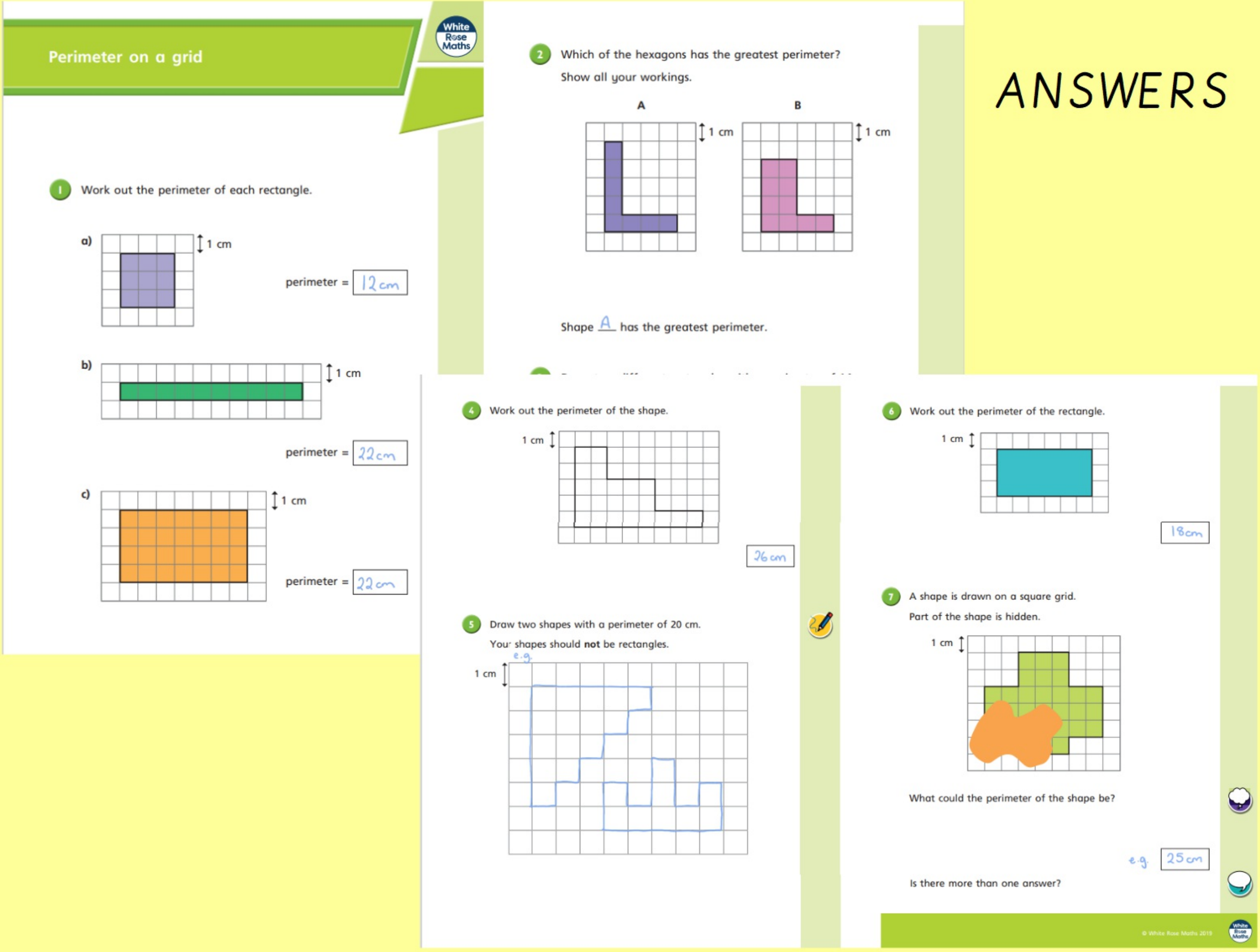
What could the perimeter of the shape be?

Is there more than one answer?

© White Rose Maths 2019

Reason: 1b, 2, 5,7

ANSWERS



Perimeter on a grid

① Work out the perimeter of each rectangle.

a) perimeter = 12 cm

b) perimeter = 22 cm

c) perimeter = 22 cm

② Which of the hexagons has the greatest perimeter?

Show all your workings.

Shape A has the greatest perimeter.

④ Work out the perimeter of the shape.

26 cm

⑤ Draw two shapes with a perimeter of 20 cm.

You shapes should **not** be rectangles.

e.g.

⑥ Work out the perimeter of the rectangle.

18cm

⑦ A shape is drawn on a square grid.

Part of the shape is hidden.

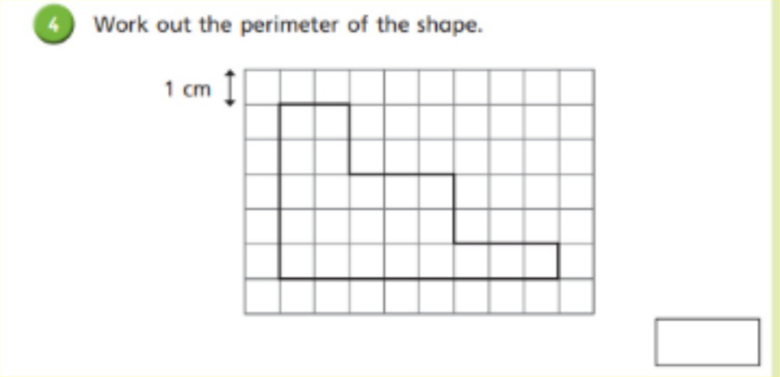
What could the perimeter of the shape be?

e.g. 25 cm

Is there more than one answer?

© White Rose Maths 2019

Plenary



4 Work out the perimeter of the shape.

How do you work it out?

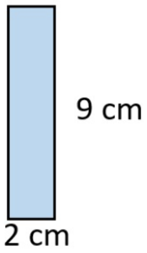
Discuss

Lesson 3

WALT: calculate the perimeter of rectangles

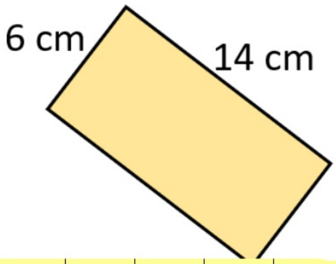
Mega Challenge

1)



2)

Have a think

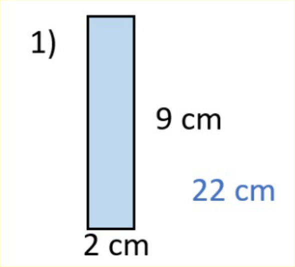


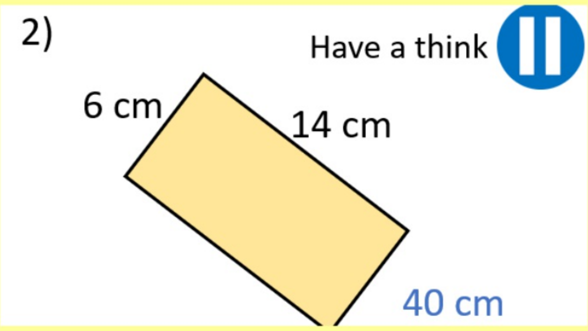
Vocabulary

factors
multiples
prime number
composite numbers
length
width

Perimeter is the length around a closed 2D shape

WALT: calculate the perimeter of rectangles


1)
9 cm
22 cm
2 cm

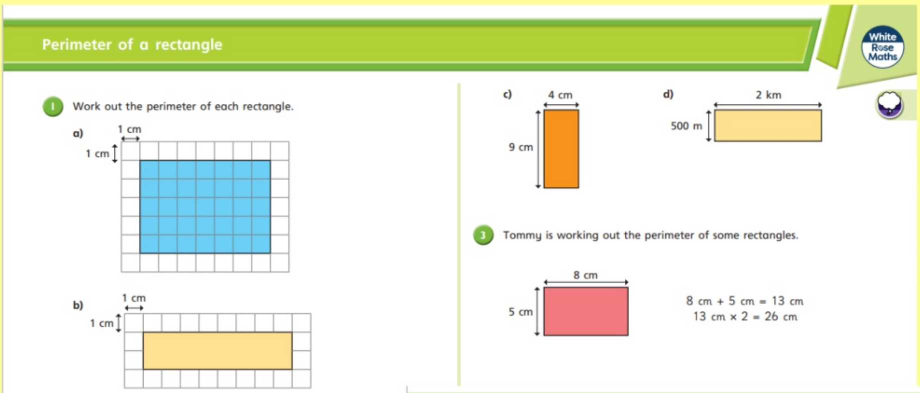

2)
Have a think
6 cm
14 cm
40 cm

If you correctly answered all of the mega challenge question, move on to the class questions.

If you did not answer all the mega challenge correctly, stay with me to learn more.

Class questions - see next slide!

REASON AND PEER MARK FOR EVERY QUESTION!



Perimeter of a rectangle

① Work out the perimeter of each rectangle.

a)
1 cm
1 cm

b)
1 cm
1 cm

c)
1 cm
1 cm

② Work out the perimeter of the rectangles.

a)
7 cm
4 cm
4 cm
7 cm

b)
12 cm
3 cm

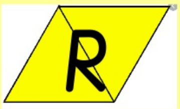
c)
4 cm
9 cm

d)
2 km
500 m

③ Tommy is working out the perimeter of some rectangles.

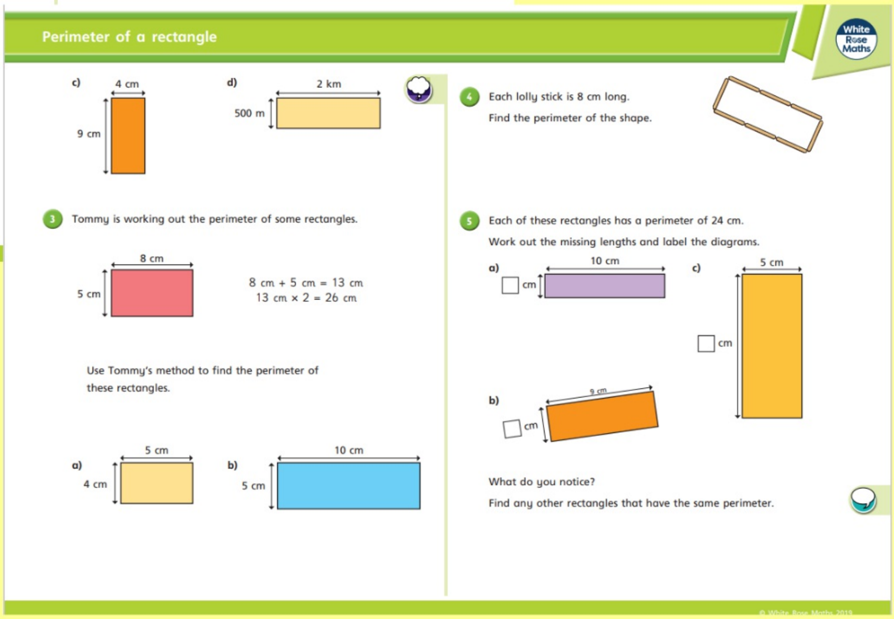
8 cm
5 cm

8 cm + 5 cm = 13 cm
13 cm × 2 = 26 cm



Reason: 2, 4

RR: 4



Perimeter of a rectangle

c)
4 cm
9 cm

d)
2 km
500 m

③ Tommy is working out the perimeter of some rectangles.

8 cm
5 cm

8 cm + 5 cm = 13 cm
13 cm × 2 = 26 cm

Use Tommy's method to find the perimeter of these rectangles.

a)
5 cm
4 cm

b)
10 cm
5 cm

④ Each lolly stick is 8 cm long.

Find the perimeter of the shape.

⑤ Each of these rectangles has a perimeter of 24 cm.

Work out the missing lengths and label the diagrams.

a)
10 cm
☐ cm

b)
9 cm
☐ cm

c)
5 cm
☐ cm

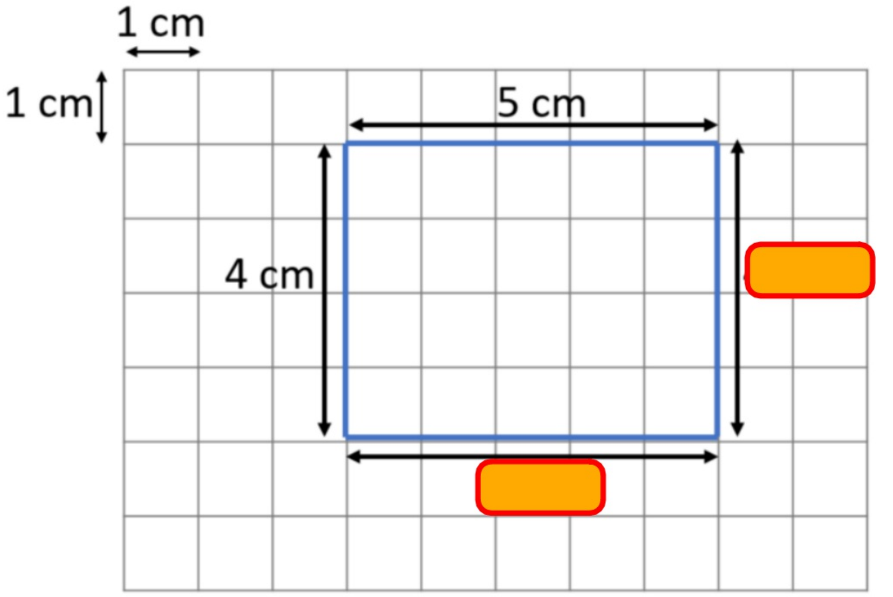
What do you notice?

Find any other rectangles that have the same perimeter.

© White Rose Maths 2019

Everyone must get to number four so we can reason it together.

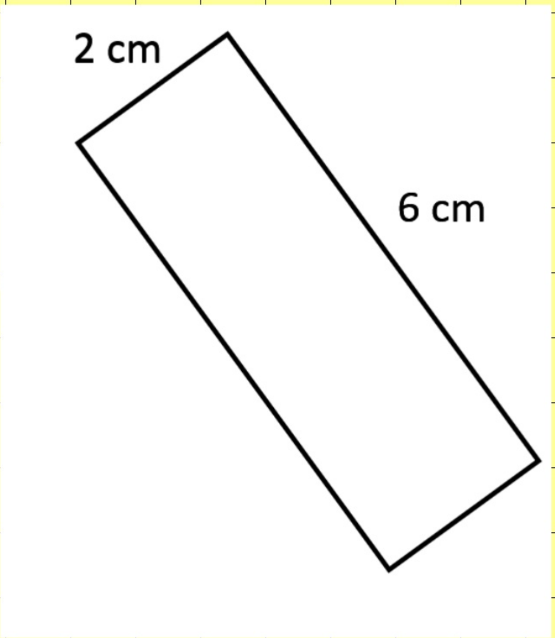
WALT: calculate the perimeter of rectangles


1 cm
1 cm
5 cm
4 cm

☐ + ☐ + ☐ + ☐ = ☐

I DO

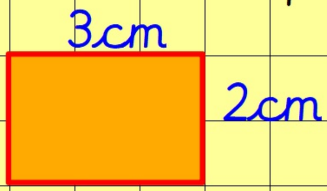
Calculate the perimeter



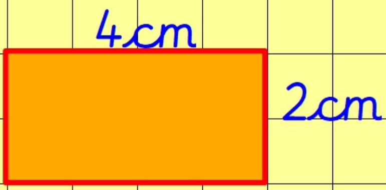
WE DO

Calculate the perimeter

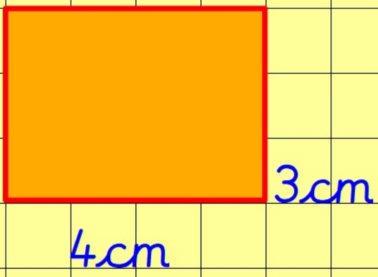
1)



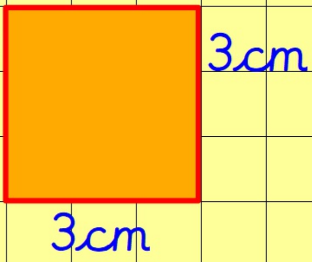
2)



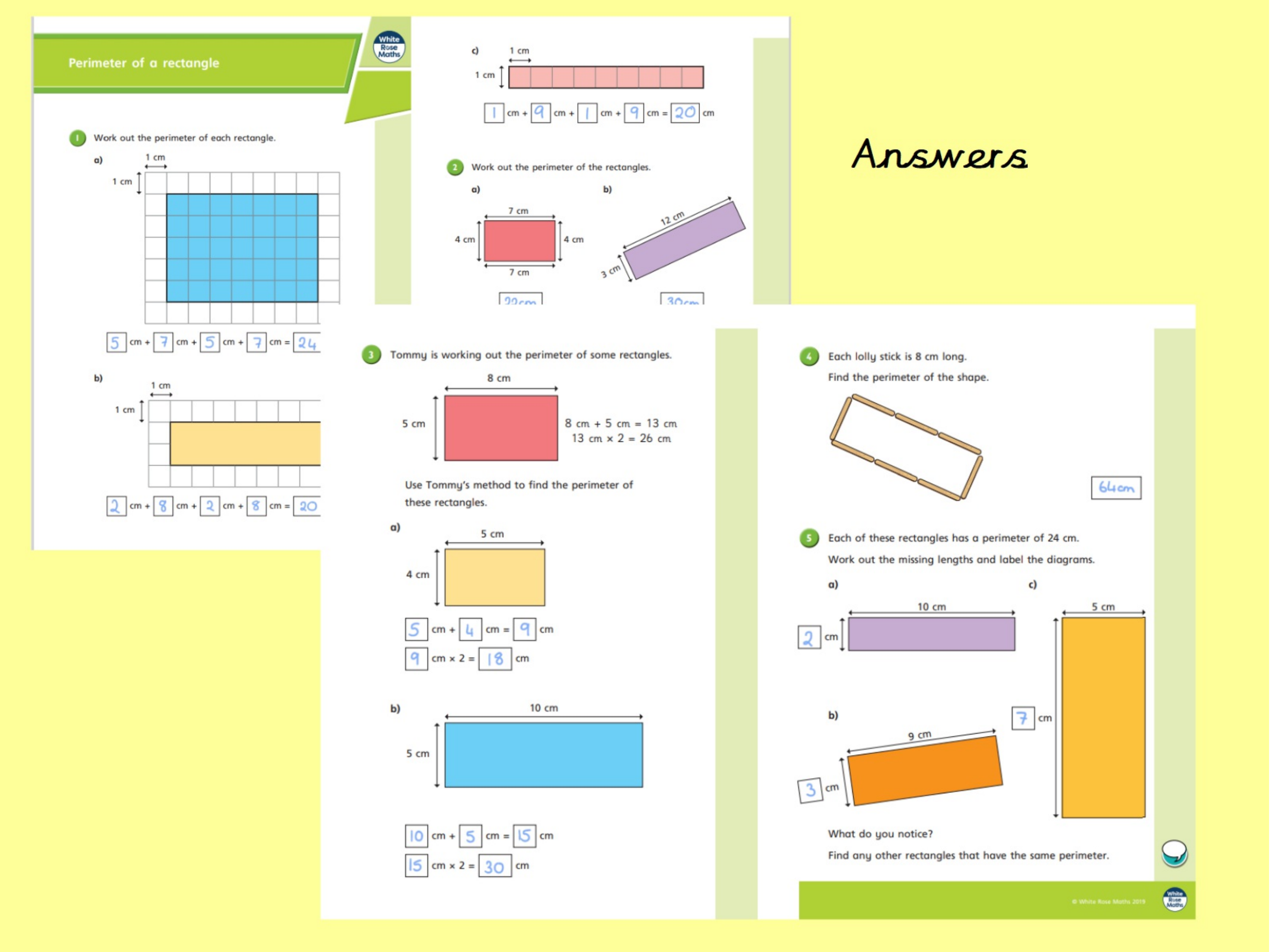
3)



4)



YOU DO



Answers

Perimeter of a rectangle

① Work out the perimeter of each rectangle.

a)
1 cm
1 cm

5 cm + 7 cm + 5 cm + 7 cm = 24

b)
1 cm
1 cm

2 cm + 8 cm + 2 cm + 8 cm = 20

c)
1 cm
1 cm

1 cm + 9 cm + 1 cm + 9 cm = 20 cm

② Work out the perimeter of the rectangles.

a)
7 cm
4 cm
4 cm
7 cm

22cm

b)
12 cm
3 cm

30cm

③ Tommy is working out the perimeter of some rectangles.

8 cm
5 cm

8 cm + 5 cm = 13 cm
13 cm × 2 = 26 cm

Use Tommy's method to find the perimeter of these rectangles.

a)
5 cm
4 cm

5 cm + 4 cm = 9 cm
9 cm × 2 = 18 cm

b)
10 cm
5 cm

10 cm + 5 cm = 15 cm
15 cm × 2 = 30 cm

④ Each lolly stick is 8 cm long.

Find the perimeter of the shape.

64cm

⑤ Each of these rectangles has a perimeter of 24 cm.

Work out the missing lengths and label the diagrams.

a)

2 cm

b)

3 cm

c)

7 cm

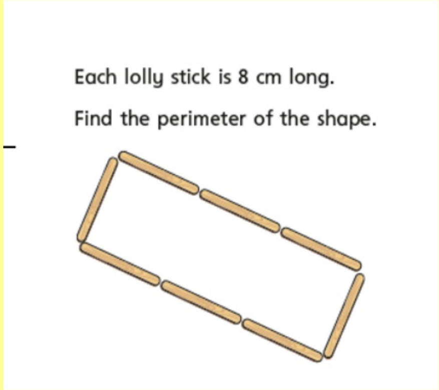
What do you notice?

Find any other rectangles that have the same perimeter.

© White Rose Maths 2019

Year 5 radical reasoning

Work it out:

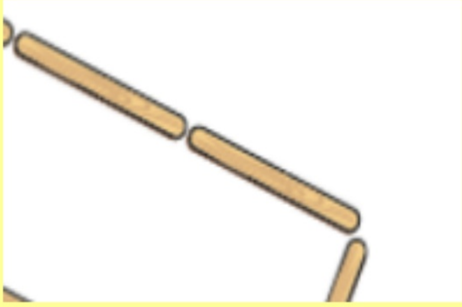


Each lolly stick is 8 cm long.

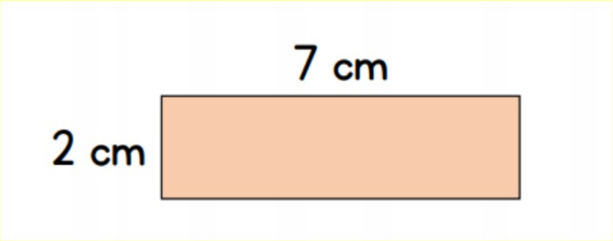
Find the perimeter of the shape.

Key Vocabulary:

Explain: How did I do it and how did I know what to do?



Plenary



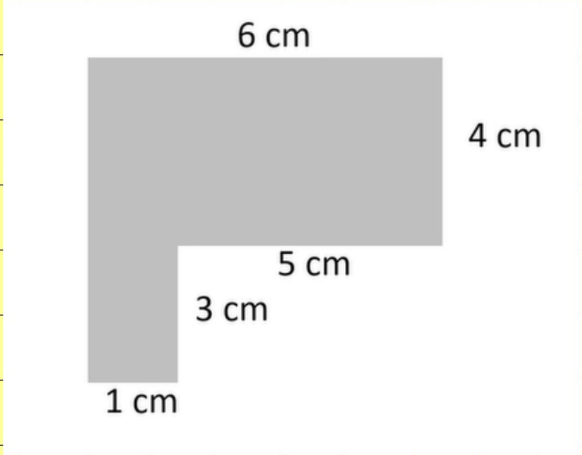
Create instructions to calculate the perimeter.
Is there more that one way?

Lesson 4

WALT: calculate the perimeter of rectilinear shapes

Mega Challenge

Calculate the perimeter of this rectilinear shape

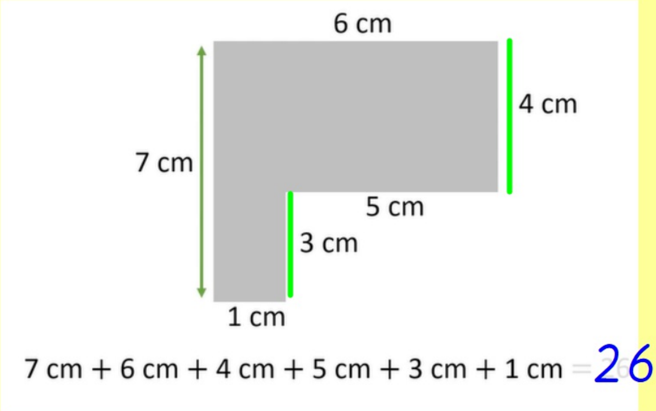


Vocabulary

measure
perimeter
length
width
centimetre (cm)
millimetre (mm)
rectilinear

Perimeter is the length around a closed 2D shape

WALT: calculate the perimeter of rectilinear shapes



7 cm + 6 cm + 4 cm + 5 cm + 3 cm + 1 cm = 26

If you correctly answered all of the mega challenge question, move on to the class questions.

If you did not answer all the mega challenge correctly, stay with me to learn more.

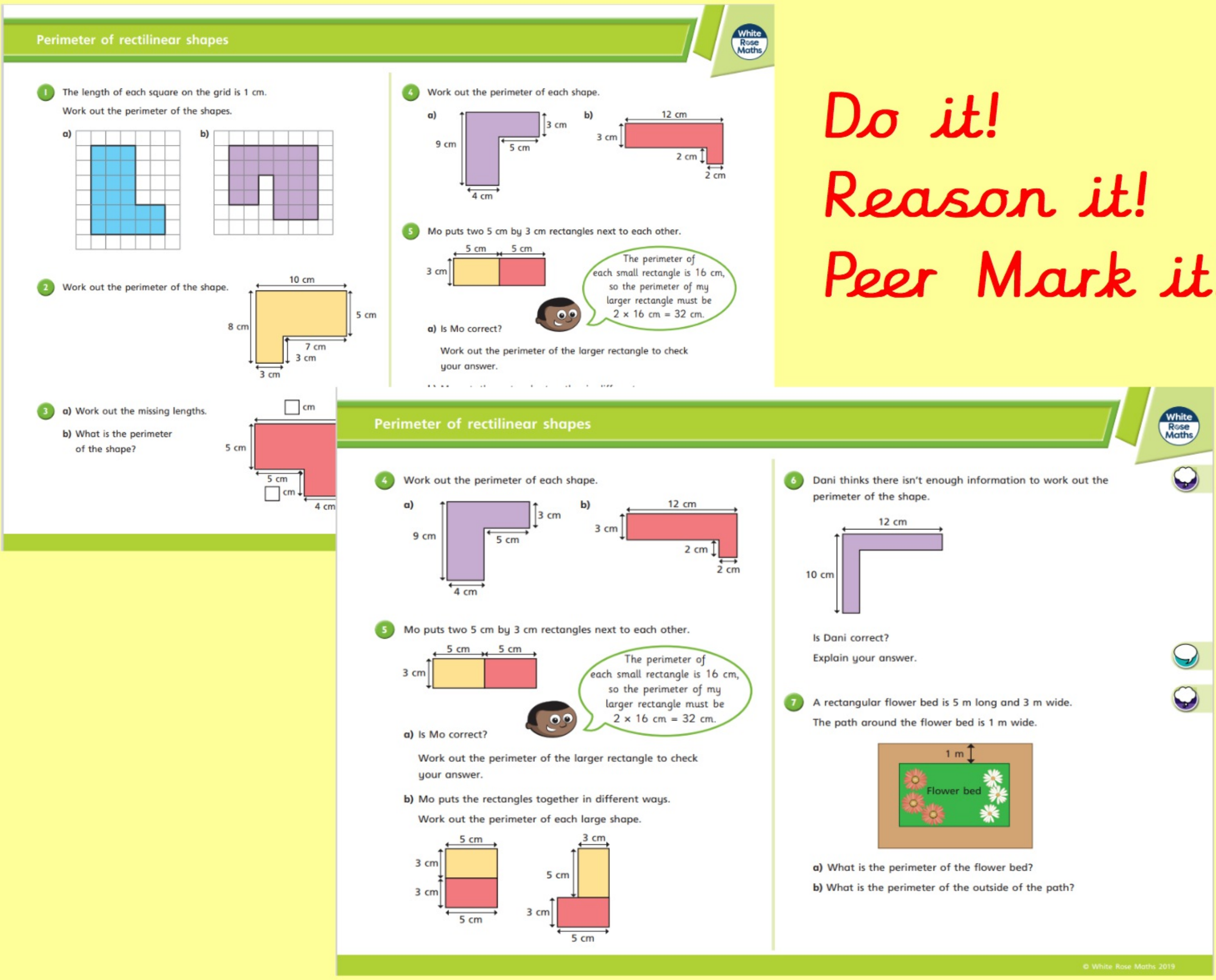
Class questions - see next slide!

REASON AND PEER MARK FOR EVERY QUESTION!

Do it!

Reason it!

Peer Mark it!



Perimeter of rectilinear shapes

① The length of each square on the grid is 1 cm.

Work out the perimeter of the shapes.

a)
b)

② Work out the perimeter of the shape.

10 cm
5 cm
8 cm
7 cm
3 cm
3 cm

③ **a)** Work out the missing lengths.

b) What is the perimeter of the shape?

☐ cm
5 cm
5 cm
☐ cm
4 cm

④ Work out the perimeter of each shape.

a)
3 cm
9 cm
5 cm
4 cm
b)
12 cm
3 cm
2 cm
2 cm

⑤ Mo puts two 5 cm by 3 cm rectangles next to each other.

5 cm
5 cm
3 cm
The perimeter of each small rectangle is 16 cm, so the perimeter of my larger rectangle must be 2 × 16 cm = 32 cm.

a) Is Mo correct?

Work out the perimeter of the larger rectangle to check your answer.

Perimeter of rectilinear shapes

④ Work out the perimeter of each shape.

a)
3 cm
9 cm
5 cm
4 cm
b)
12 cm
3 cm
2 cm
2 cm

⑤ Mo puts two 5 cm by 3 cm rectangles next to each other.

5 cm
5 cm
3 cm
The perimeter of each small rectangle is 16 cm, so the perimeter of my larger rectangle must be 2 × 16 cm = 32 cm.

a) Is Mo correct?

Work out the perimeter of the larger rectangle to check your answer.

b) Mo puts the rectangles together in different ways.

Work out the perimeter of each large shape.

5 cm
3 cm
3 cm
5 cm
3 cm
5 cm
3 cm
5 cm

⑥ Dani thinks there isn't enough information to work out the perimeter of the shape.

Is Dani correct?

Explain your answer.

⑦ A rectangular flower bed is 5 m long and 3 m wide.

The path around the flower bed is 1 m wide.

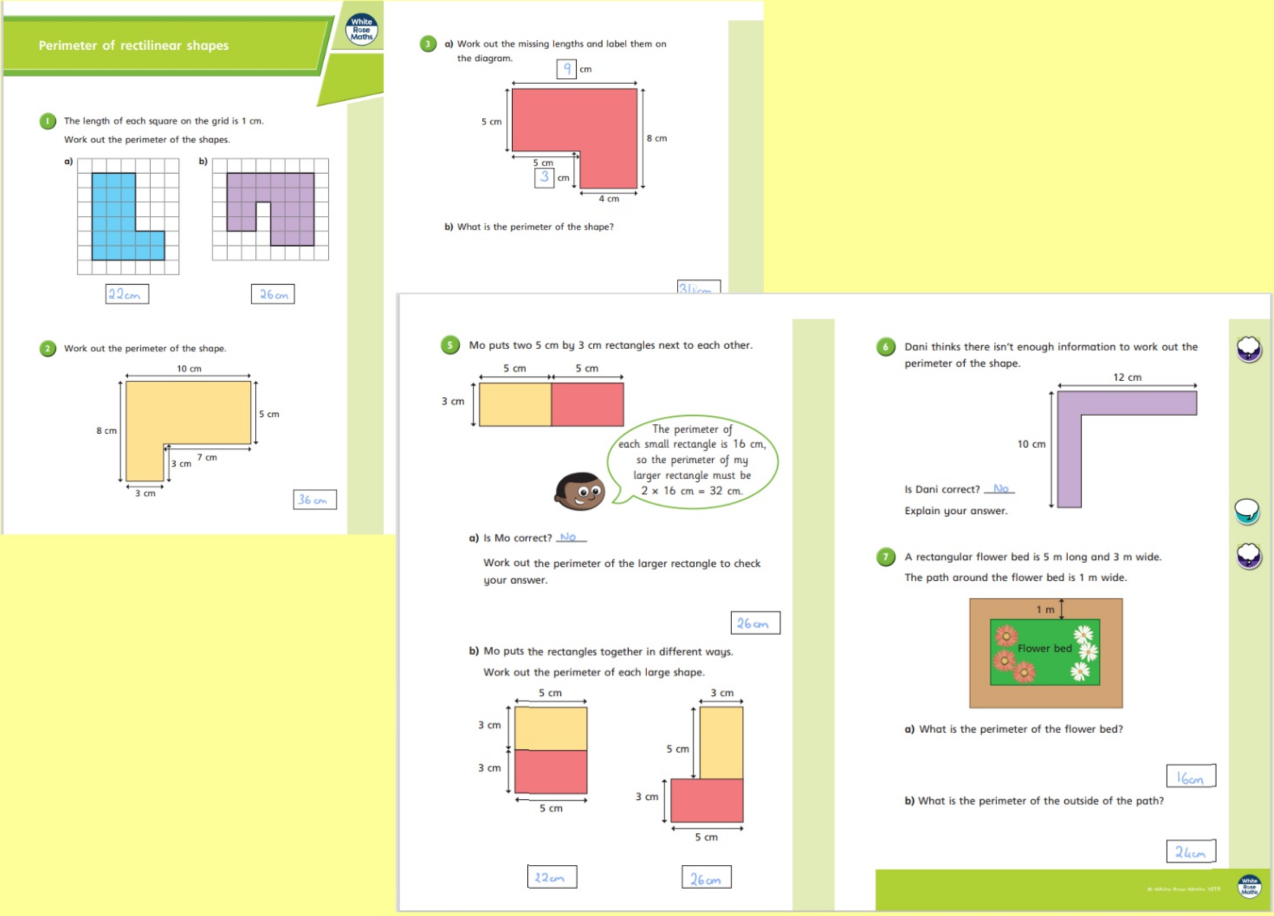
1 m
Flower bed

a) What is the perimeter of the flower bed?

b) What is the perimeter of the outside of the path?

© White Rose Maths 2019

ANSWERS



Perimeter of rectilinear shapes

1. The length of each square on the grid is 1 cm.

Work out the perimeter of the shapes.

a) 22cm

b) 26cm

2. Work out the perimeter of the shape.

36 cm

3. a) Work out the missing lengths and label them on the diagram.

9 cm

3 cm

b) What is the perimeter of the shape?

3

5. Mo puts two 5 cm by 3 cm rectangles next to each other.

The perimeter of
each small rectangle is 16 cm,
so the perimeter of my
larger rectangle must be
2 × 16 cm = 32 cm.

a) Is Mo correct? No

Work out the perimeter of the larger rectangle to check your answer.

26cm

b) Mo puts the rectangles together in different ways.

Work out the perimeter of each large shape.

22cm

26cm

6. Dani thinks there isn't enough information to work out the perimeter of the shape.

Is Dani correct? No

Explain your answer.

7. A rectangular flower bed is 5 m long and 3 m wide.

The path around the flower bed is 1 m wide.

a) What is the perimeter of the flower bed?

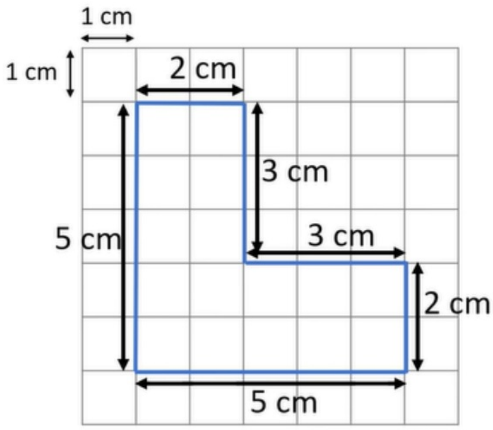
16cm

b) What is the perimeter of the outside of the path?

24cm

© White Rose Maths 2019

(01:00 - 02:00)

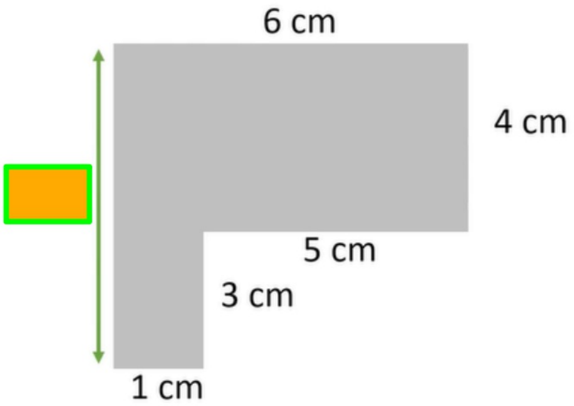

1 cm
1 cm
2 cm
3 cm
5 cm
3 cm
2 cm
5 cm

2 cm + 3 cm + 3 cm + 2 cm + 5 cm + 5 cm = 20 cm

I DO

Rectilinear
- made up of 2 or more rectangles

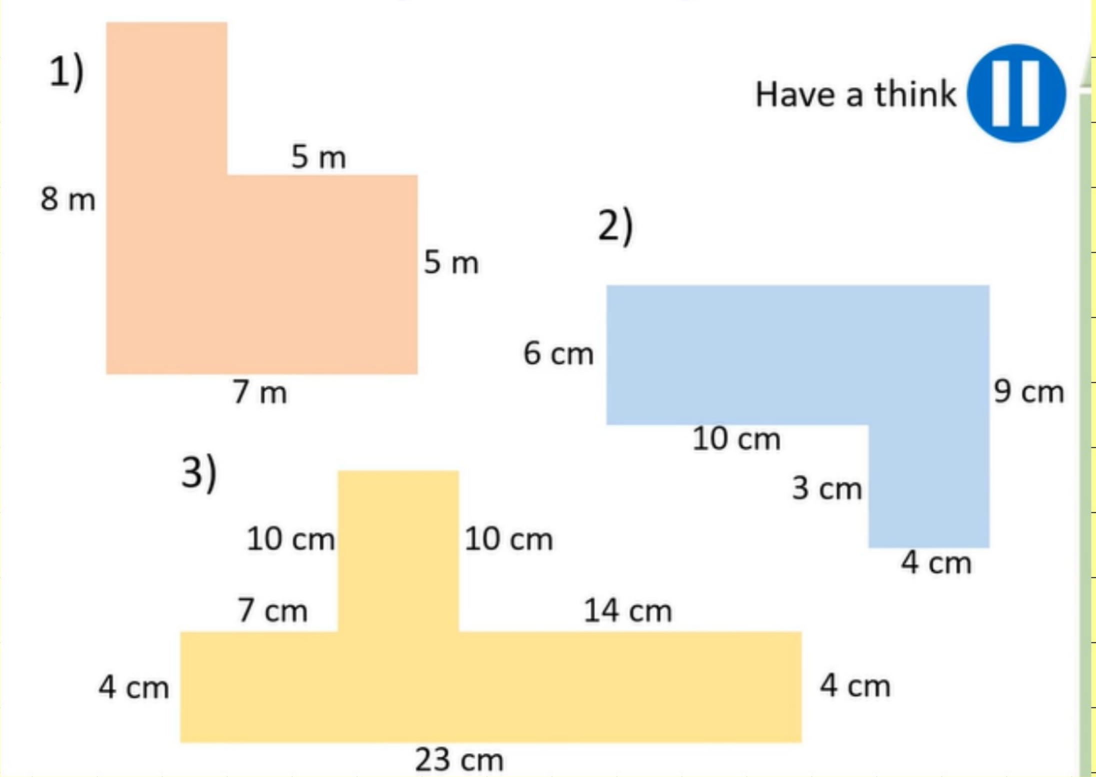
(02:00 - 02:50)


6 cm
4 cm
5 cm
3 cm
1 cm

7 cm + 6 cm + 4 cm + 5 cm + 3 cm + 1 cm = 26 cm

WE DO

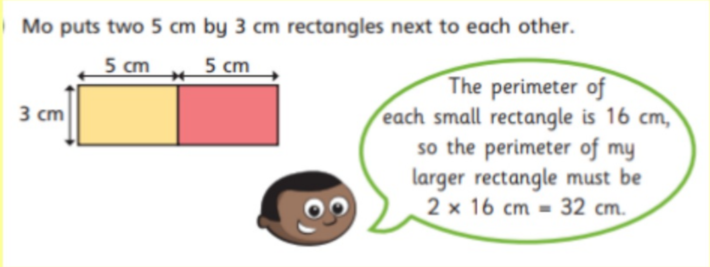
Calculate the perimeter of these rectilinear shapes.
(HINT: watch out for missing values)


1)
8 m
5 m
5 m
7 m
Have a think
2)
6 cm
9 cm
10 cm
3 cm
4 cm
3)
10 cm
10 cm
7 cm
14 cm
4 cm
4 cm
23 cm

YOU DO

(04.29 - 06:00)

Plenary



Mo puts two 5 cm by 3 cm rectangles next to each other.

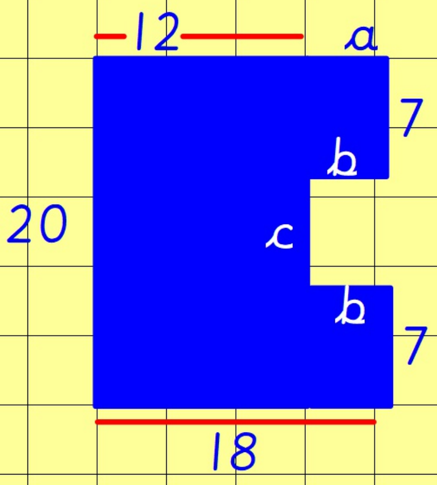
The perimeter of each small rectangle is 16 cm, so the perimeter of my larger rectangle must be 2 × 16 cm = 32 cm.

Mo is not correct.
Why not?

Discuss

Lesson 5

WALT: calculate the perimeter



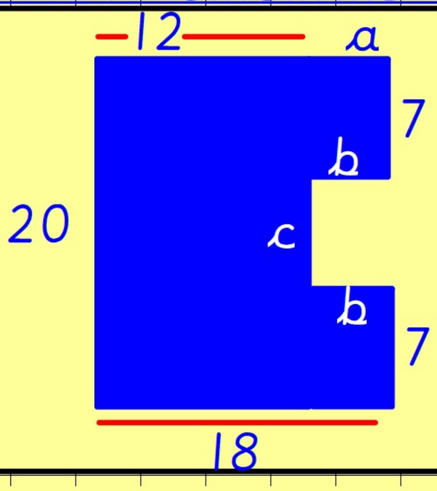
What is the value of the missing sides - a, b and c?

Vocabulary

- measure
- perimeter
- length
- width
- centimetre (cm)
- millimetre (mm)
- rectilinear

Perimeter is the length around a closed 2D shape

WALT: calculate the perimeter



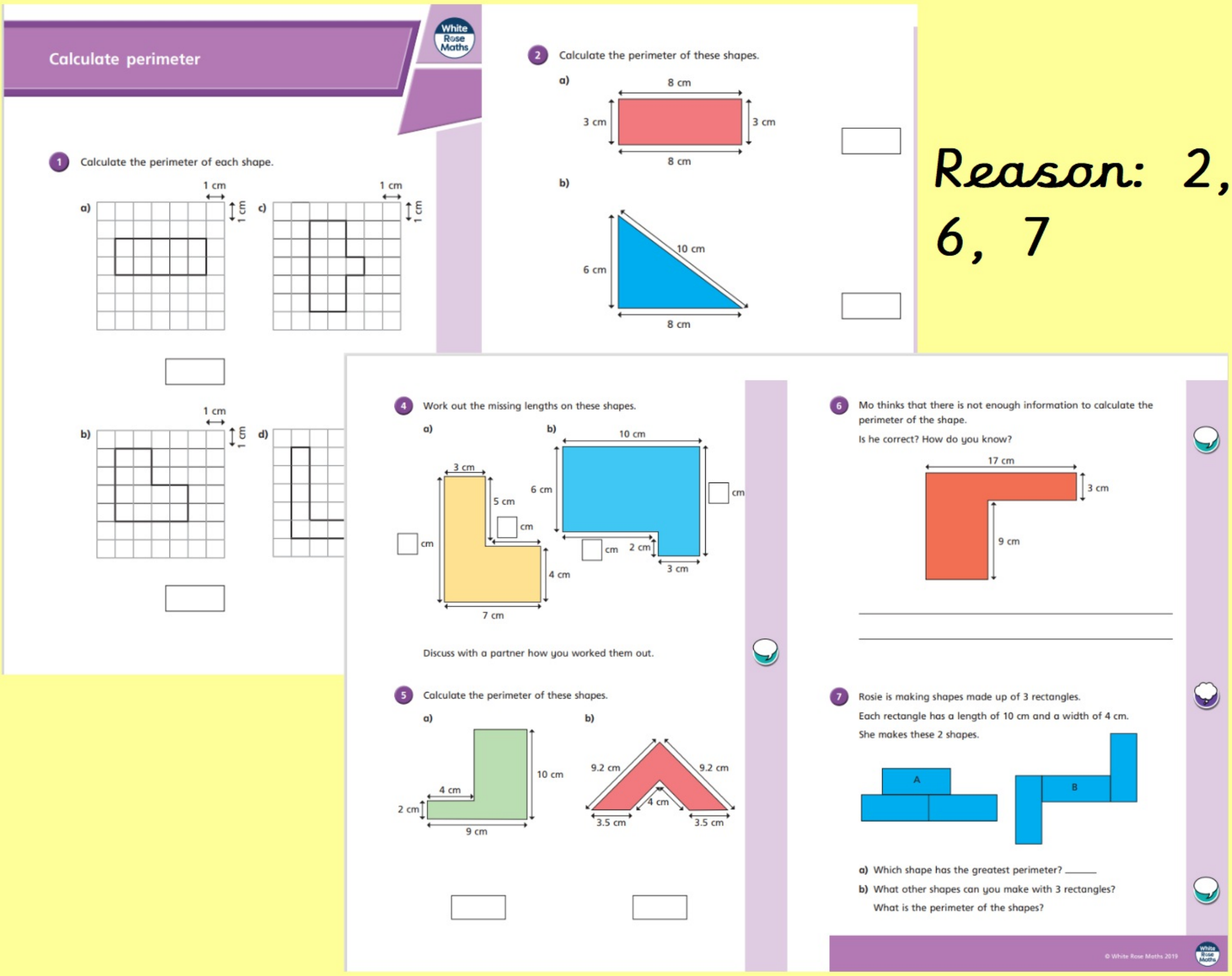
a = 6
b = 6
c = 6

If you correctly answered all of the mega challenge question, move on to the class questions.

If you did not answer all the mega challenge correctly, stay with me to learn more.

Class questions - see next slide!

REASON AND PEER MARK FOR EVERY QUESTION!


1 cm
1 cm
1 cm
a)
b)
c)
d)
8 cm
3 cm
3 cm
8 cm
10 cm
6 cm
8 cm
3 cm
5 cm
cm
cm
4 cm
7 cm
10 cm
6 cm
cm
cm
2 cm
3 cm
10 cm
4 cm
2 cm
9 cm
9.2 cm
9.2 cm
4 cm
3.5 cm
3.5 cm
17 cm
3 cm
9 cm
A
B

Calculate perimeter

1. Calculate the perimeter of each shape.

2. Calculate the perimeter of these shapes.

4. Work out the missing lengths on these shapes.

Discuss with a partner how you worked them out.

5. Calculate the perimeter of these shapes.

6. Mo thinks that there is not enough information to calculate the perimeter of the shape.

Is he correct? How do you know?

7. Rosie is making shapes made up of 3 rectangles.

Each rectangle has a length of 10 cm and a width of 4 cm.

She makes these 2 shapes.

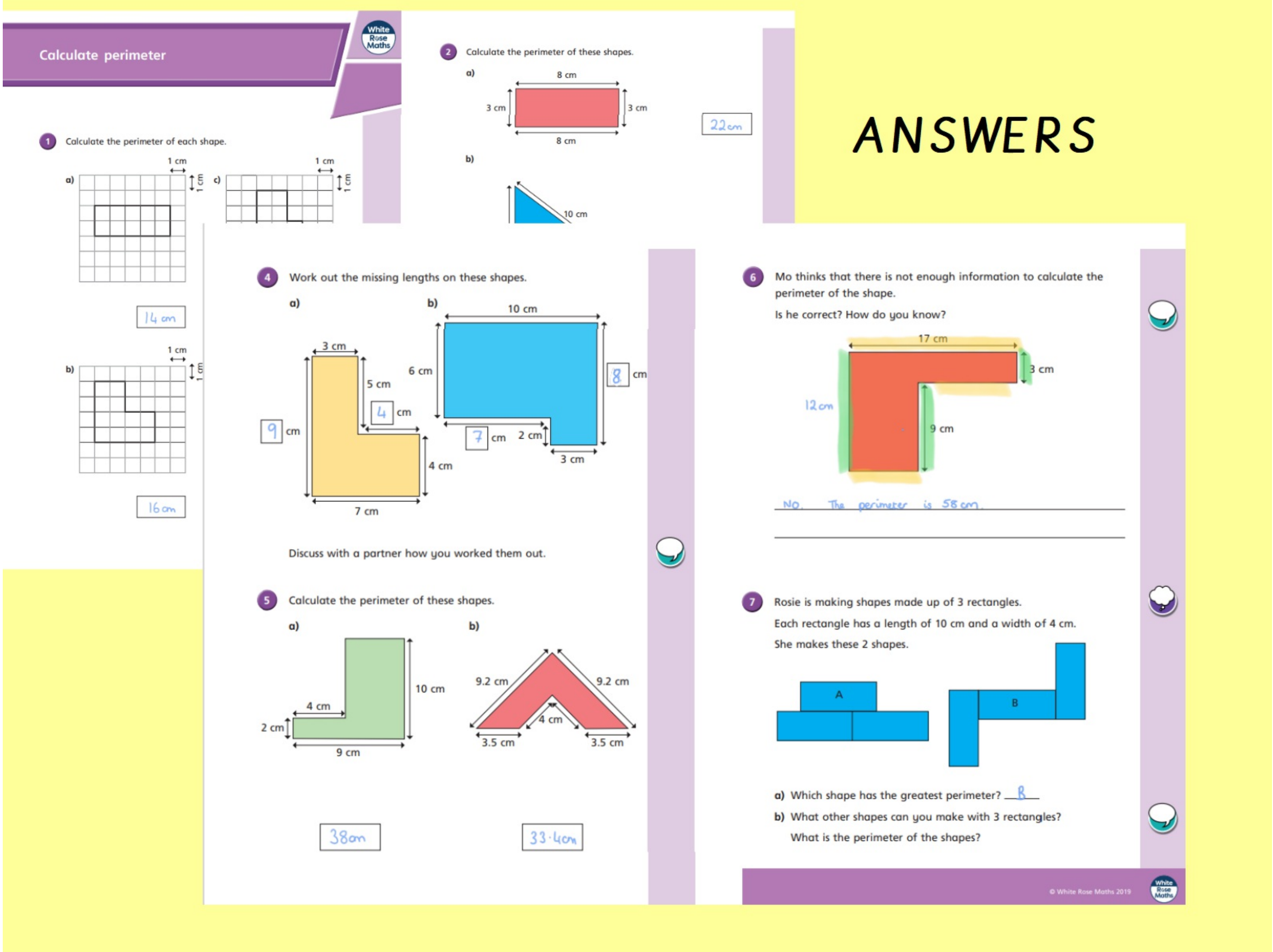
a) Which shape has the greatest perimeter? ______

b) What other shapes can you make with 3 rectangles?

What is the perimeter of the shapes?

© White Rose Maths 2019

Reason: 2, 5, 6, 7



ANSWERS

Calculate perimeter

1. Calculate the perimeter of each shape.

a)
1 cm
1 cm
c)
1 cm
1 cm
b)
1 cm
1 cm

a) 14 cm

b) 16 cm

2. Calculate the perimeter of these shapes.

a)
8 cm
3 cm
3 cm
8 cm
b)
10 cm

a) 22cm

4. Work out the missing lengths on these shapes.

a)
3 cm
5 cm
6 cm
4 cm
7 cm
b)
10 cm
2 cm
3 cm

a) 9 cm, 4 cm

b) 8 cm, 7 cm

Discuss with a partner how you worked them out.

5. Calculate the perimeter of these shapes.

a)
10 cm
4 cm
2 cm
9 cm
b)
9.2 cm
9.2 cm
4 cm
3.5 cm
3.5 cm

a) 38cm

b) 33·4cm

6. Mo thinks that there is not enough information to calculate the perimeter of the shape.

Is he correct? How do you know?

17 cm
3 cm
12cm
9 cm

No. The perimeter is 58 cm.

7. Rosie is making shapes made up of 3 rectangles.

Each rectangle has a length of 10 cm and a width of 4 cm.

She makes these 2 shapes.

a) Which shape has the greatest perimeter? B

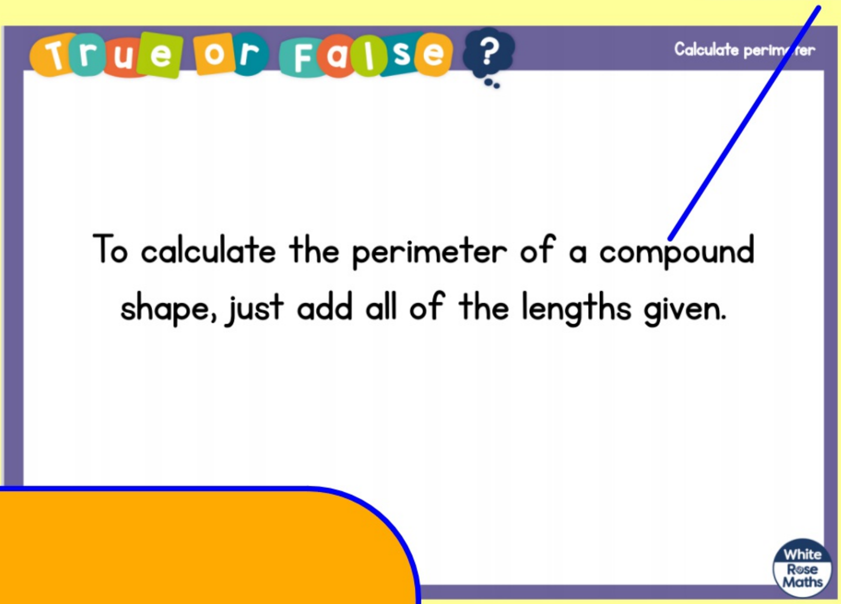
b) What other shapes can you make with 3 rectangles?

What is the perimeter of the shapes?

© White Rose Maths 2019

Plenary

rectilinear



True or False?

Calculate perimeter

To calculate the perimeter of a compound shape, just add all of the lengths given.

Recap Session (20mins)
Measurement - cm, m

The key thing to remember with measurements is that:

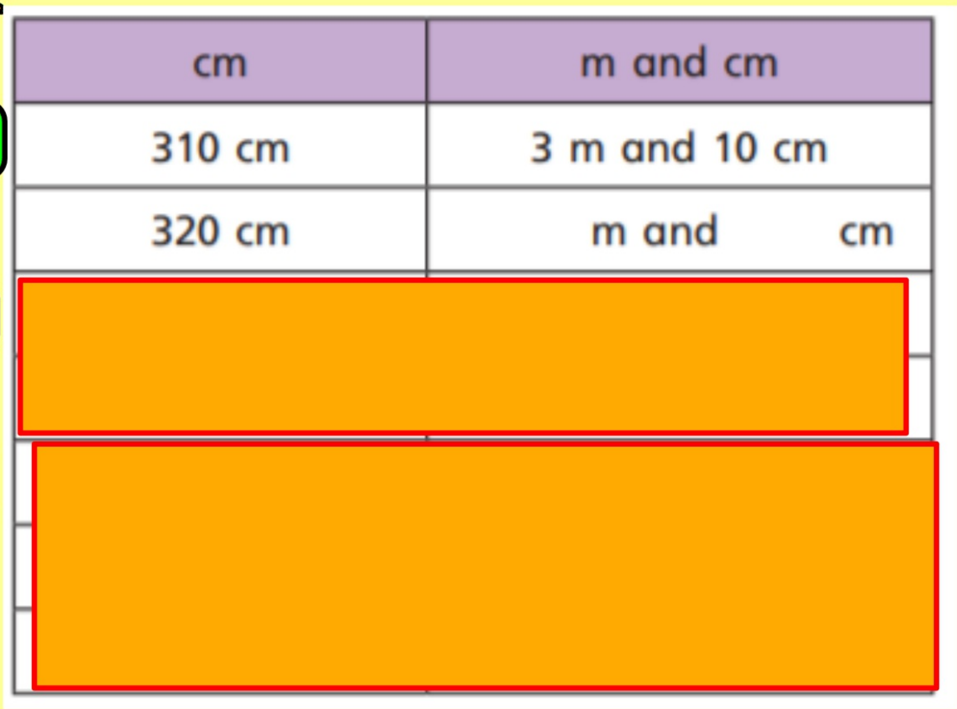
1m = 100 cm

Recap Session (20mins)
Measurements

I DO

WE DO

YOU DO



cm	m and cm
310 cm	3 m and 10 cm
320 cm	m and cm
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Remember: 1m = 100cm
therefore 2m = 200cm
and 500cm = 5 cm

Recap Session (20mins)

Measurements

How long will it take you to find the pairs?

Recap Session (20mins)
Measurements- mm to cm

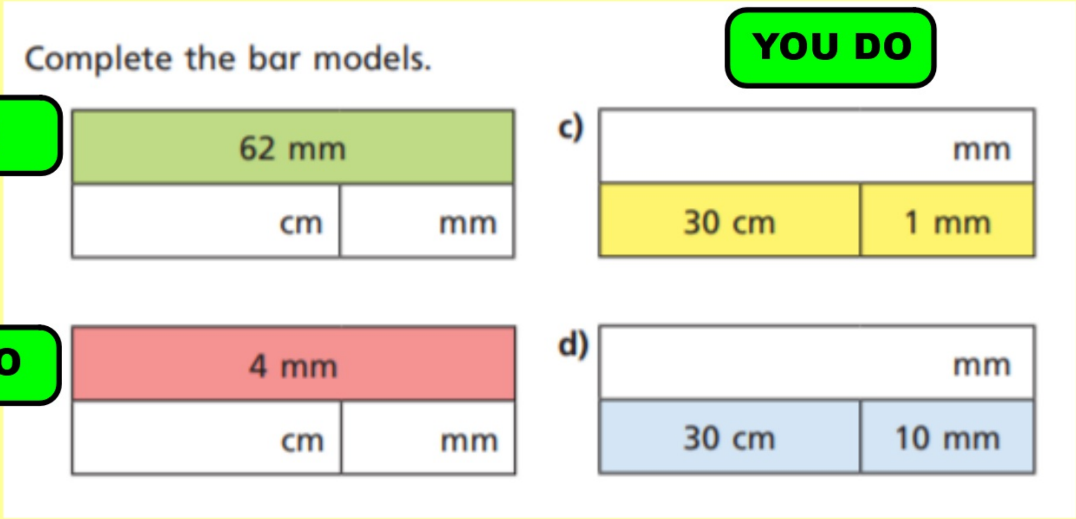
When using millimetres and centimetres to measure length, you need to know this:

10mm = 1cm
therefore 20mm = 2 cm

and 50cm = 5 mm

Recap Session (20mins)

Measurements - mm and cm



Complete the bar models.

I DO

62 mm	
cm	mm

WE DO

4 mm	
cm	mm

YOU DO

c)

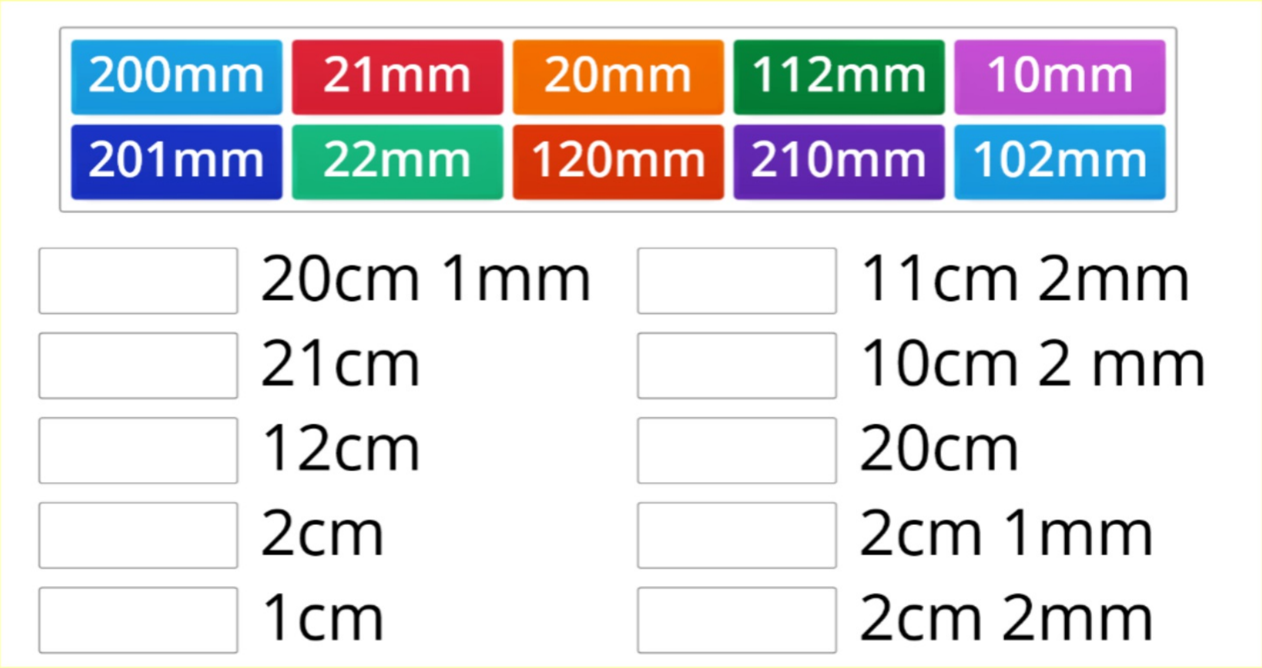
mm	
30 cm	1 mm

d)

mm	
30 cm	10 mm

Recap Session (20mins)
Measurements

Match the mm and cm



200mm	21mm	20mm	112mm	10mm
201mm	22mm	120mm	210mm	102mm

☐ 20cm 1mm
☐ 21cm
☐ 12cm
☐ 2cm
☐ 1cm

☐ 11cm 2mm
☐ 10cm 2 mm
☐ 20cm
☐ 2cm 1mm
☐ 2cm 2mm