# Year 5 Maths Distance Teaching and Learning

Week beginning: 1st June 2020

| Lesson 1 | | |
|---|---|---|
| Learning Intention:<br>WALT: calculate the area and perimeter of squares and rectangles | Key Vocabulary:<br>perimeter: The total distance around the outside of a shape<br><br>area: measuring the surface inside a shape<br><br>square: a 4 sided shape where all sides are equal in length. All vertices are right angles.<br><br>rectangle: a 4 sided shape, where there are 2 pairs of sides of equal length. All vertices are right angles<br><br>length: longest side/section/part<br><br>width: shorter side/section/part | What you will need:<br>Paper<br>Pencil<br>Ruler<br>Ipad/Laptop/internet access<br>Year 5 Week 1 video 1 |

## Starter

Solve these as quickly as you can then check them using the marking scheme.

4 groups of 5 is _____ the product of 5 and 7 is _____

12x12 = 7x7= 7x6= 2x2x2=

8 teams of 6 people is _____ 4x25=

5x20= The product of 8 and 4 is _____

6 squared is _____ $6^2$=_____

Did you notice anything about them?

## Main Teaching

Today we are going to look at how to calculate the area and perimeter of squares and rectangles.

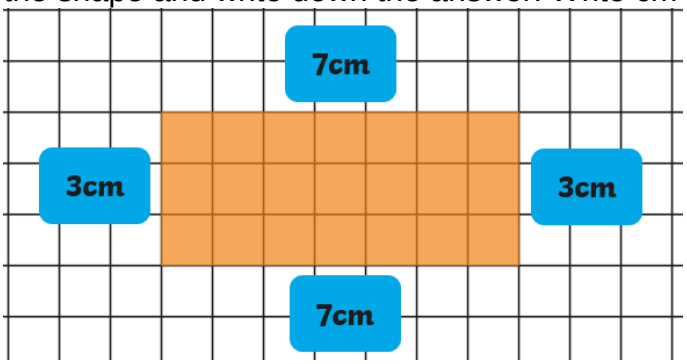
Squares and rectangles are the easiest shapes to use when calculating area and perimeter.

perimeter: The total distance around the outside of a shape (addition is used)

area: surface inside a shape (multiplication is used)

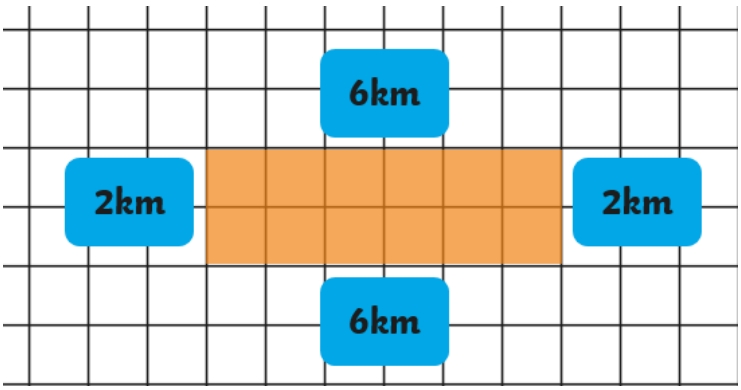
Let's look at perimeter first.

<u>Example 1</u>
Remember perimeter is the distance around the edge a shape. So add up the sides of the shape and write down the answer. Write cm next to it and you have the perimeter.




So 7cm + 7cm + 3cm + 3cm = 20cm
14cm + 6cm = 20cm

<u>Example 2</u>
Let's do another one. Do you notice anything slightly different that might be important to our final answer?



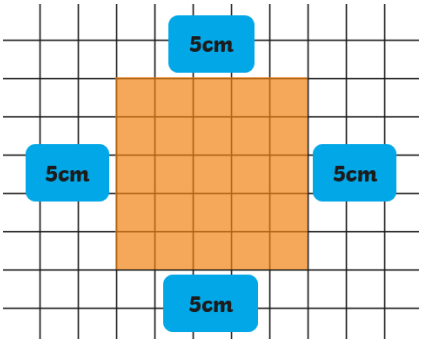

That's right the measurements are in kilometres (km) so our answer will be need to be in kilometres.
Have a go at working out the perimeter then read on to check your answer.

6km + 6km + 2km + 2km = 16km
12km + 4km = 16km

Challenge X: What would this answer be in metres (m) ?

1km is equal to 1000m so you would multiply 16 by 1000 to get the answer in metres (m). 16 x 1000= 16,000 It would be 16,000m

Example 3:
The diagram below shows all the lengths of a square, but did we need it to show us all 4 lengths?




No we only needed to know the length of 1 side because then we would know the length of all the sides because it is a square and they are the all the same length.

Now work out the perimeter. Is there a second way it could be done?

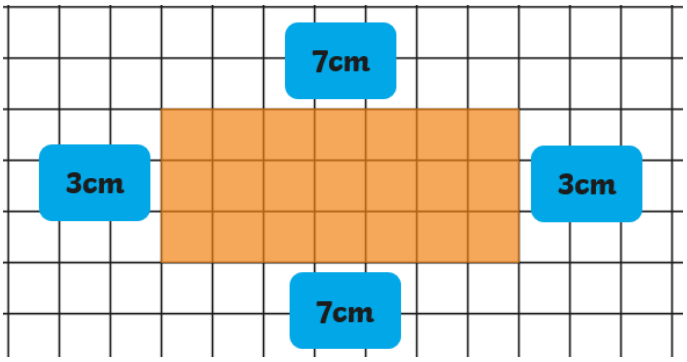
Method 1
5cm+5cm+5cm+5cm= 20cm

Method 2 as there are 4 sides the same length you could use multiplication

4x5cm=20cm

Now let's look at area

Example 1
Remember area means the surface inside a shape. To work out area we only need the length and width of a rectangle or square. We then multiply the width and length to give us the area.
Can you find the width and length of the rectangle below?




That's right 7cm (length) and 3cm (width)

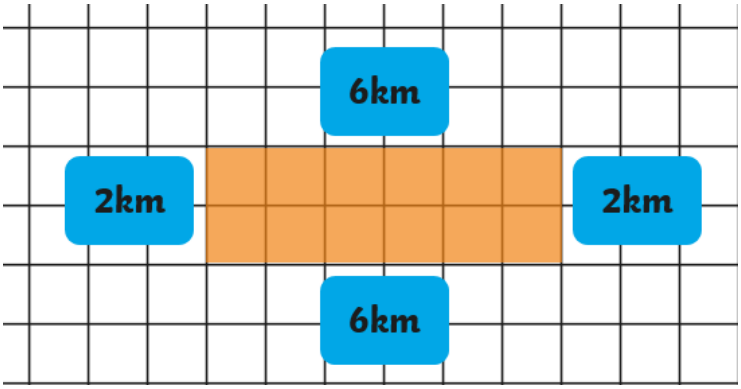
Now multiply them together and write $cm^2$ next to the answer. Area is always written as the measurement unit with a $^2$ next to it e.g. $cm^2$ $m^2$ $km^2$

THIS small $^2$ means that it is squares so $cm^2$ is said as 'centimetres squared'

Now have a go then read on to check if you were correct.

7cm x 3cm = 21 $cm^2$ If you didn't put the small$^2$ then your answer is incorrect.

<u>Example 2:</u>
Work out the perimeter by multiplying the length and width. Don't forget there is something small you need to write for your answer to be correct. Have go then check.

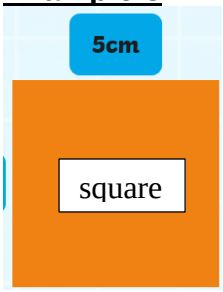



6km x 2km = 12$km^2$

Did you multiply the correct numbers?
Did you use km?
Did you remember to write the small $^2$?

One last example

**<u>Example 3</u>**




We only have one measurement but we know it is a square. How will we work out its area?

That's right we know the other sides will all be 5cm so its length will be 5cm and its width will also be 5cm.

So 5cm x 5cm = 25$cm^2$

Now have a go at the independent tasks.

| Independent Tasks |
| --- |
| Challenge 1 |

| |
|---|
| Complete Part 1 (see activity below challenge X) |
| Challenge 2 |
| Complete Part 2 (see activity below challenge X) |
| Challenge 3 |
| Complete part 3 (see activity below challenge X) |
| Challenge X |

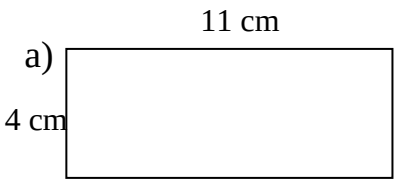
Create a rectangle with a perimeter of 1.25m
What is its area?

If you made a different rectangle with the same perimeter but different length sides, do you think it would have the same area?

Not to scale

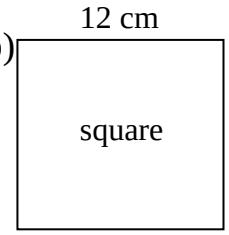
1. Find the area (A) and perimeter (P) of each of the following shapes:

a)



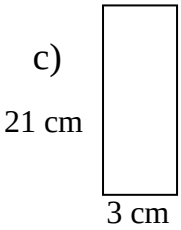

**A:** _____
P: _____

b)




**A:** _____
P: _____

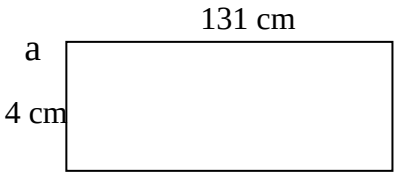
c)




**A:** _____
P: _____

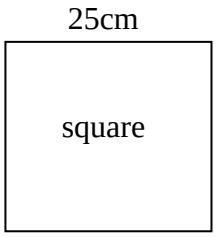
2. Find the area (A) and perimeter (P) of each of the following shapes:

a



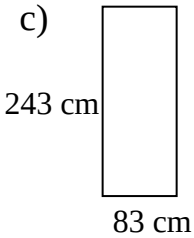

**A:** _____
P: _____

b)




**A:** _____
P: _____

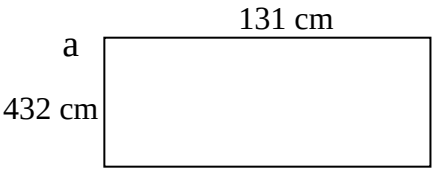
c)




**A:** _____
P: _____

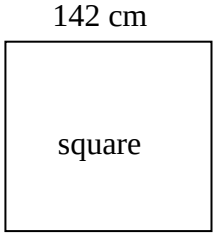
3. Find the area (A) and perimeter (P) of each of the following shapes:

a



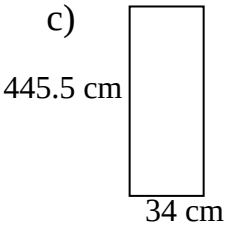

**A:** _____
P: _____

b)




**A:** _____
P: _____

c)




**A:** _____
P: _____

| Review |
| --- |
| Explain the difference between how you would work out the perimeter of a shape and how you would work out the area.<br>What do you think is a common mistake people make when writing the answer to an area question? |

Mark Scheme – Lesson 1

| Starter. |
| --- |
| 4 groups of 5 is 20 the product of 5 and 7 is 35<br><br>12x12 = 144 7x7= 49 7x6= 42 2x2x2= 8<br><br>8 teams of 6 people is 48 people (you must have written people to get your mark) 4x25=100<br><br>5x20= 100 The product of 8 and 4 is 32<br><br>6 squared is 36 $6^2$=36<br><br>Did you notice anything about them? They all involved multiplication. 6 squared and $6^2$ are the same calculation. They are both 6x6.<br><br>Independent Tasks |
| Challenge 1 |
| 1.a) Area: 4cmx11cm=44cm$^2$<br>Perimeter: 11+11+4+4=30cm<br><br>b) Area: 12cmx12cm=144cm$^2$<br>Perimeter: 12 + 12 + 12 + 12 = 48cm or 4 x 12 = 48cm<br><br>c) Area: 21cmx3cm= 63cm$^2$<br>Perimeter: 21 + 21 + 3 + 3 = 48cm |
| Challenge 2 |
| 2.a) Area: 4cmx131cm=524cm$^2$<br>Perimeter: 131+131+4+4=270cm<br><br>b) Area: 25cm x 25cm=625cm$^2$<br>Perimeter: 25 +25 +25 +25 = 100cm or 4 x 25 = 48cm<br><br>c) Area: 243cm x 83cm= 20,169cm$^2$<br>Perimeter: 243 + 243 + 83 + 83 = 652cm |
| Challenge 3 |
| 3.a) Area: 432cm x 131cm=56,592cm$^2$<br>Perimeter: 131+131+432+432= 1,126cm |

b) Area: 142cm x 142cm= 20,164cm$^2$
Perimeter: 142 + 142 + 142 + 142 = 568cm or 4 x 142 = 568cm

c) Area: 445.5 cm x 34cm= 15,147cm$^2$
Perimeter: 445.5 + 445.5 + 34 + 34 = 959cm

Challenge X

There are many, many, many different possibilities.

Examples could be
Rectangle with length 500cm and width 125cm
because 500cm+500cm+125cm+125cm = 1250cm or 1.25m

so the area would then be 125x500 = 62500cm$^2$ or 6.25m$^2$ (divide by 10,000)

Second way it might be done might be
Rectangle length 450cm and width 175cm
because 450 +450 +175+175 = 1250cm or 1.2m

so the area would then be 450x175=78,750cm$^2$ or 7.875m$^2$

We can see from these answers that the area will not always be the same even if the perimeters measure the same amount.

Review

The perimeter is worked out by adding up all the sides. The area is worked out by working by multiplying the length and the width together.

A common mistake when working out area is forgetting to write a small $^2$ next to the measurement.