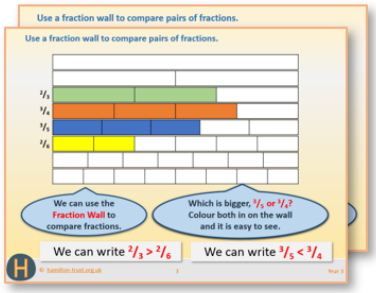
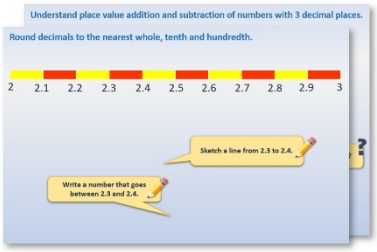
Year 3: Week 6, Day 4
Perimeter (1)

Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.

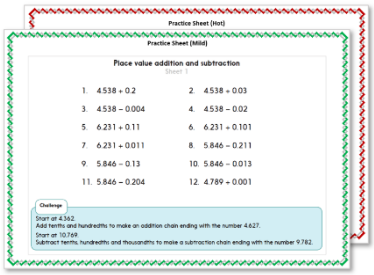


OR start by carefully reading through the **Learning Reminders**.



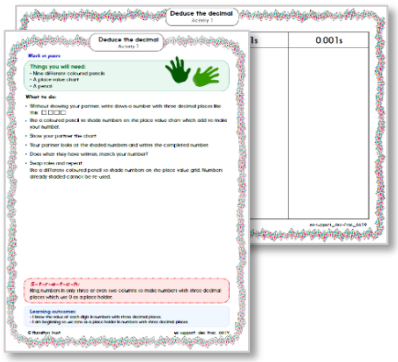
---

2. Tackle the questions on the **Practice Sheet**.
There might be a choice of either Mild (easier) or Hot (harder)!
Check the answers.



---

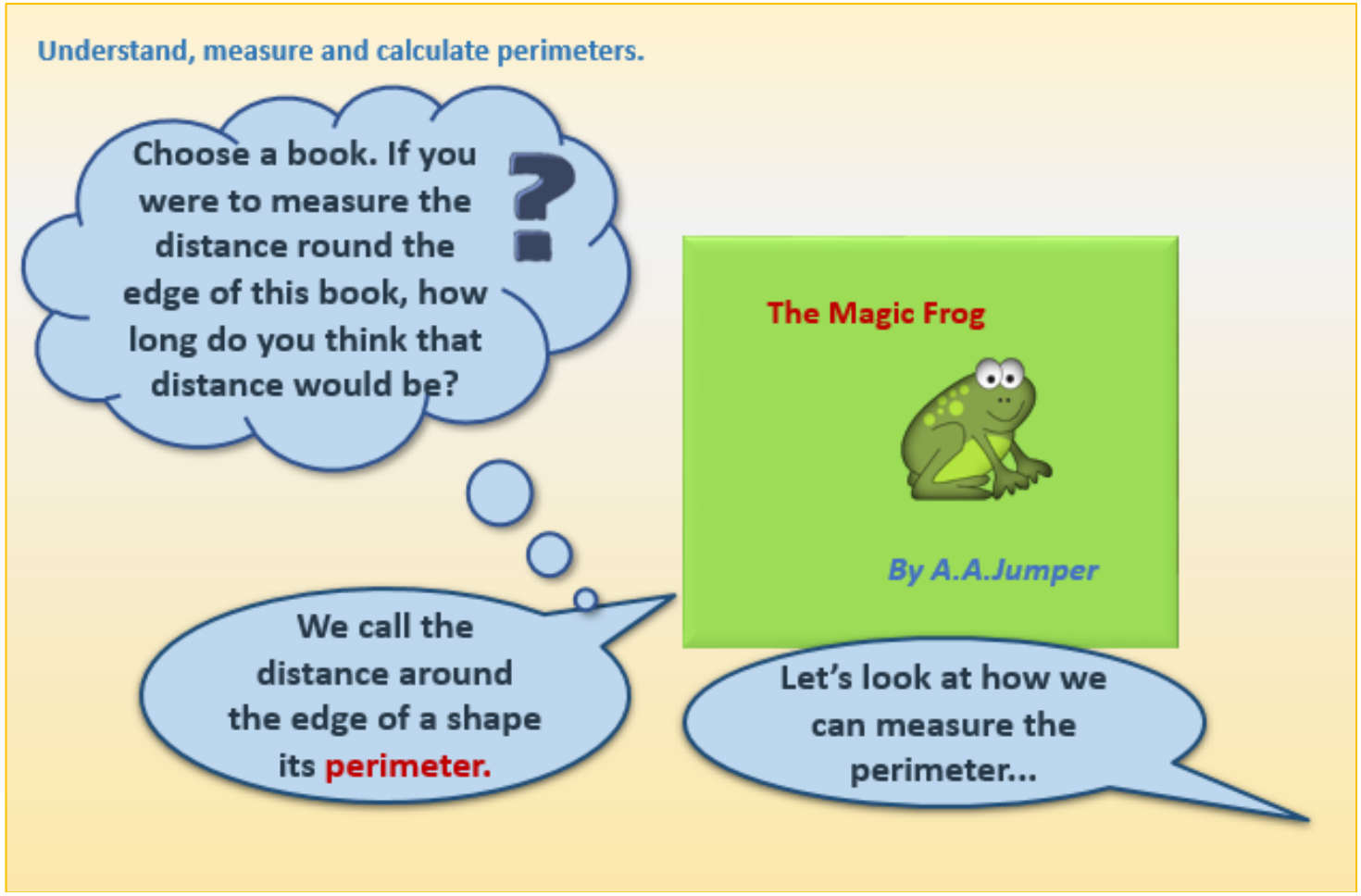
3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**



---

4. Think you've cracked it? Whizzed through the Practice Sheets? Have a go at the **Investigation**…

Learning Reminders



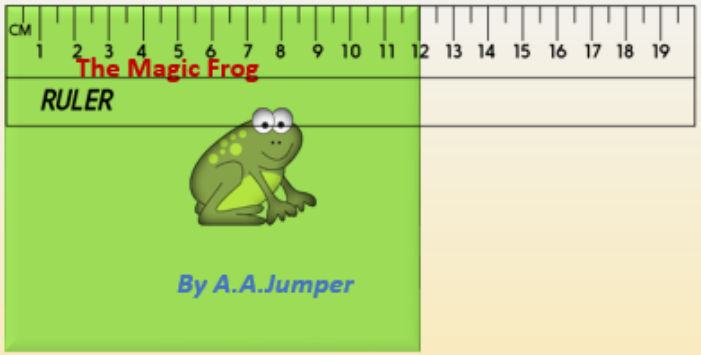
Learning Reminders

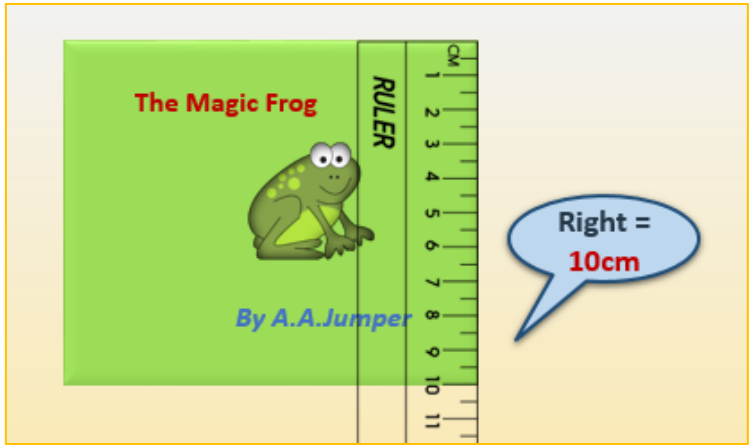
Understand, measure and calculate perimeters.

We could put a piece of string all around the edges....

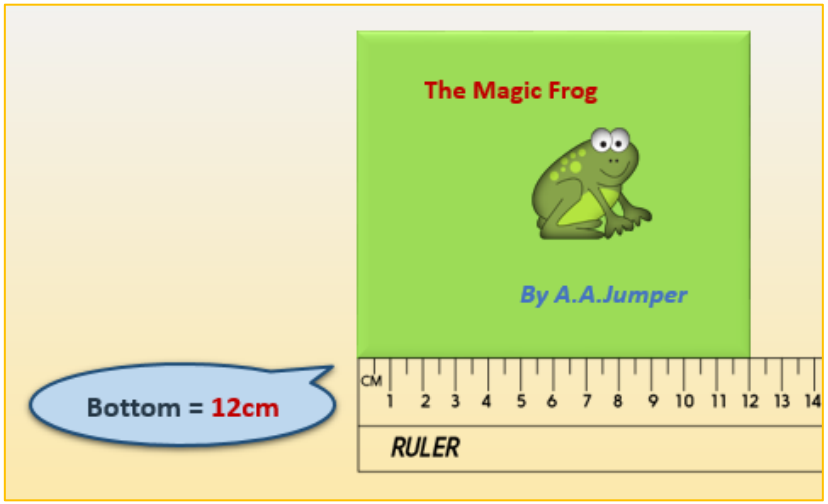
....but it is better to measure **each side** with a ruler.

Top = **12cm**

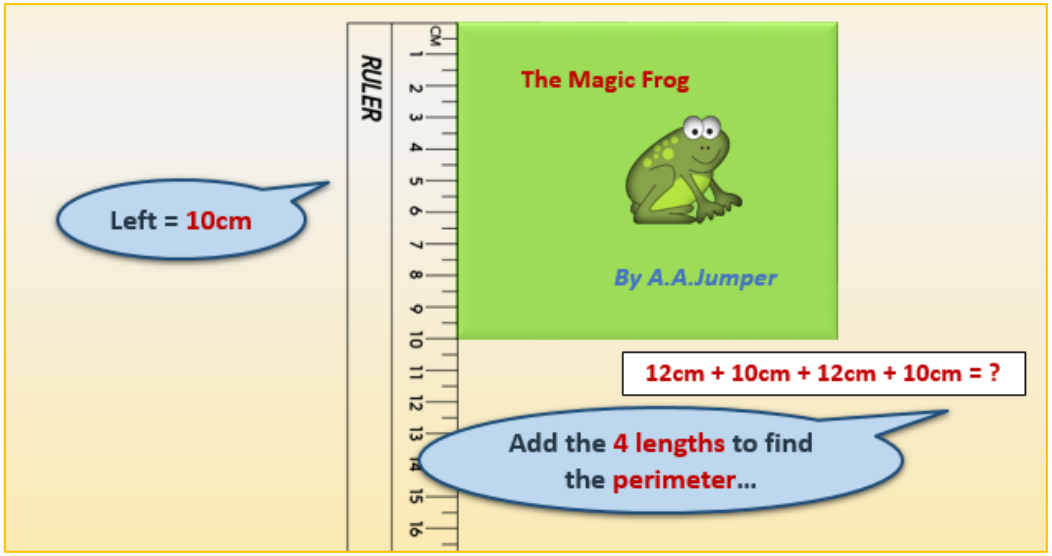




Right = **10cm**



Bottom = **12cm**



Left = **10cm**

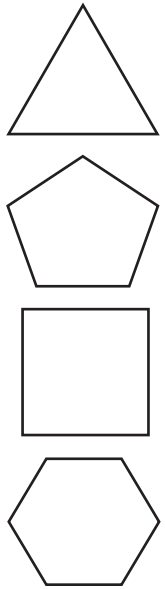
12cm + 10cm + 12cm + 10cm = ?

Add the **4 lengths** to find the **perimeter**...

Practice Sheet Mild

Shape practice

Calculate the perimeters of these regular shapes from the length of one side.
Complete the table.



Regular Shape	Length of one side	Number of sides	Perimeter
Equilateral triangle	15cm		
Pentagon	12cm		
Square	16cm		
Hexagon	$1\frac{1}{2}$ cm		

Challenge

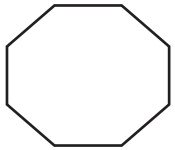
What would the lengths of the sides of the following shapes be if the perimeter is 30cm:

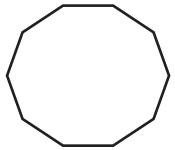
a. equilateral triangle
b. square
c. pentagon
d. hexagon

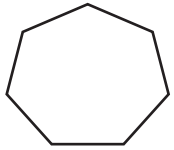
Practice Sheet Hot

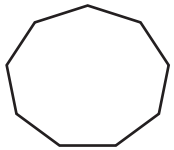
Shape practice

Calculate the perimeters of these regular shapes from the length of one side.
Complete the table.









Regular Shape	Length of one side	Number of sides	Perimeter
Octagon	5cm		
Decagon	7cm		
Heptagon	3cm		
Nonagon	4cm		

Challenge

Can you suggest 5 different possible side lengths for an irregular pentagon with a perimeter of 40cm?

Practice Sheet Answers

Shape practice Mild and Hot

Regular Shape	Length of one side	Number of sides	Perimeter
Equilateral triangle	15cm	*3*	*45cm*
Octagon	5cm	*8*	*40cm*
Pentagon	12cm	*5*	*60cm*
Decagon	7cm	*10*	*70cm*
Square	16cm	*4*	*64cm*
Heptagon	3cm	*7*	*21cm*
Hexagon	$1\frac{1}{2}$cm	*6*	*9cm*
Nonagon	4cm	*9*	*36cm*

Challenge

What would the lengths of the sides of the following shapes be if the perimeter is 30cm?

a. 10 cm

b. $7\frac{1}{2}$ cm

c. 6 cm

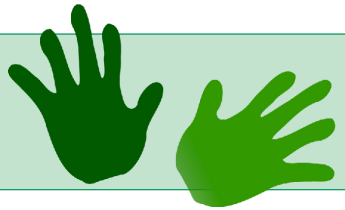
d. 5 cm

Can you suggest 5 different possible side lengths for an irregular pentagon with a perimeter of 40cm?

Example answer: 9 cm, 6 cm , 8 cm , 7 cm, 10 cm.

A Bit Stuck?
Round the rectangles

Things you will need:
- A pencil
- A ruler



What to do:

1. Estimating, by looking only, which of these rectangles do you think has the longest perimeter (distance round the outside of the shape)?
2. Which do you think will have the shortest perimeter? It's not easy to tell...!
3. Use a ruler to measure each side of each rectangle to the nearest centimetre.
4. Add the four sides of each rectangle to find its perimeter.
5. Which rectangle did have the longest perimeter? And the shortest perimeter?

1

2

3

4

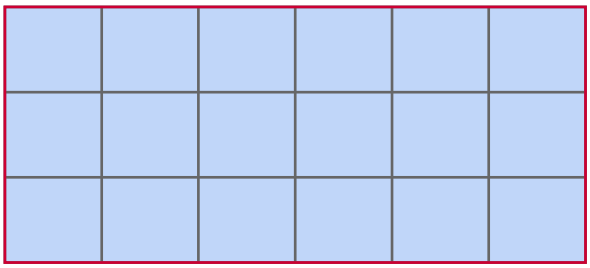
5

S-t-r-e-t-c-h:

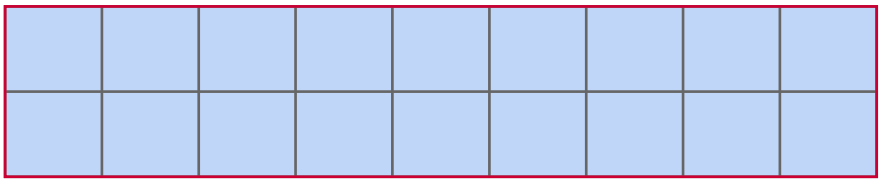
Can you see a way to make it quicker to find the perimeter of a rectangle?
Hint... Do you need to measure all four sides?

Investigation
Pete's pond problem

1. Pete is digging a rectangular pond in his garden. To stop the herons eating his fish, he is going to put a fence all the way around the pond.



This pond has an area of **18 squares**. Each square is a metre long, so the perimeter of this pond is **18m**.
If Pete changes the shape of the pond into a different rectangle, does the perimeter change too?
For example:



Are these the only two rectangles Pete could create for an area of 18 squares?

2. To save money, Pete wants to use a minimum length of fencing.
Which rectangle should he use?
3. Try creating rectangular ponds with these areas: 20 squares, 16 squares, 30 squares, and 25 squares. Investigate all of the possible rectangles with that area, and always note which pond uses the least fencing.
4. Have you noticed anything interesting?

Can you make a ***generalisation*** about the relationship between the length of the rectangle and its perimeter?

How might you record all of the combinations you try?
Organising your recording will help you ***systematically*** try all possibilities and spot ***patterns*** in the results.

Challenge

If you are allowed to use half-squares for the pond, can you use what you have discovered to make an even smaller perimeter for an area of 20 squares?