At-Home Investigation

Come up with a plan to measure the perimeter of your lounge room and your bedroom

My plan: answer these questions
- Look at the lengths that you will have to measure for each room. What problems can you see? Come up with a plan for measuring the length of each wall without having to move your furniture.

- How will I make sure that I am measuring accurately when there is furniture in the way? What would happen if I didn't measure straight along?

Carry out my plan: follow these steps and answer the questions
- Measure each room and calculate the perimeter. Explain how you did it in the space below and give the final measurement for each.


Extend your learning: follow this step and answer the question
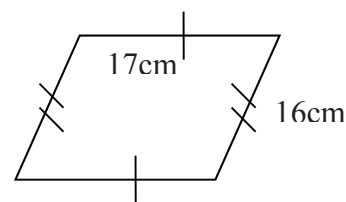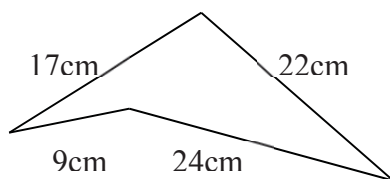How would you write the perimeter of each room in centimetres? How about millimetres?

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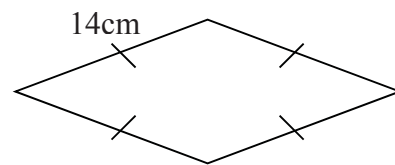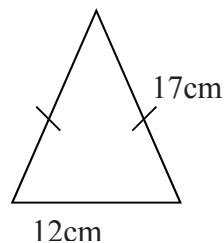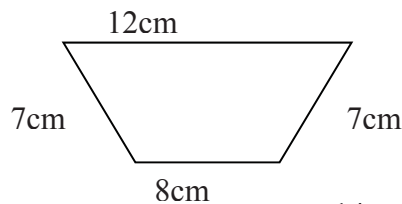
E1. Find the perimeter and adding length measurements

Last time you were examining perimeter, you worked out how to find the perimeter of a variety of shapes. Use the example below to remind you how to calculate the perimeter of any straight-sided shape, and answer the questions.

1. What does "perimeter" mean?

2. In the shape below, the perimeter is 47cm. How did we work it out?

7cm   7cm   4cm   8cm   6cm   15cm
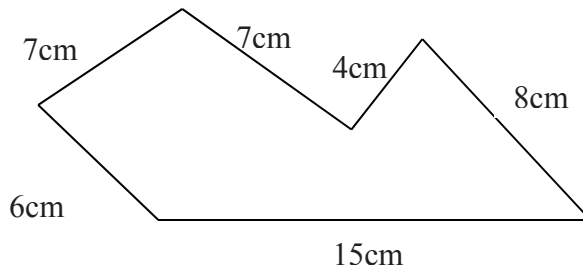
3. Use this to calculate the perimeters of the shapes below:

13cm   5cm

12cm   7cm   7cm   8cm

17cm   12cm

14cm

17cm   22cm   9cm   24cm

17cm   16cm
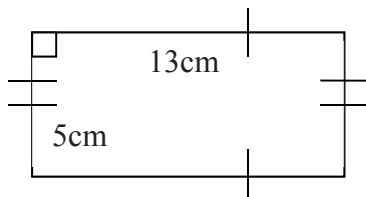
BACKWARDS QUESTION:

If the perimeter of two squares side-by-side was 60m, what was the side length of one square?

If the perimeter of a rectangle was 20cm, how long could its sides be?

X	3	4	5	6	7	8	9
3							
4							
5							
6							
7							
8							
9							

Record your time here for the 49 questions:

Mark your answers using a calculator or with an adult. Circle any that are wrong.

E2. Circumference and diameter of a circle

TR p107

There is a relationship between the diameter of a circle and its circumference. Use the questions below to help you work out what the relationship is.

Make a piece of string the same length as the diameter of each of the circles below. Try to fit it around the outside of the circle (circumference). How many times does it go?
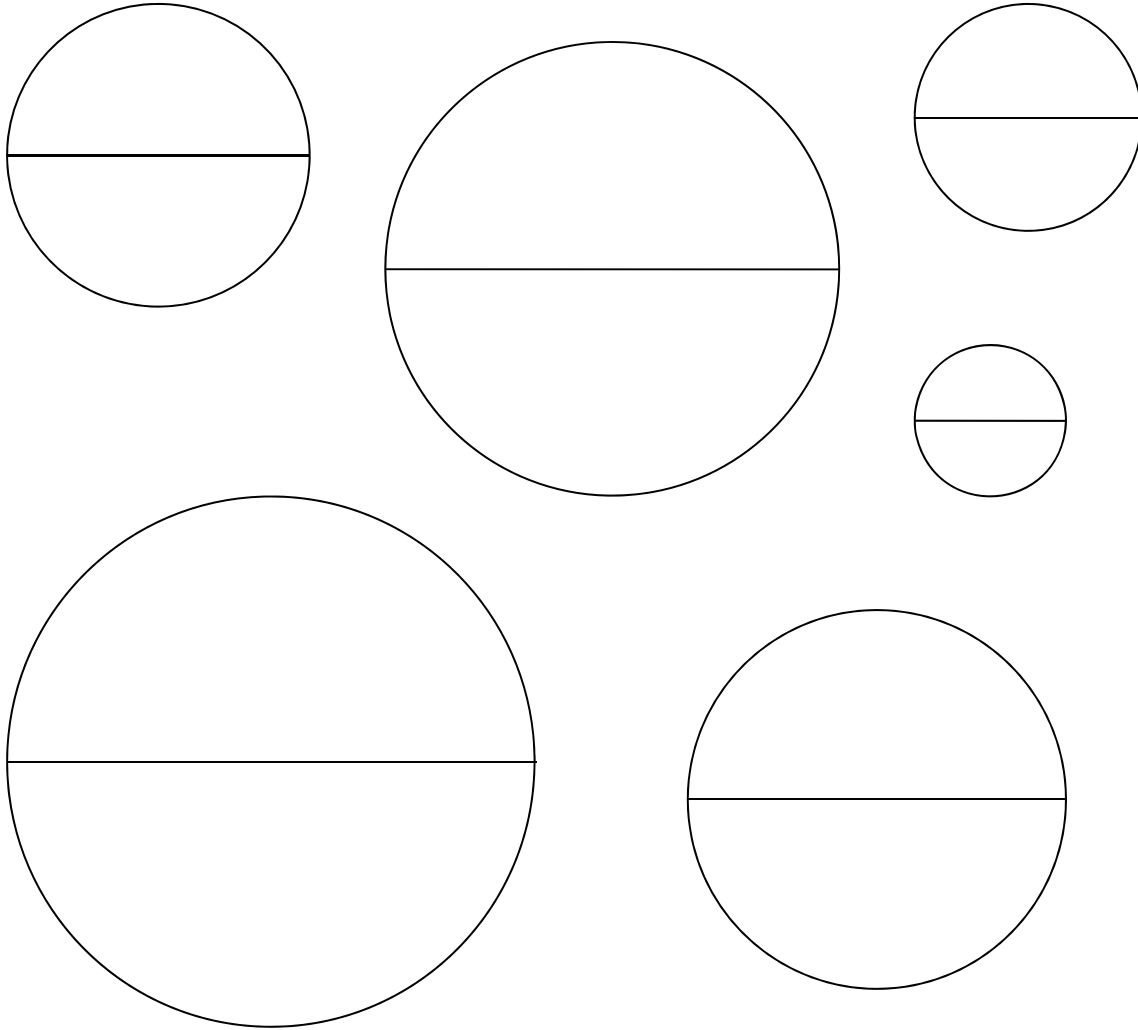
What is the relationship between the circumference and diameter of a circle? What do you do to the diameter to get the circumference?

Backwards Question:
If the circumference of a circle was 30cm, about how long would its radius be?

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Interleaved practise

Number:

1. Complete the following number sequence: ___ , -7 , -4 , -1 , ___, 5 , ___ , ___
    Describe the number pattern.

2. 312 478 + _____ = 403 673

3. Read this number and say it: 102 413 048. Write it in words. How many millions, thousands, hundreds, tens and ones does it have?

4. What change would you get from $80.00 if you purchased a t-shirt for $27.80 and a cap for $12.25? Show two different combinations of dollars and cents that you might receive.

5. What is 25% of 80? What fraction of 80 does it represent? Write it as a decimal.

Measurement/Geometry:

6. Find 3 items in your pantry that are measured in grams. List them from lightest to heaviest and write their mass in kilograms.

7. What time is it? You want to watch a television show at 16:30. The show runs for 50 minutes. What time will it end?

8. Draw what this shape would look like if you flipped it along the horizontal axis.

Chance/Data:

9. If it has rained for the last two days and the weather bureau says that the weather pattern will probably continue, how might you express the likelihood as a percentage?

E16. Converting between units

> 📋 Converting between different units for length, mass, area and volume is very similar to multiplying and dividing by 10s, 100s and 1000s using place value. In this activity you will use a place value chart to work out how the different units are related.

Millions	Hundred thousands	Ten thousands	Thousands	Hundreds	Tens	Ones (then decimal point)	tenths	hundredths	thousandths	ten thousandths	hundred thousandths	Millionths

Instructions:

1. The standard unit for length is called a metre. Write the symbol for metres in the ones column because it is the unit on which all other length measurements are based.
2. How many centimetres are there in one metre? Use this to work out which column is the centimetres column. Write the symbol for centimetres in this column. *Check: if you put a one in this column and then fill in the relevant zeroes and decimal points does it show one centimetre converts to one metre?*
3. How many millimetres are there in one metre? Use this to work out which column is the millimetres column. Write the symbol for millimetres in this column. *Check: if you put a one in this column and then fill in the relevant zeroes and decimal points does it show one millimetre converts to one metre?*
4. How many kilometres are there in one metre? Use this to work out which column is the kilometres column. Write the symbol for kilometres in this column. *Check: if you put a one in this column and then fill in the relevant zeroes and decimal points does it show one kilometre converts to one metre?*

To work out how many of one unit there are in a second unit:

1. Place the number of units that you have in the relevant column. E.g. if you want to change 5cm to something else, put a 5 in the cm column. Pay attention to place value, and only put one digit in each column. E.g. if you want to change 125cm to something else, put the 5 in the cm, the 2 in the column to its left, and the 1 in the next column to the left.
2. Place a decimal point at the end of the number in the column that you want to convert the measurement into. E.g. if you are converting into metres, place a decimal point just after the number in the metres column. If there isn't a number in that column already, place a zero.
3. Fill in any zeroes that are missing between the numbers then read off your answer.

Try these:

5cm = _____m   5mm = _____m   5m = _____cm   5m = _____mm

5cm = _____km   5km = _____mm   5cm = _____mm   5km = _____cm

72cm = _____mm   72km = _____cm   72mm = _____m   72m = _____km

Operations:

In order to change between the different units you are actually performing an operation of multiplication or division. The number of places between the two units that you are converting tells you whether you are multiplying or dividing by 10, 100, 1000 or more. To work out the patterns in this change answer the following questions:

1. When you were converting between cm and m, how many places did the decimal point move? E.g. 5cm = _____m.

2. Why do you think it moved this many places? What does multiplying and dividing by 10, 100, 1000 or more have to do with this?

3. What is the pattern between how many cm there are in one m and the number of places that the decimal point moved?

4. Are cm bigger or smaller than m? And is your answer bigger or smaller than your starting number? What is the pattern?

So therefore to convert from one unit to another I need to work out:

1. How many of the one unit there are in the second unit. This should tell us the factor (10, 100, 1000 or more) that we are multiplying or dividing by.
2. Whether the answer should be bigger or smaller. This should tell us whether we are multiplying or dividing by that factor.

Try it out:

1. Change 35m to cm:

    a. How many cm in one m?

    b. Should the answer be bigger or smaller?

    c. So the operation is: _____

2. Change 35mm to cm:
    a. How many mm in one cm?

    b. Should the answer be bigger or smaller?

    c. So the operation is: _____

3. Change 35km to m:
    a. How many m in one km?

    b. Should the answer be bigger or smaller?

    c. So the operation is: _____

4. Change 35cm to km:
    a. How many cm in one km?

    b. Should the answer be bigger or smaller?

    c. So the operation is: _____

Summarise what you have learned about changing between different units of length here:

Your job now is to work out how to change between the different units for mass, volume and area using the same process. When you have worked it out, write some steps for yourself to remember here then answer the questions that follow.

To convert between tonne, kg and g:

To convert between kL, L and mL:

CHALLENGE QUESTION:
To convert between hectares, m² and cm²:

Try these:

Change:	into:	and also into:	How I did it:
35kg	g	t	
35g	kg	t	
214mL	L	kL	
214L	mL	kL	

BACKWARDS QUESTIONS:

103m²	cm²	Ha	
23.4cm	mm	m	
0.7cm	m	km	