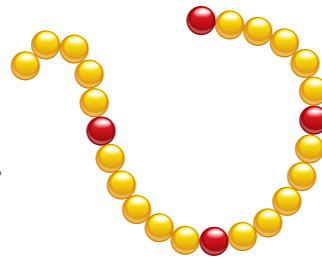


Scale factors

Learn

Ratio compares amounts.
For every red bead there are five yellow beads.
The ratio of red to yellow beads is 1:5.



We have to draw things to scale to fit our drawings on the paper!

People often draw to scale.
This means changing the proportion of what is drawn.

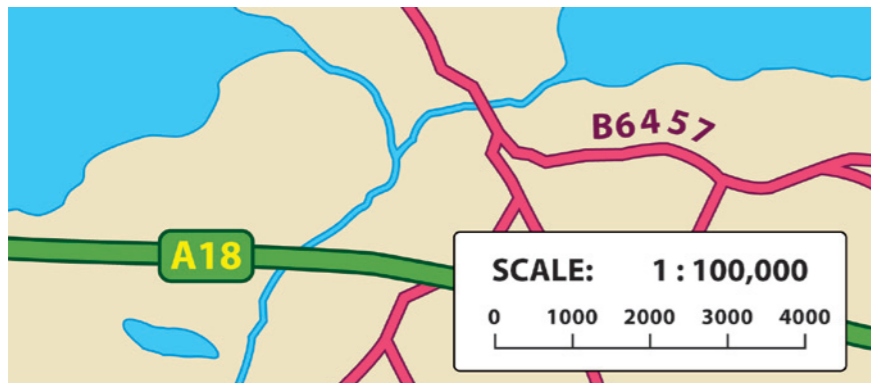
Scale is usually shown as a ratio.
The brown line is four times longer than the green line.
The scale of **green** to **brown** is **1:4**.



Jez is 125cm tall.
His brother draws a picture of him using a scale of 1:10.
His drawing will be 12.5cm tall.

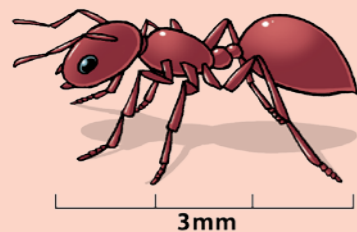


The scale of this map is 1:100,000.
Every 1cm on the map represents 100,000cm (or 1km) in real life.

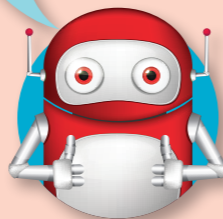


✓ Tips

- Remember that scale can work the other way round too. If you want to draw an insect, it's easier to enlarge it. So, if an ant is 3mm long an enlargement of 50:1 would give a drawing of $50 \times 3 = 150\text{mm}$, or 15cm.

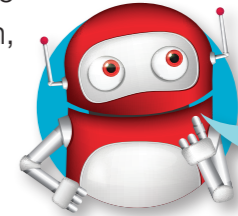
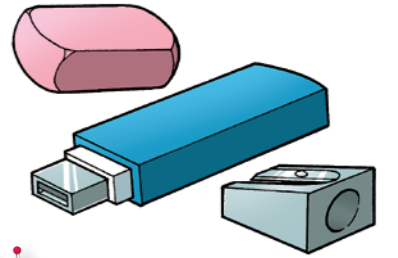


Scaling up and down is easy when you follow my tips!



Talk maths

You will need a sheet of paper, a pencil and a ruler. Measure these objects, and then try to draw an enlargement of each object, using a scale of 5:1. Take your drawings and explain them to a partner. To finish, try drawing your partner at a scale of 1:10.



Or just draw their hand – remember to measure it before you start.

Activities



- This line is 4cm long. How long would these enlargements be?
a. 2:1 b. 5:1 c. 10:1
- This square has a side of 1 cm.

Copy and complete this chart for different scale enlargements.

Scale of enlargement	Side length	Area
5:1		
10:1		
25:1		

- A table is 1m high. What height would models be if they were made to these scales?
a. 1:2 b. 1:5 c. 1:20

Problems



Brain-teaser

A model of a house is made to a scale of 1:25. If the model is 22cm high, what height is the actual house?

Brain-buster

Anita makes a sculpture of a mouse. The actual mouse is 8cm high. The sculpture is 60cm high. What is the scale of the enlargement?

