Lesson 1: Maths
B: How wide is my home?

GMEC
Greater Manchester Engineering Challenge

Engage:
Ask the pupils: Have you ever thought to measure the distance all the way around your home? Sometimes this can be done with a trundle wheel but we're going to do it with our own feet!

Follow these simple steps:

1) **Go outside!** Start at the front of your home and count how many times you have to place your feet, one in front of the other, to travel the entire 'width' - which is the front to back. ***Note down the number of footsteps.*** Then do the same for each side and the back. Find the total by adding your answers together. *If you can't get to the outside walls of your home, use the inside ones... you'll just need to step from room to room to do it!*

2) Now measure the length of your shoe in centimetres using a rule. You can download an online ruler if you need to.

3) Multiply the length of your shoe by the number of steps you calculated around the sides of your home. Do the same calculate for the total distance around your home. This gives you the external dimensions of your house.

Draw a plan of the ground floor. Use a full sheet of A4 paper to do this.
Use the example to help you.

Using a scale of 100:1

The maths challenge is to use a scale of 100:1. This means that 100cm in real life will be drawn on your plan as 1cm. Work out how many centimetres to draw by dividing the length of the sides of your home by 100.

Example

Your home is: 27 footsteps wide and 30 steps long
Your shoes are 32 cm long

The width of your home is: 27 x 32 = 864 cm
And a length is 30 x 32 = 960 cm

To draw it on your plan, divide both these values by 100.
Draw a rectangle that is 8.64 cm wide and 9.6 cm long.
This is often written as 8.64 cm x 9.5 cm.

Next Steps

Measure the internal space in the same way and label each room. Send a photo of your plans to your teacher or share using the GMEC website uploader!