

Equipment

Pencils/ruler/tape measure/compass (or use an app)

Indoor Maths Trail

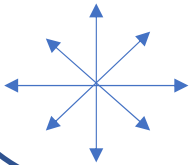


Part 1: Create a map of your house

Step 1: Draw a diagram of the inside of your house on a separate piece of A4 paper. The diagram below gives you some ideas how to do this.



Step 2: With the use of a compass find which direction is north. With another piece of A4 paper in the top corner draw and fill in the 8 main compass points as the diagram below. You can include the bearings too if you can. Make sure you have enough space to include the diagram of your house.



Step 3: Cut out the diagram of your house and position your diagram so the north of your house is pointing to the top of the page.

Part 2: Maths trail in your house

1: Direction Starting at main door of your house write down a directional path to the kitchen. (e.g. two steps S, one step SW, 10 steps S, 5 steps E or you can use bearings)

2: The kitchen

- Find a tin of food (e.g. soup, beans etc) and work out the volume of the tin.
- Find a pot and work out the volume that the pot would hold.
- Calculate how many full tins of your chosen food would fit in the pot.

3: Direction From the kitchen write down a directional path to the room with the TV.

4: The TV room :The size of TV screen is taken from the length of the diagonal.

- Using a tape measure calculate the height and the width of the screen of the TV.
- Using Pythagoras' theorem then calculate the length of the diagonal of the TV.
- Check to see how close the calculation is to the actual length of the diagonal of the screen that you measured.

5: Direction From where you currently are write down a directional path to your bedroom.

6: The Bedroom: Your bedroom needs decorating and you need to calculate the cost of paint required to paint your ceiling white and your walls a colour of your choice.

1 litre of paint covers 10m^2 and the cost of paint is as follows:

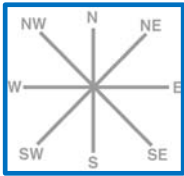
- White paint: £16 for 2.5 litre tin and £20 for 5 litre tin
- Coloured paint: £22 for 2.5 litre tin and £28 for 5 litre tin

- Calculate the area of your walls. (Remember to exclude the windows and doors.)
- Calculate the area of the ceiling. (Can you think of a way to do this without a ladder?)
- Work out the most cost effective way to buy the paint and the overall cost assuming two coats of paint on both the walls and ceiling.
- How much extra paint would you need and the extra cost if you needed 3 coats of paint on the walls?

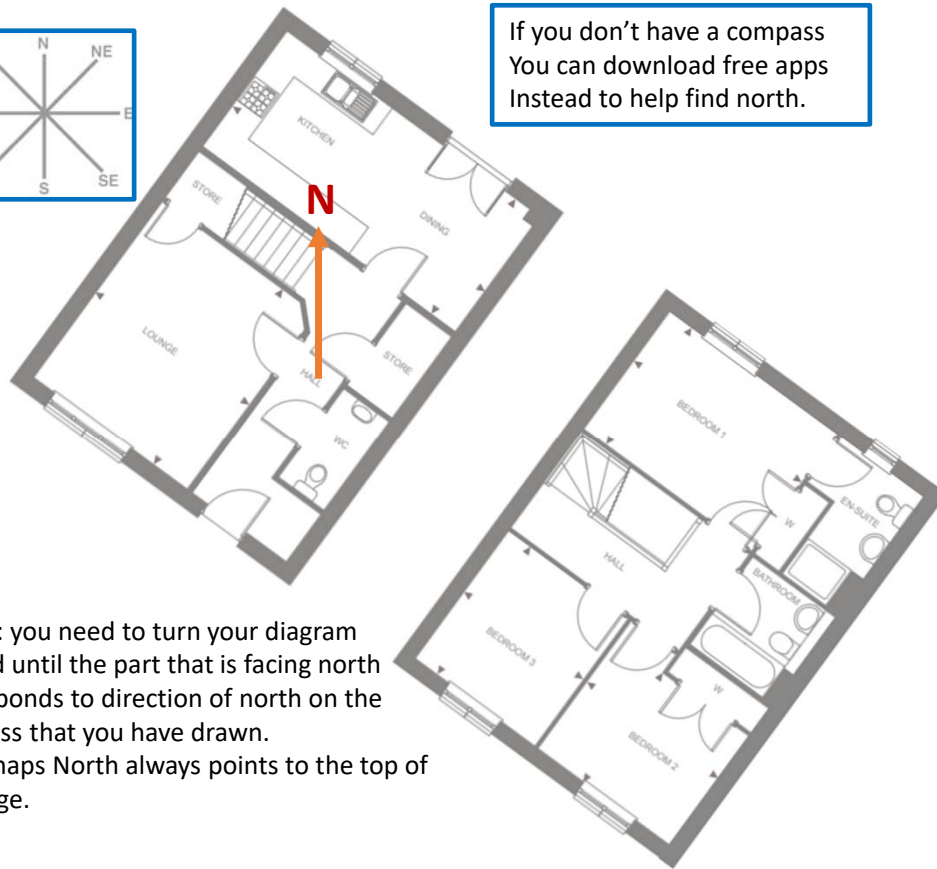
Hints and Tips

Step 1: try to draw the rooms broadly to reflect the different sizes it doesn't have to be to scale but should provide an indication of the relative sizes of the rooms. If your home has more than one floor draw them separately. Be as creative as you can you can add a key too if you can.

Step 2: The compass points are detailed below:



If you don't have a compass
You can download free apps
Instead to help find north.



Step 3: you need to turn your diagram around until the part that is facing north corresponds to direction of north on the compass that you have drawn. In all maps North always points to the top of the page.

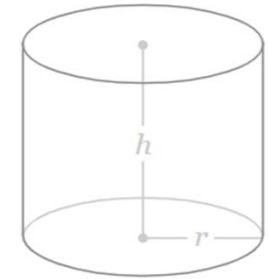
Volume of a cylinder

$$V = \pi r^2 h$$

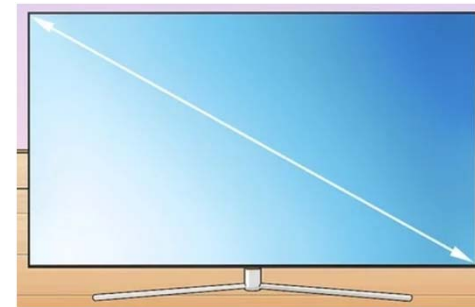
r Radius

h Height

$$\pi = 3.14$$



How to measure the size of a TV screen



Pythagoras' Theorem

