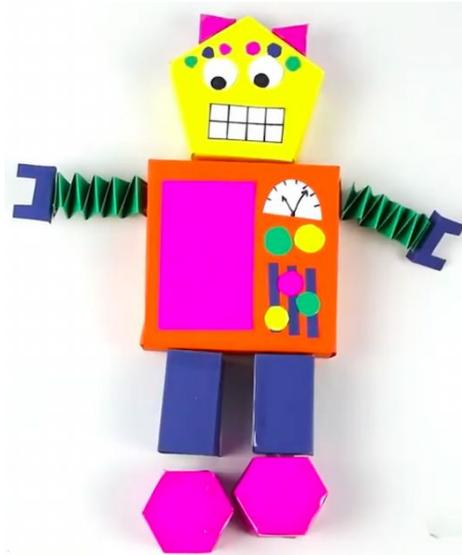


Math creations

2D and 3D shape creations



Here are some ideas to be designing, making, drawing and describing 2D and 3D shapes.

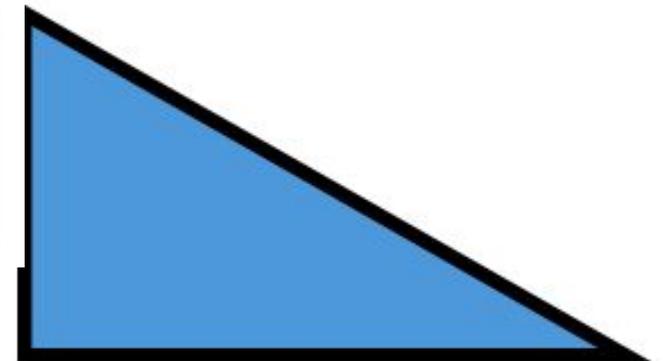
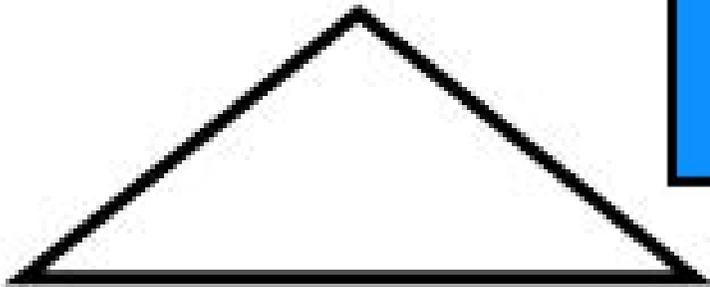
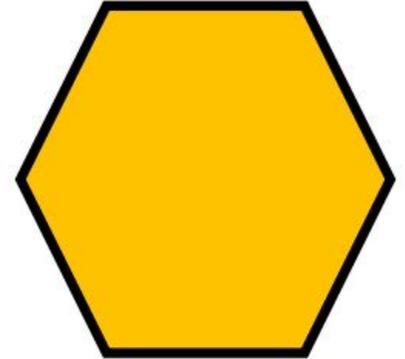
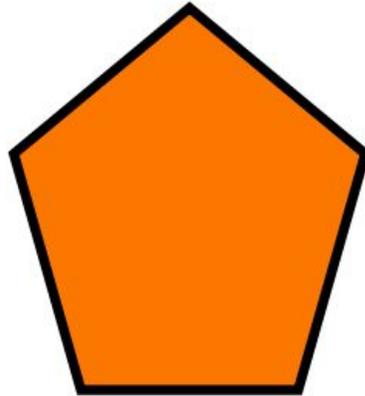
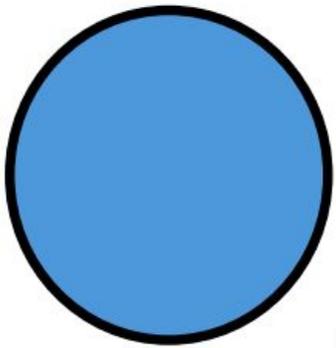
The aim of these activities is to be creative as possible in your designs, whilst being able to explain the shapes within them.

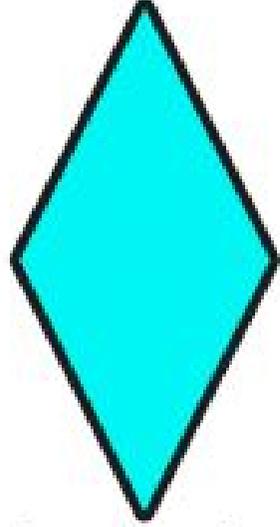
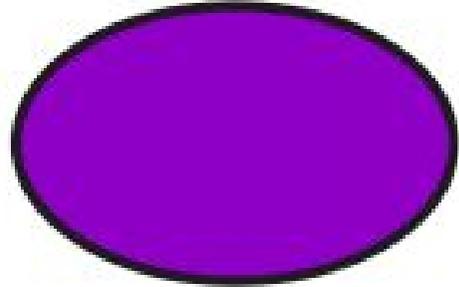
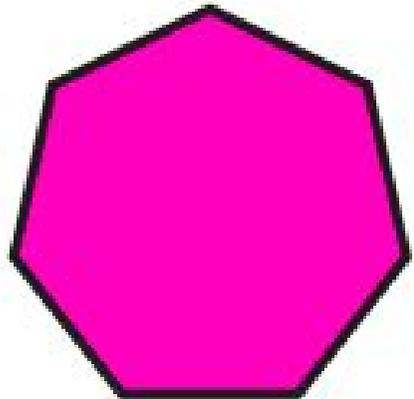
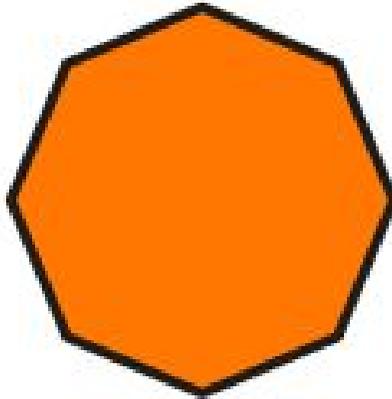
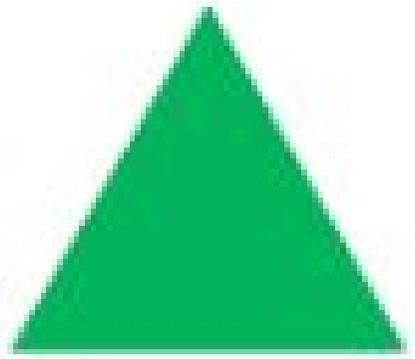
Please make sure you take plenty of photos and share them with us – we can't wait to see what you create!

Task 1 2D shapes What different 2D shapes do you know and can describe?

Discuss with your grown up and/or brothers and sisters:

Can you describe the 2D shapes you know? Have a look at some of the ones below – can you describe the shape: does it have **straight sides** or **curved sides**? **How many sides**? Are they all the same length? **How many corners**?



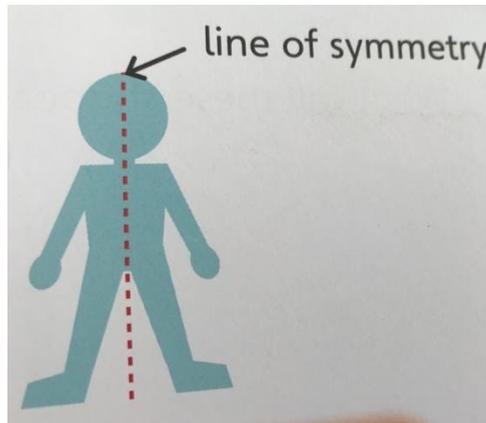


Task 2 2D shapes Which 2D shapes are symmetrical?

Cut out the shapes and fold them exactly in half. This is a line of symmetry (both sides are exactly the same: a mirror image). Can you unfold them and refold exactly in half again in another way? Are there any shapes that are not symmetrical?

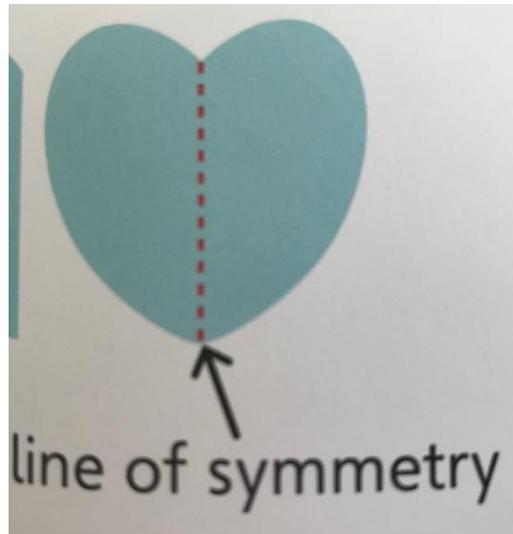
Record your findings in a table: Shape name, number of sides, number of corners, number of lines of symmetry.

Can you see any patterns?



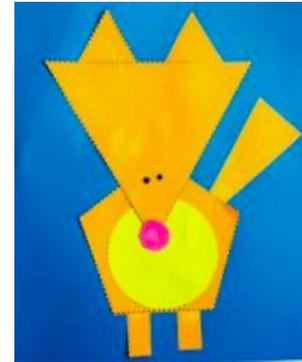
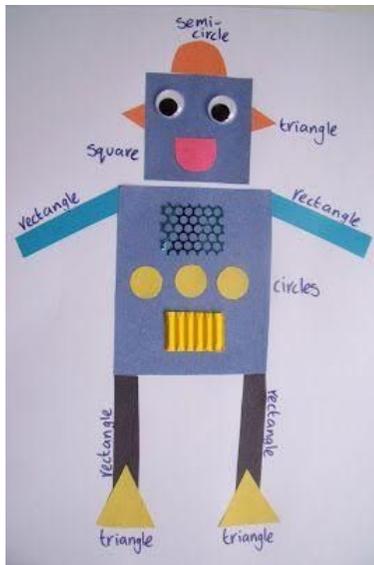
Exploring symmetry further: How many shapes can you draw with no lines of symmetry? Can you explain why they are not symmetrical? Fold a piece of paper in half. Paint a pattern on one side.

Fold the paper again to see the exact pattern on the other side. What different patterns can you create.....on a butterfly? A person? A love heart?



Planning... 2D shapes Can you make a 2D model?

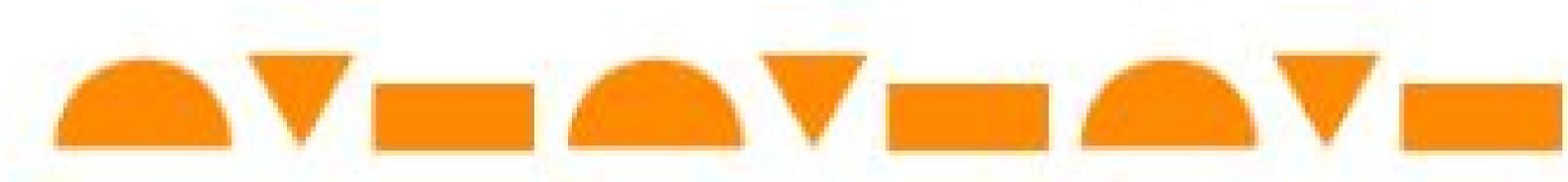
Making a 2D model



Design a 2D model made from 2D shapes. Draw your design and label the shape names. Find objects around the house you can draw round and cut out and make your model. Be as creative as you can and use a range of materials (cardboard, tissue paper, plastic).

You may even want to use potatoes or other vegetables to print your design (see below).

Additional challenge: use your shapes to make a pattern. Can you predict what the 10th shape will be? Draw it/print it to check. **KS2:** What will the 50th shape be? How do you know?



Task 3 Measures Can you measure your model accurately?

Measuring accurately

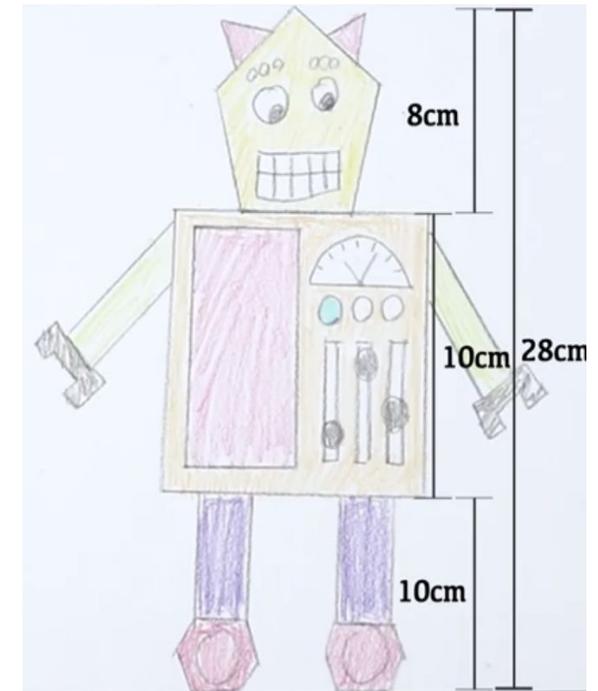
How tall is your model? How wide? Which part is the widest? Which is the narrowest?

Can you **measure each of the shapes** you have used carefully and label this on your plan diagram?

What will you use to measure your creation?

KS2: Which unit of measure will give you the greatest accuracy?

KS2 Measures challenge: What size objects would you need if you wanted to make a model that was: twice the size? Five times the size? Can you replicate your model on a larger scale on a floor in your house or in the garden? Take a photo and label

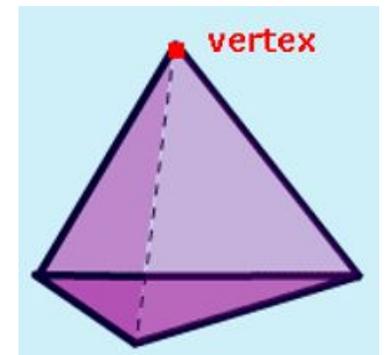
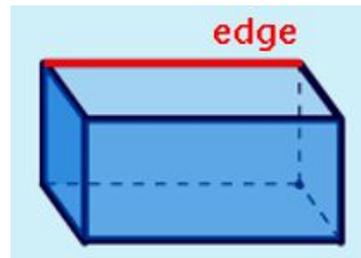
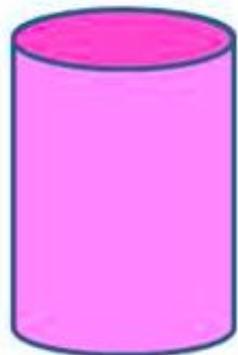


the measurements now. Will you still be using the same tool and unit of measure for this larger model?

Task 4... 3D shapes Can you describe what a 3D shape looks like?

Discuss with your grown up and/or brothers and sisters:

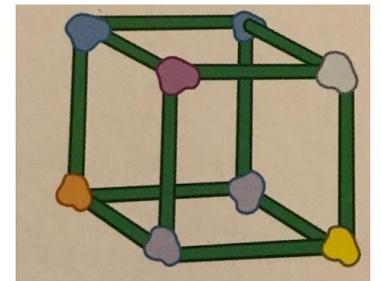
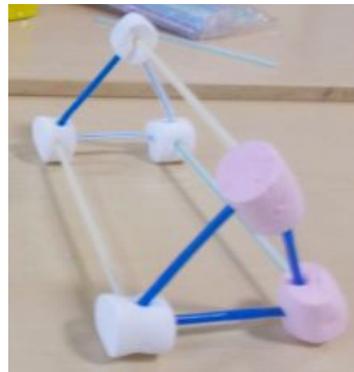
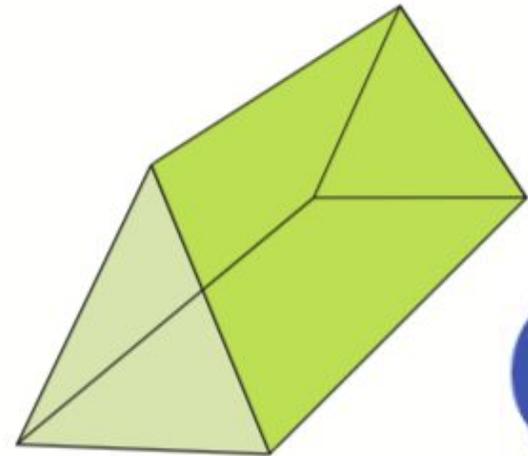
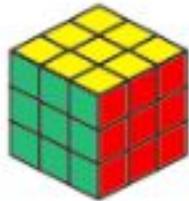
Can you describe the 3D shapes you know? Have a look at some of the ones below – can you describe the shape: does it have flat faces or curved faces? **How many faces?** Are all the faces the same shape or are some different? **How many edges** does it have? **How many vertices** does it have? (Vertices are like corners: where 2 edges meet) Maybe you would like to record this information in a table. What headings will you use?



Task 5... 3D shapes Can you find 3D shapes at home?

Shape hunting and creating

Go on a shape hunt! Can you find 3D shapes in your cupboards at home? Cereal boxes, cans of drink, cans of crisps, toilet rolls are all sources of shapes!



Make some shapes. Were there any 3D shapes you couldn't find? Can you make them? With card/paper or from spaghetti or straws and marshmallows or plasticine? Maybe your grown up will let you eat the marshmallows at the end!

Can use your knowledge from the previous task to **predict** how many straws and marshmallows you'll need.

Task 6... 3D shapes Can you make a 3D model?

Making a 3D model

Design a 3D model from the shapes you found around the home. You may want to raid the recycling box! You can make anything you like: big or small. See below for some ideas.



Draw your design and label the shape names then make your model. Be as creative as you can and decorate your model so it looks like your design.



Additional challenge: draw the nets of some of the shapes you have used and label them.

