

Planning Overview
Year 1 Geometry – Shape

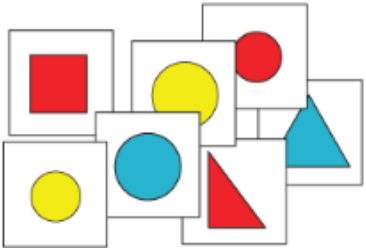
Recognise and name common 2-D and 3-D shapes, including:

- 2-D shapes [for example, rectangles (including squares), circles and triangles]
- 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]

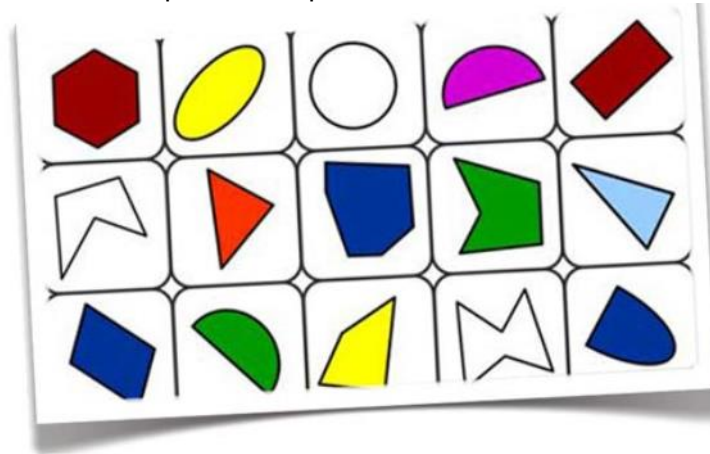
1G–1 Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another.

1G–2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.

Avoid stereotypical representations of shapes e.g. triangles and squares with a horizontal line as their base. They need to recognise that a square is still a square if it is rotated by understanding the properties of a square.

| | Teaching and Learning |
|--|---|
| Discover shape knowledge from EYFS | Have a range of everyday items on the table and ask the children to find objects which are flat/curved? Can you see any shapes you know the name of? May point to a flat item like a coin as a circle or a face of a box as a rectangle or may know the names of some 3D shapes e.g. cube. |
| Use everyday language to describe 2D shapes | <p>Feely bag games – put in hand and describe what you can feel using every day words straight, curved, pointy/sharp bit – model the correct mathematical words for shape properties alongside these e.g. we call the pointy bit a corner. How many corners can you feel?</p> <p>Sort shapes using own criteria (e.g. curved and straight, pointy and smooth)</p> <p>NRICH – data shapes Sara and Will were sorting some pictures of shapes on cards.</p>  <p>"I'll collect the circles," said Sara, "there are lots of those." "I'll take the red ones," answered Will, "I like red."</p> |

Mathsticks – shape cover up



A game for two players designed to focus on reinforcing the names and properties of 2D shapes while also offering children an opportunity to practice counting.

The activity uses:

- The downloadable Shape Cover Up board;
- A set of coloured counters for each player;
- A dice.

Players take turns throwing the dice, and at each throw they put a counter on a shape whose number of sides matches the number on the dice. The winner is the first player to get three of their counters in a straight line.

Recognise and name common 2D shapes (rectangles (including squares), circles, triangles at a minimum)

Explain that all the shapes with 3 corners and 3 straight sides have the same name triangles, the shape with 1 curved side is called a circle, all the shapes with 4 sides are quadrilaterals but different ones have different names so we need to look more closely. Ask them to explain what is the same and what is different between a square and a rectangle.

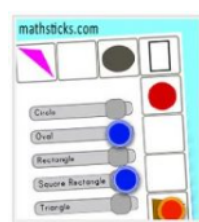
Play with shape sets containing these and make pictures and patterns – name shapes used.

Draw around shapes to create pictures of rockets, animals etc. – name shapes used.

Go on a shape hunt around school.

Mathsticks – shape match game

Here's a straightforward Shape Matching Game for two players.



The board game consists of a track around the perimeter with a 'shopping list' of shapes for each player.

The idea is that children take it in turns to roll a dice and move a counter around the perimeter track. Each time they land on a shape they need, they check their 'shopping list' to match the shape to its correct name. They may tag the shape name with a counter as they go.

The winner is the first player to place a counter on each of their five shape names on their list.

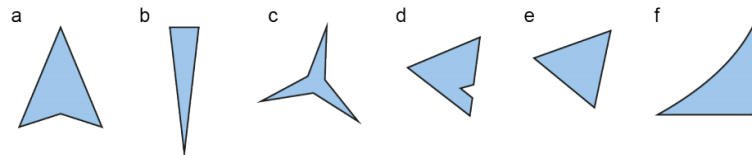
As you might expect, we have filled the board with shapes in **non-standard** formations and have used the vocabulary of "Square Rectangle" to aid children's understanding.

Use correct mathematical terms to describe the properties of 2D shapes and distinguish between them

Children give clues to identify a specific shape from a set of shapes using correct terminology – others have to guess which shape they are describing

Reveal 2D shapes slowly from behind a card and guess what they are – giving reasons

Practise distinguishing a given named shape from plausible distractors e.g. ask children to identify the triangles and reason about why other shapes are not triangles. e.g. a) has 4 sides, f) has curved sides



Taken from – Mathematics guidance: Key stages 1 and 2 – non-statutory guidance for the National Curriculum in England

NRICH Jig Shapes

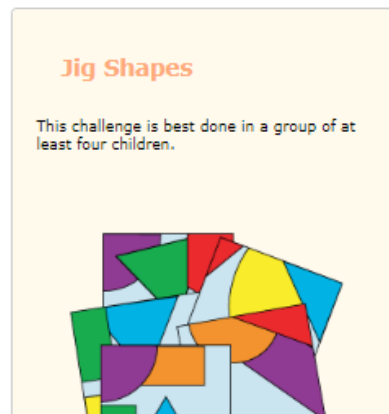
Jig Shapes

Age 5 to 11
Challenge Level ★

Why do this problem?

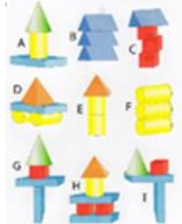
The intention of [this problem](#) is that children will work together as a team. It should help in developing mathematical language about shape and position, as well as encouraging learners to listen carefully to others and tweak their own ideas accordingly.

You may like to read our [Let's Get Flexible with Geometry](#) article to find out more about developing learners' mathematical flexibility through geometry.



NRICH Sometimes Always Never KS1 – shape part

| | |
|---|--------------------------------------|
| If you put two squares together you get a rectangle | 3D shapes have more than four faces |
| When you cut a square in half you get a triangle | Four sided shapes are called squares |
| Three sided shapes are called triangles | |

| | |
|---|---|
| | <p style="text-align: center;">Mastery</p> <p><i>Just knowing the correct mathematical names of shapes doesn't constitute mastery. Pupils should be able to recognise shapes and describe their properties.</i></p> <p><i>Check that pupils:</i></p> <p><i>a) can recognise shapes in different orientations;</i></p> <p><i>b) are able to describe what is special about certain shapes (e.g. a triangle has 3 sides and 3 corners or vertices).</i></p> <hr/> <p>Have a range of shapes in a 'feely bag'. Can you feel for the triangle, the square, the rectangle?</p> <p>Explain how you know.</p> <p><i>Children should describe the shapes, using their properties.</i></p> |
| <p>Arrange 2D shapes to match a compound shape</p> | <p>Use pattern blocks to match a given picture or pattern. Use templates where the children can lay shapes on top of an outline. Consider progression from laying shapes on top of an outline with colours and divisions shown through templates without colour but with divisions to templates with just an outline with no divisions at all.</p> <p>Move onto asking children to recreate given pictures without laying the shapes on top of the templates.</p> <p>Tangrams can also be used to build pictures with the same variety of templates. Tangrams always contain three sizes of triangle and a parallelogram which may need flipping over to match a picture so they are slightly more challenging.</p> |
| <p>Use everyday language to describe 3D shapes</p> | <p>Ask children to build a tall tower with 3D shape bricks – make sure you include a sphere. Are there some bricks that were hard to build with? Why? Which bricks were most useful? Why? When children use everyday language like "that one kept rolling off", model use of correct terminology e.g. Yes that one has a curved face. Is there a flat face you could stand it on? Link to the idea that curved faces roll and flat faces can slide.</p> <p>Sort shapes using shapes that can roll and shapes that can slide to make sure the term curved face is securely understood</p> <p>Sort shapes using other criteria – what do they know? What can they apply from work on 2D shapes e.g. shapes with corners / no corners</p> <p>NRICH – building with solid shapes Predicting which models are possible and reasoning about why</p> <div style="text-align: right;">  </div> |

Recognise and name common 3D shapes (cuboids (including cubes), cylinders, spheres and pyramids)

Develop knowledge of faces by printing patterns or pictures with the 3D shapes – can children predict which 2D shape will be printed? Can you print more than one 2D shape with that 3D shape?

Model how to notice the 2D shapes as faces on 3D shapes and count the faces on the shapes – both flat and curved. Draw actual faces on with a whiteboard pen and give the shapes personalities.

Give clues to identify a specific shape from a set of shapes using correct terminology about faces (faces, 2D shape names, curved and flat) Children have to guess which shape you are describing. Make sure children know the names of each common 3D shape.

Play 3D shape bingo – Call shape names

Hide 3D shapes in the sand. Which shape could this be?
How do you know? Could it be any other shape?

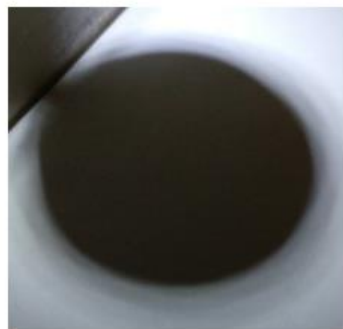
Make links to other areas of the curriculum like junk modelling or DT projects – can children name shapes they have chosen for different parts of their model?

NRICH – Shadow Play

Shadow Play

Age 5 to 7
Challenge Level ★★★

Here are four shadows created by four different 3D shapes (against a wall):



Mastery

Sort a range of 3-D objects into groups:



Explain how you have sorted them using mathematical names for the shapes.

Use correct mathematical terms to describe the other properties of 3D shapes and distinguish between them

Introduce the new term edge (the sides of the 2D shapes on the faces). They can also be curved or straight.


Recap the term corners/vertices. Model how to count the edges and corners/vertices on a 3D shape.

Feely bag visualising – find me a shape that has more than 3 edges etc.

Choose a 3D shape – say one property and pass it on – next child says a second property and passes it on.

Mastery with Greater Depth

What's the same and what's different about these shapes?



Which could be the odd one out and why?

Could each one be the odd one out?

Explain your reasoning.

Provide children with a variety of 3-D shapes and ask:
What's the same and what's different between these shapes?

Children make comparisons, drawing out the properties of shape and using language such as straight, curved, number of vertices.

Tom says, 'My shape has 4 rectangular faces and 2 square faces. What is my shape?'

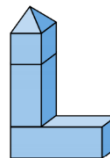
Sam says, 'My shape has 2 triangular faces and 3 rectangular faces. How many vertices does my shape have?'

Arrange 3D shapes to match a compound shape

Make compound 3D shapes from a given number of blocks like multilink. Which shapes are the same? Do you need to rotate or flip them to make a match?

Join multilink blocks to match a given model or a picture of a model.

Do a similar activity with different 3D shapes such as this example from RTP guidance.



Play barrier games where you describe your model to a partner who tries to recreate it.

There are many opportunities to explore properties of shape, and apply mathematical understanding of this area, in other curriculum subjects.

P.E. – Making shapes with your own body in gymnastics and dance

Geography – looking at shapes within the natural environment, on maps and plans

Small world play – different shaped pieces and containers used in sand and water play and shapes cut out in modelling dough.

Design Technology – when using construction kits children can be encouraged to describe their work using vocabulary associated with the properties of shapes

Shapes in the environment, shape packaging and those in artwork and pictures.