

IAL: to recognise and describe 3D shapes

Click the links to learn about 3D shapes.

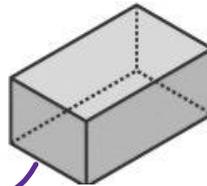
[Click here](#) and [Click here](#)

Choose from A, B and C. If you would like to complete more than one, you can!

A) Name the shape and match it to its properties.

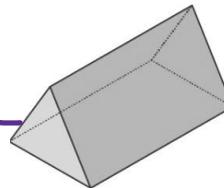
cylinder square based pyramid cuboid
cube triangular prism

12 vertices
All faces are squares



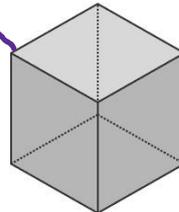
cuboid

2 Equilateral triangle faces
3 rectangle faces



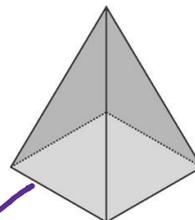
triangular
prism

2 circle faces
2 edges



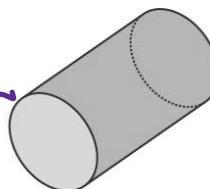
cube

4 rectangle faces
12 vertices



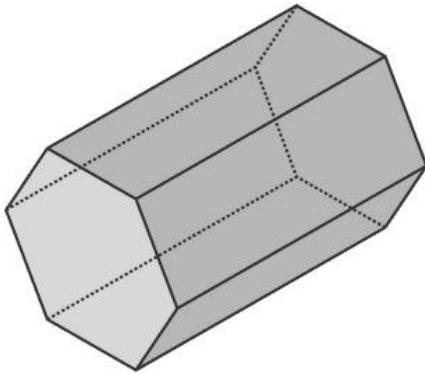
square based
pyramid

4 Isosceles triangle faces
Square face base



cylinder

B) Name the shape and write its properties.



Shape **hexagonal prism**

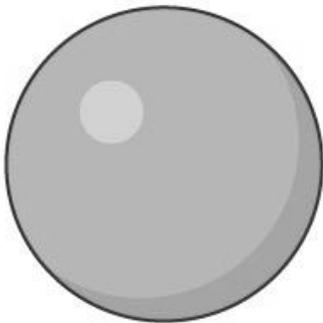
Properties

Vertices = **12 vertices**

Edges = **18 edges**

2d shape Face = **2 hexagonal faces**

2d shape Face = **6 rectangular faces**



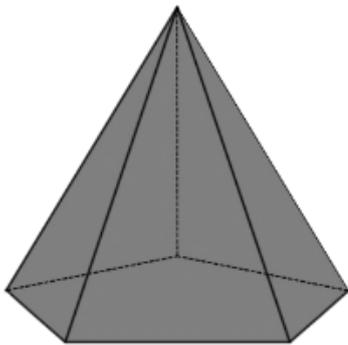
Shape **sphere**

Properties

Vertices = **0**

Edges = **0**

2d shape Face = **one circular face which wraps around**



Shape **pentagonal prism**

Properties

Vertices = **10 vertices**

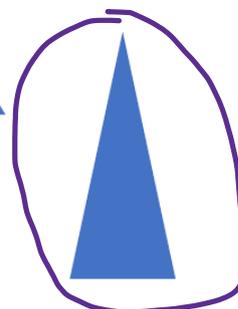
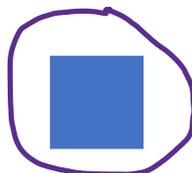
Edges = **15 edges**

2d shape Face = **1 pentagonal base**

2d shape Face = **5 isosceles triangle faces**

Read the picture.

Circle the shapes that can be printed using this square-based pyramid.



C) Solve the shape problems below.

Mo has a 3D shape, he says,

Possible answers:

Cube
Cuboid
Square based pyramid



One face of my 3D shape is a square.

What could Mo's shape be?

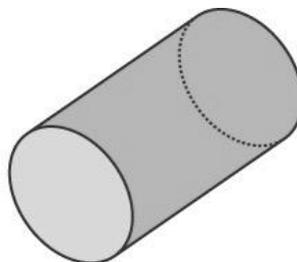
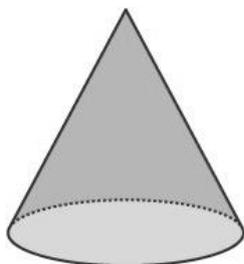
Alex says,

All 3d shapes are prisms.



I do not agree with Alex e.g. cones pyramids, spheres are not prisms.

What is the same and what is different about the shapes below?
Explain mathematically.



Examples answers:

Both shapes have a circular face.

Both shape have an edge.

Both have a face which wraps around.

The cone has a point or vertex.

The cone has 2 faces.

The cone has 1 edge.

The cylinder has 3 edges.

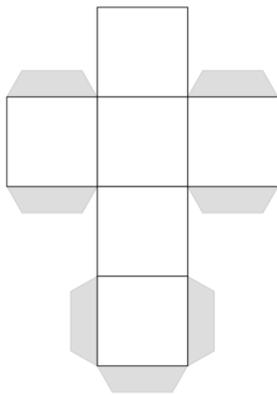
IAL: to recognise and describe 3D shapes

Click the links to learn about the nets of 3D shapes.

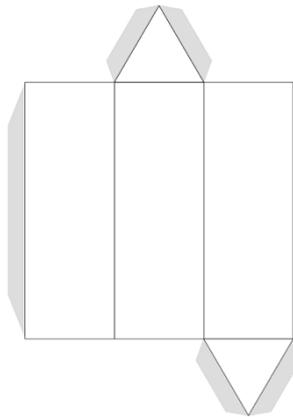
[Click here](#)

Choose from A, B and C. If you would like to complete more than one, you can!

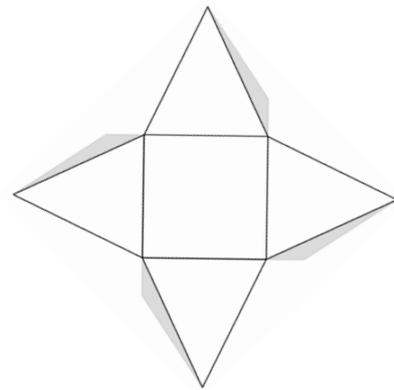
A) If you can, click the link and print out the nets, then construct a 3D shape.



cube



triangular prism



square based pyramid

Click the link and change the **choose model** button to print out the nets.

[Click here](#)

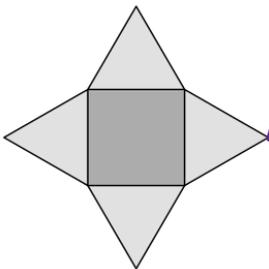
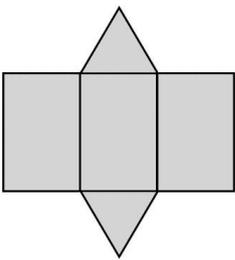
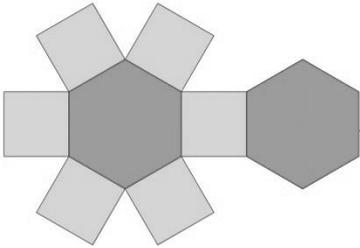
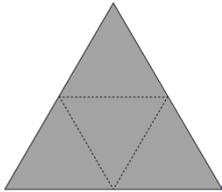
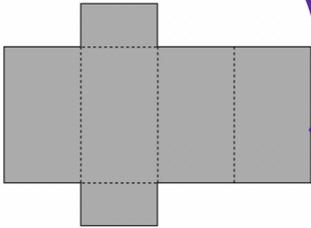
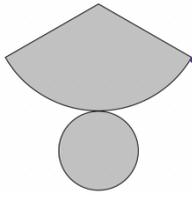
Right sentences about how you made the shapes and how you had to be resilient while constructing it.

Cube: Explanations of how the children made the shape, what they noticed and what proved challenging.

Triangular prism: Explanations of how the children made the shape, what they noticed and what proved challenging.

Square based pyramid: Explanations of how the children made the shape, what they noticed and what proved challenging.

B) Match the 3D shapes below to their net.



Square Based
Pyramid

Triangular prism

Cuboid

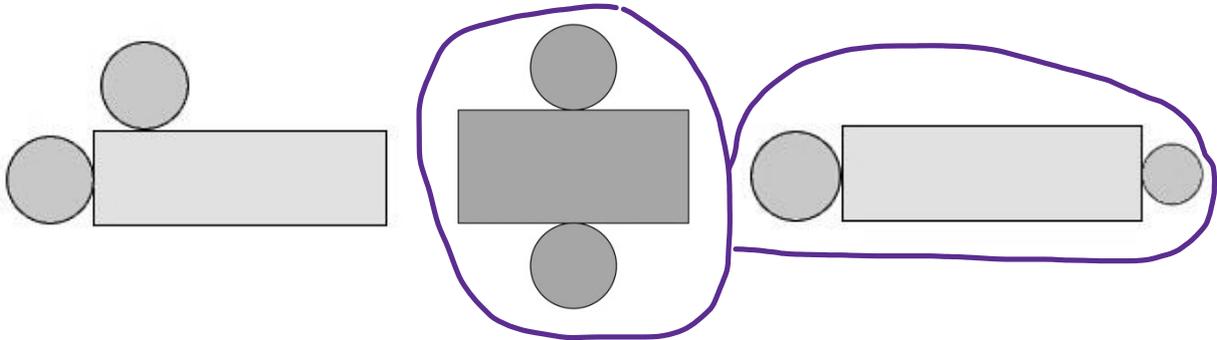
Hexagonal Prism

Cone

Triangular Pyramid

C) Solve the problems involving nets below.

Circle which of these nets below would create a 3D shape and what is its name?
Convince me how you know using its properties.



A cylinder needs 2 circular faces opposite each other on the net to fold into a 3D shape.

Use what you know about the nets of 3D shapes to answer the questions below.

True or false? What shape could you create?

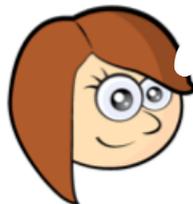
Teddy says,



You can cut out lots of equal squares and make a 3-D shape from them.

True - for example a cube.

Rosie says,



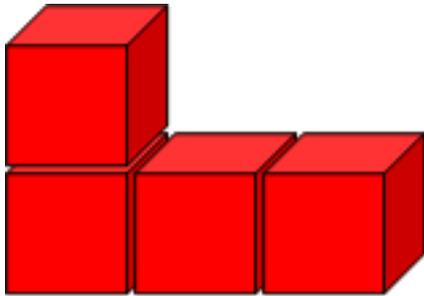
You can cut out some circles and rectangles and make a 3-D shape from them.

True - a cylinder.

IAL: to solve a non-routine maths problem

Apply your understanding of 3D shape to investigate the problem.

Here are four cubes joined together:



We can draw this arrangement of cubes on dotted paper (isometric paper) which gives us a way of drawing 3D objects more easily:

Here are some example solutions:

