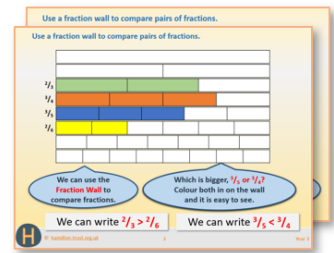


Year 4: Week 5, Day 5

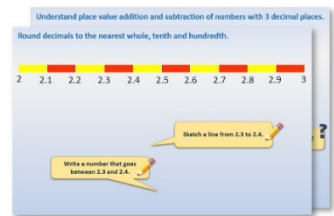
Shape (2)

Each day covers one maths topic. It should take you about 1 hour or just a little more.

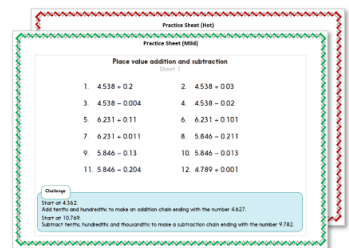
1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.



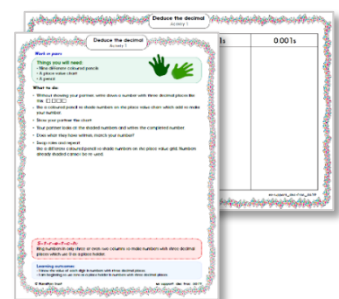
OR start by carefully reading through the **Learning Reminders**.



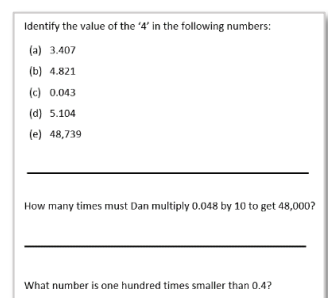
2. Tackle the questions on the **Practice Sheet**. There might be a choice of either **Mild** (easier) or **Hot** (harder)! Check the answers.



3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**



4. Have I mastered the topic? A few questions to **Check your understanding**. Fold the page to hide the answers!



Learning Reminders

Identify and sort 3-D shapes according to their properties.

Let's sort these shapes into a Venn diagram.

Prisms

Pyramids

Which shapes are in neither group?

Learning Reminders

Identify and sort 3-D shapes according to their properties.

Which shapes will go where this time?

Has one or more square faces

Has one or more triangular faces

The diagram shows a Venn diagram with two overlapping circles. The left circle is labeled "Has one or more square faces" and contains a blue rectangular prism. The right circle is labeled "Has one or more triangular faces" and contains a blue triangular prism and a blue triangular pyramid. The intersection of the two circles contains a blue square pyramid. Outside the circles, there are a blue cone at the top, a blue cylinder at the top right, a blue rectangular prism at the bottom center, and a blue trapezoidal prism at the bottom right.

Practice Sheet Mild

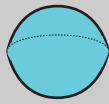
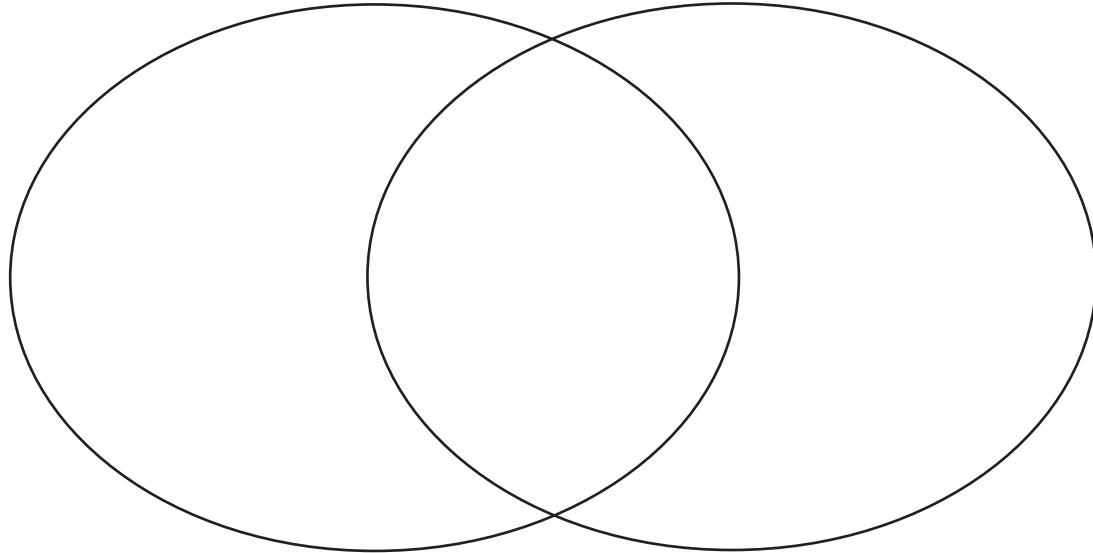
Shape practice

Write the shape names in the right place in each Venn diagram.

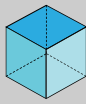
1.

flat faces

can roll



sphere



cube



cylinder

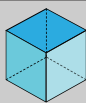
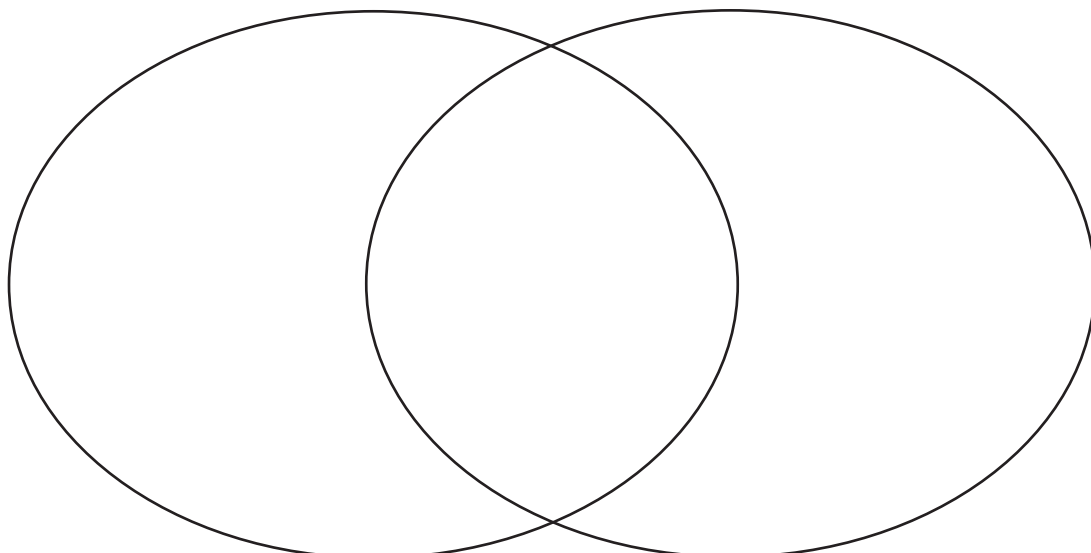


cone

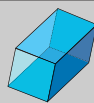
2.

square faces

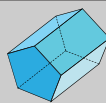
rectangle faces



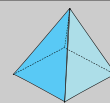
cube



cuboid



pentagonal prism



square-based pyramid

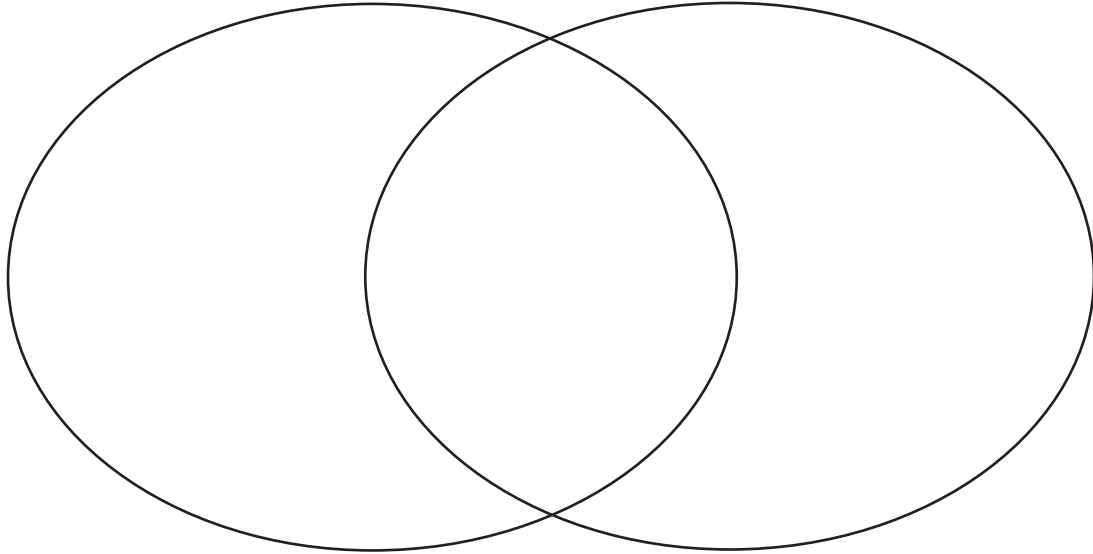
Practice Sheet Mild

Shape practice

3.

rectangle faces

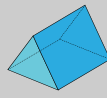
6 faces



hexagonal prism



cuboid



triangular prism



cube

Challenge

Create your own Venn diagram to sort these shapes: cone, cylinder, sphere, hemisphere.

Practice Sheet Hot

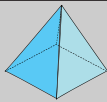
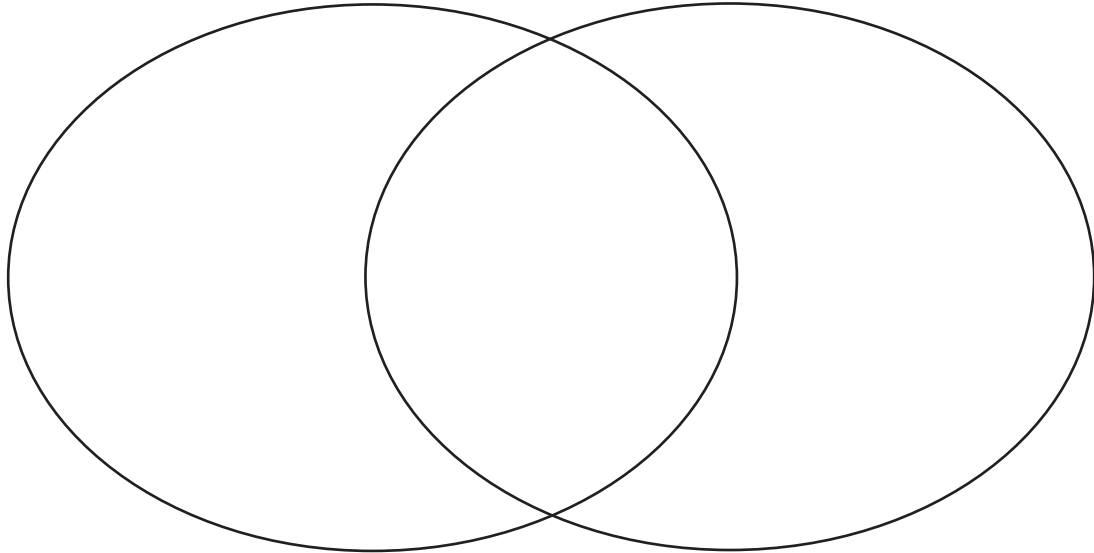
Shape practice

Write the shape names in the right place in each Venn diagram.

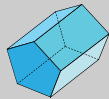
1.

triangle faces

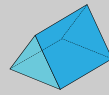
odd number of faces



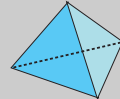
square-based pyramid



pentagonal prism



triangular prism

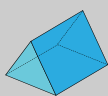
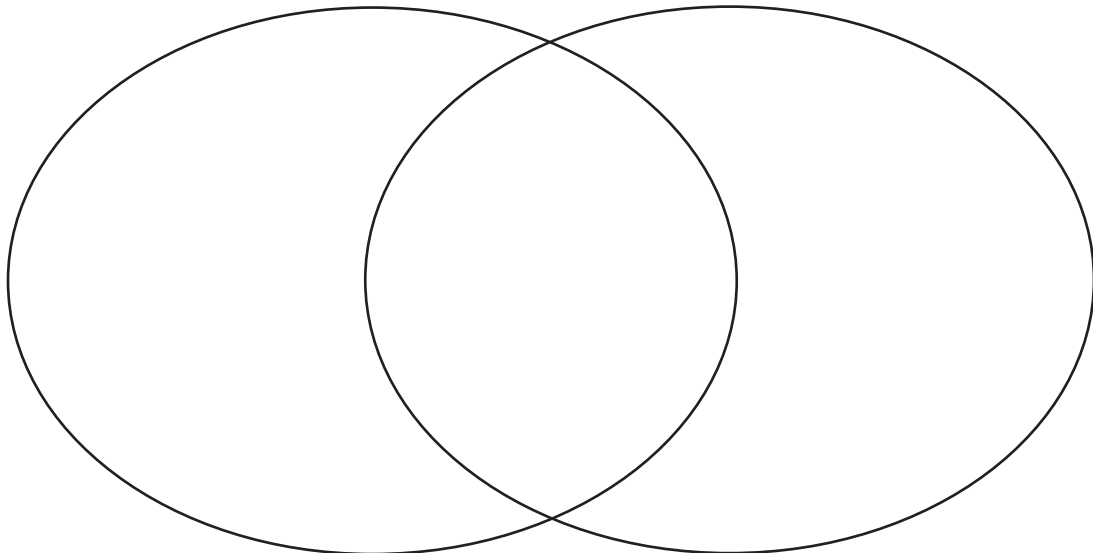


tetrahedron

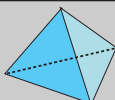
2.

even number of vertices

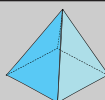
even number of edges



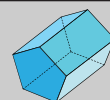
triangular prism



tetrahedron



square-based pyramid



pentagonal prism

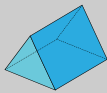
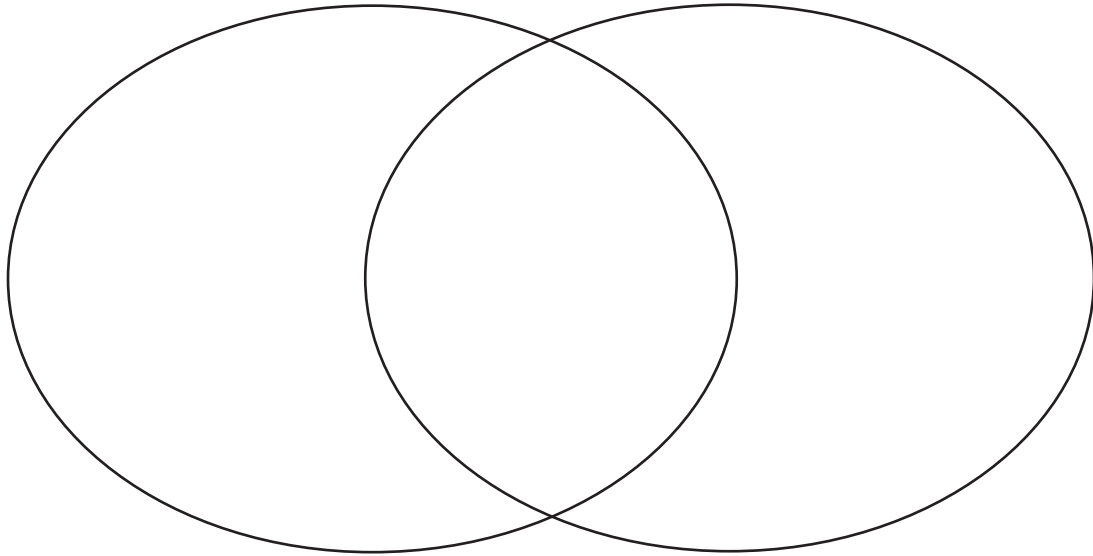
Practice Sheet Hot

Shape practice

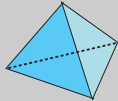
3.

triangle faces

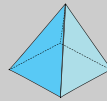
6 or more vertices



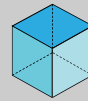
triangular prism



tetrahedron



square-based pyramid

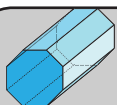
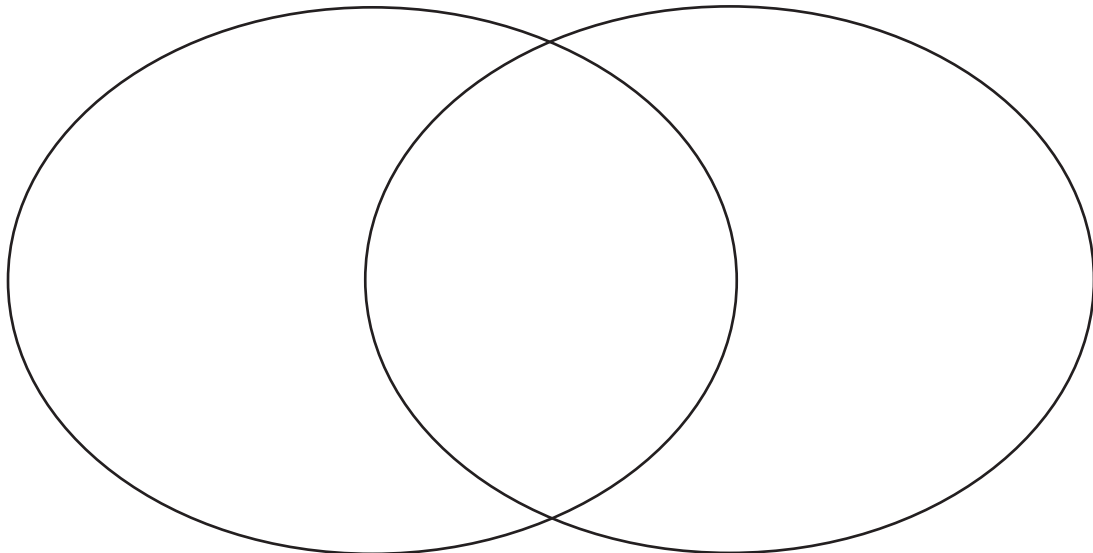


cube

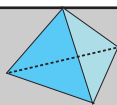
4.

triangle faces

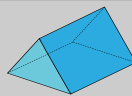
prism



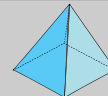
octagonal prism



tetrahedron



triangular prism

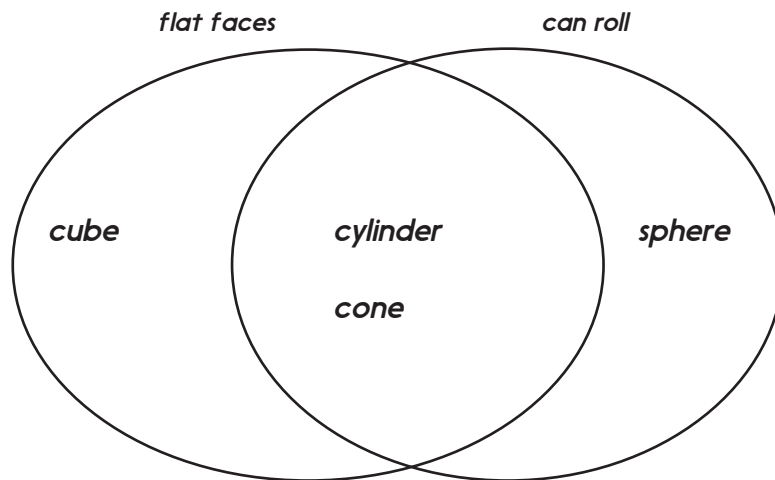


square-based pyramid

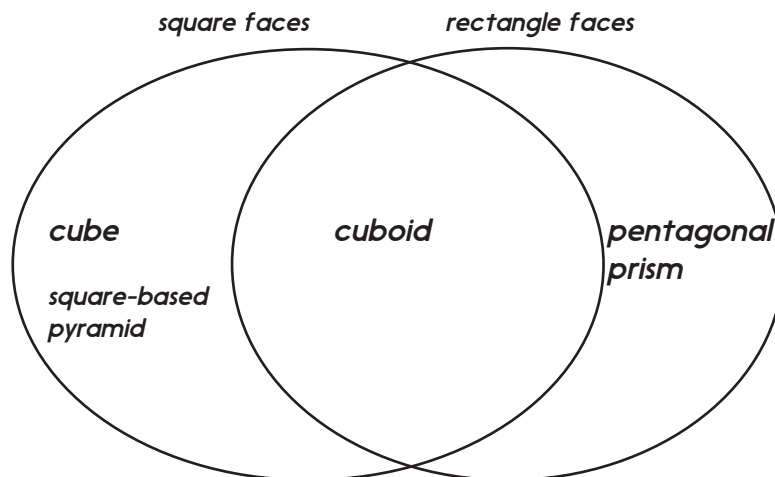
Practice Sheet Answers

Shape practice (Mild)

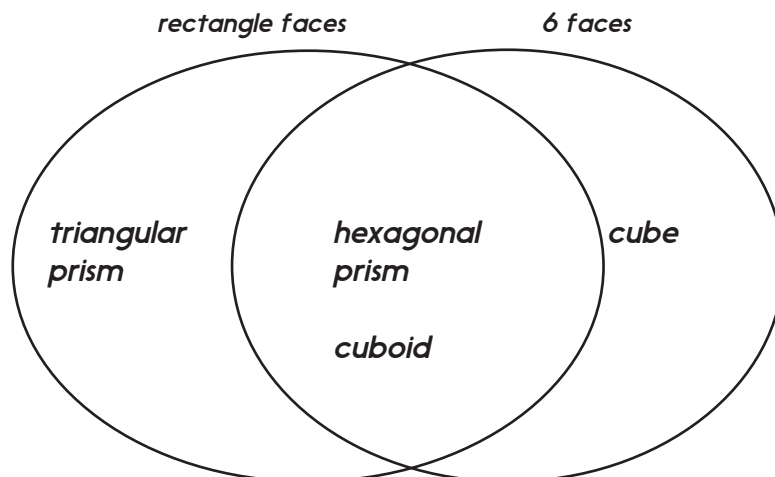
1.



2.



3.

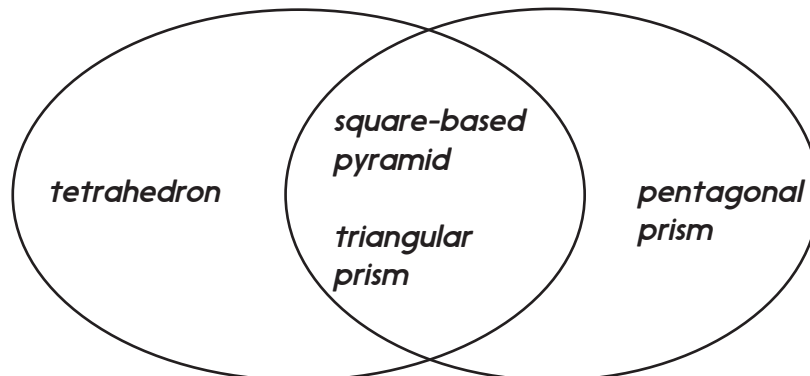


Shape practice (Hot)

1.

triangle faces

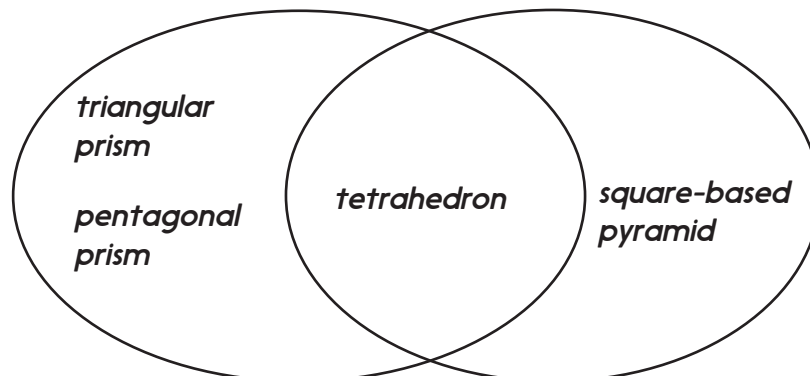
odd number of faces



2.

even number of vertices

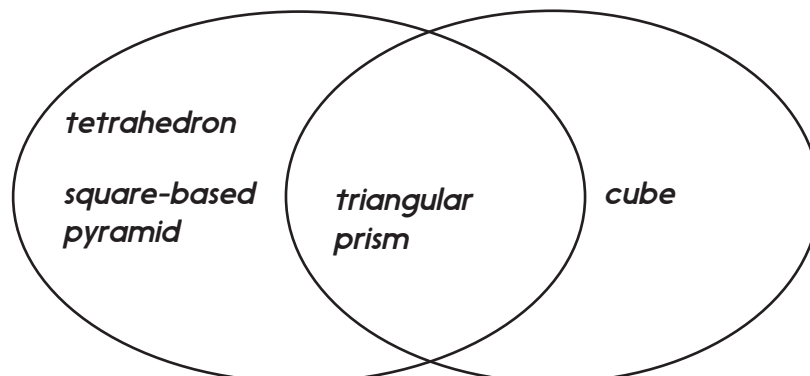
even number of edges



3.

triangle faces

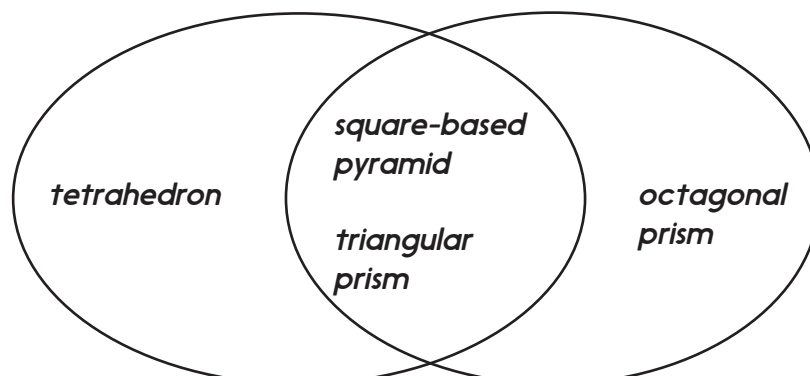
6 or more vertices



4.

triangle faces

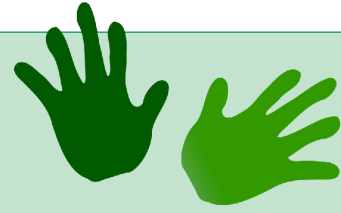
prism



A Bit Stuck? Packaging

Things you will need:

- Different items of packaging
(search the kitchen cupboards or recycling bin!)
- Sticky notes



What to do:

- Find at least 5 different shape packets/boxes/tins, e.g. cube, different cuboids, different cylinders. You may be lucky and be able to find a cone, a prism or a pyramid!
- Choose a shape. Write its name and a description of its properties on a sticky note and stick on the box.
- Repeat until all boxes have descriptions.
- How could you sort the shapes into two sets?
- Is there another way of sorting them?
- Which shape(s) are commonly used for food packaging? Why do you think that is?
- Which 3-D shapes are less common? Why might that be?

Check your understanding:

Questions

Create a net for a tetrahedron.

Fold it up to ensure that it works. Is this the only way to draw a net for a tetrahedron?

Imagine a 3 by 3 by 3 cube hanging in front of you *with just the front face facing you...*

The cube is made up of three 3 by 3 layers, that is 27, small cubes.

You drill a hole through the four corner cubes, which are facing you, all the way through to the back.

A friend looks down on the cube, from above, and they also drill four holes through their four corner cubes all the way through to the bottom.

You and your friend then examine all the 27 small cubes.

How many small cubes will then have holes drilled in them?

Adapted from '[Start cube drilling](#)' from nrich.maths.org

Find out what a dodecahedron is. Look for pictures on the internet, then write a description of it - using all your best mathematical shape language – for someone who has never seen one...

Answers on next sheet

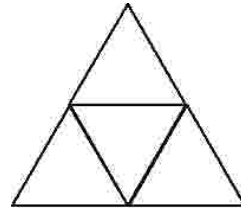
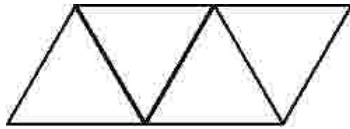
Check your understanding:

Answers

Create a net for a tetrahedron.

Fold it up to ensure that it works. Is this the only way to draw a net for a tetrahedron?

The net of a tetrahedron consists of 4 equilateral triangles. For them to fold up correctly they must be either arranged as a larger equilateral triangle or in a line:



Imagine a 3 by 3 by 3 cube hanging in front of you *with just the front face facing you...*

The cube is made up of three 3 by 3 layers, that is 27, small cubes.

You drill a hole through the four corner cubes, which are facing you, all the way through to the back.

A friend looks down on the cube, from above, and they also drill four holes through their four corner cubes all the way through to the bottom.

You and your friend then examine all the 27 small cubes.

How many small cubes will then have holes drilled in them?

Adapted from '[Start cube drilling](#)' from [nrich.maths.org](#)

16 – Each person has drilled through 12 cubes but 8 of those (the corner ones) are in common. There are 4 cubes unique to each person.

An alternative way of visualising this is to think about which cubes have not been drilled through (11) and subtracting from 27.

Find out what a dodecahedron is. Look for pictures on the internet, then write a description of it - using all your best mathematical shape language – for someone who has never seen one...

A dodecahedron is a 3-D solid with 12 regular pentagon faces. It can be used as a 12 -sided dice.