Y3 M6b Can compare and sort 2-D and 3-D shapes according to their geometric properties

Commissioned by The PiXL Club Ltd.
January 2020

Teachers' Notes

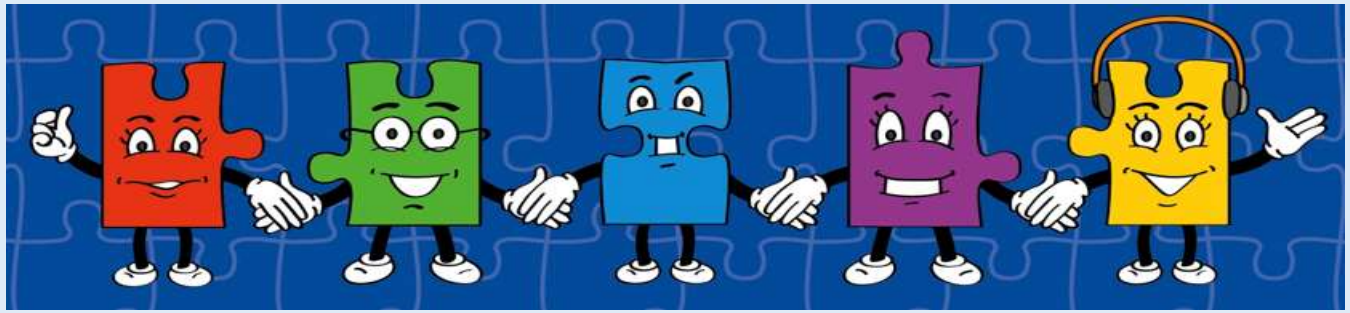
- The PiXL therapies can be taught to a whole class or a target group. Year 3-5 therapies are designed to take approximately 30-40 minutes. However, this is flexible: it may be that only part of the therapy is taught or it could, of course, be adapted or extended.
- Each therapy begins with a LORIC activity to develop relevant learning behaviours.
- This is followed by a vocabulary task, which uses the PiXL 5-phase approach to teach key mathematical vocabulary. Further resources to develop vocabulary can be found in the Whole School area.
- Each therapy adopts the 'Teach, model and apply' process with opportunities for pupils to demonstrate the taught skill independently.
- Problem solving and reasoning activities are an integral part of each therapy.

Progress across amber – the 4-stage model

The three therapy tests which accompany this resource can be used to revisit the taught skill to check that the pupil is able to perform it independently and consistently.

A	A child has successfully completed a therapy test independently, following a set of therapy sessions.
A	A child has successfully completed a therapy test independently, a period after the relevant therapy sessions – we would advise about 2 weeks.
DA	A child has successfully applied their knowledge or skill in an unfamiliar context. This may be application across the curriculum or in a problem.
G	A pupil has successfully re-visited the skills at a later point, and applies these in an unfamiliar context or problem, or across the curriculum.

LORIC task

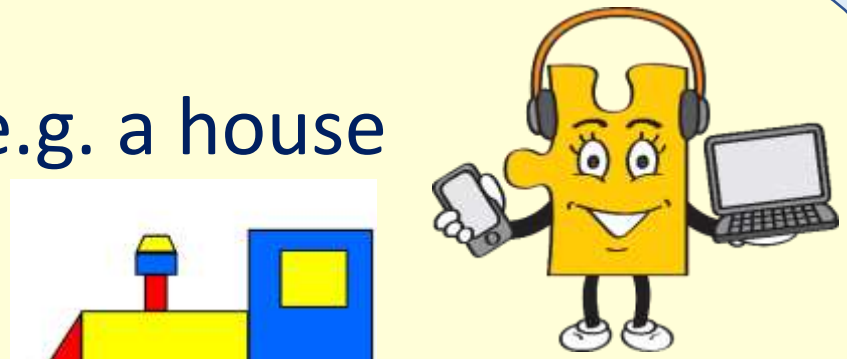


Our Primary Edge attributes help us to become better learners and today is no exception. Before you start this activity, here are some ideas for how you will need your Charlie Communication skills today:

- Speak clearly.
- Discuss ideas by taking turns.
- Listen carefully.

LORIC task

- Instruct a partner to draw an object (e.g. a house or a vehicle) using 2-D shapes only.
- Be clear in how you communicate.

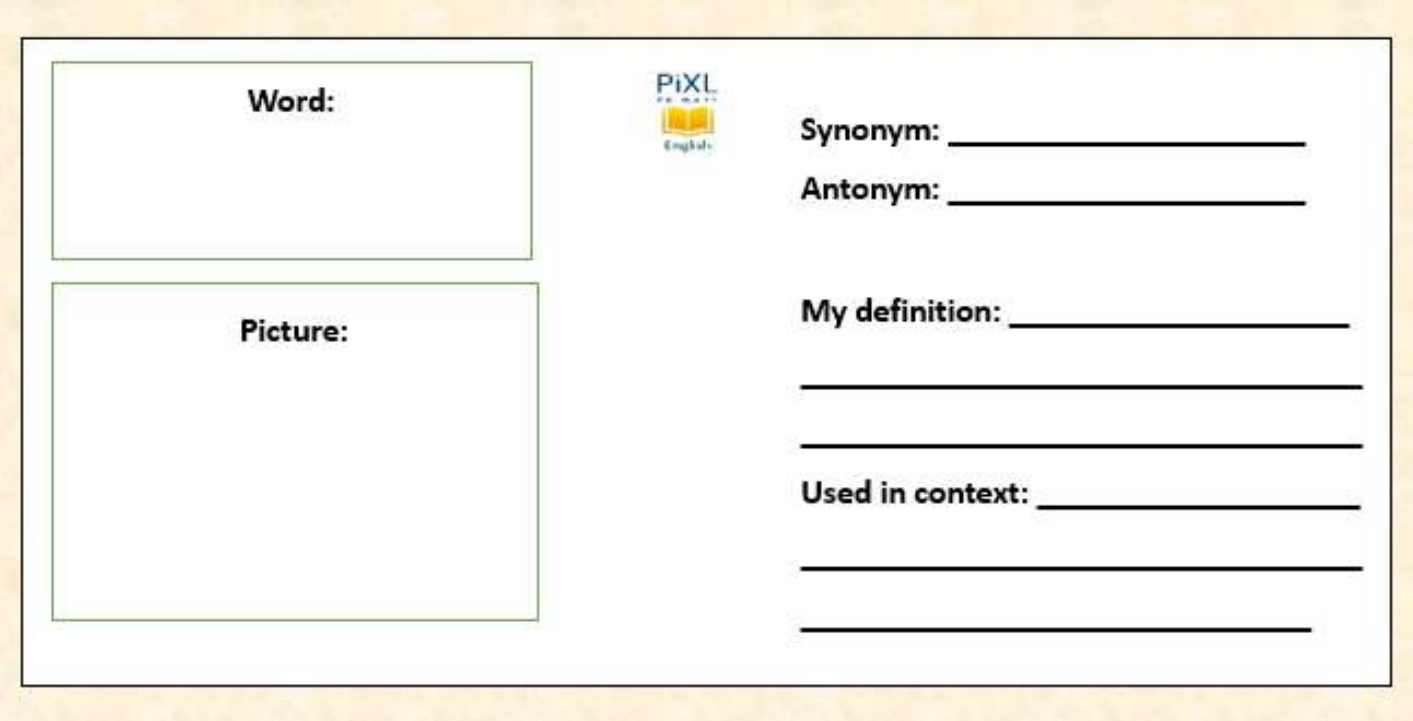


- As an extra challenge, you are not allowed to name the shapes – you may only describe their properties.

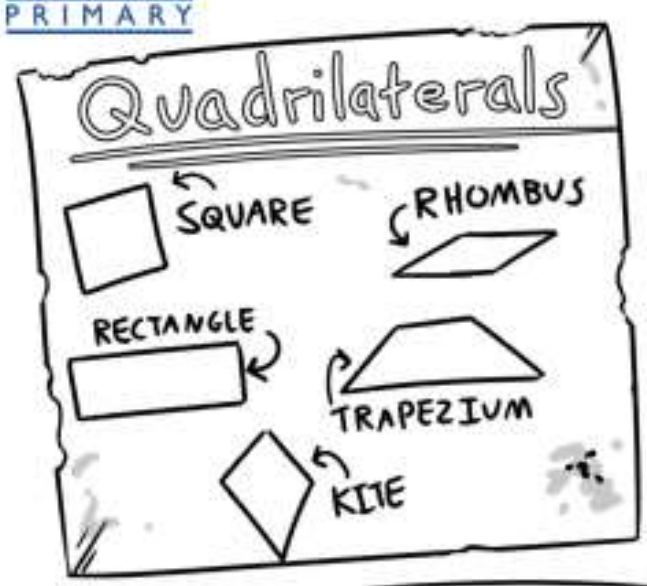
Vocabulary activity

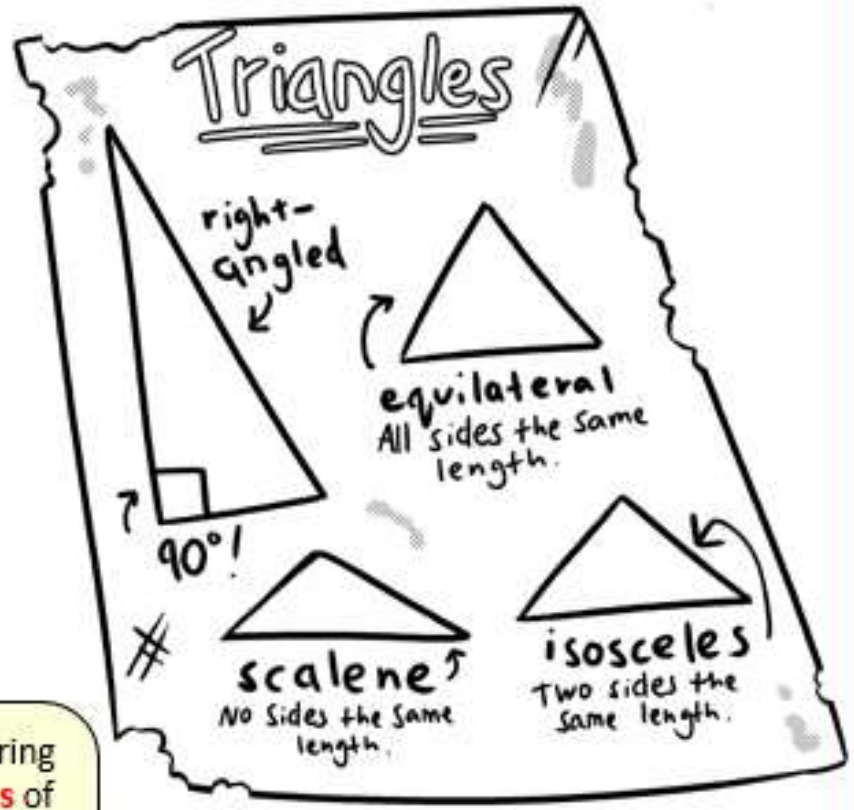
compare
sort
properties

DEFINE IT/USE IT



Primary Maths **Properties of Shape – Years 3 and 4**



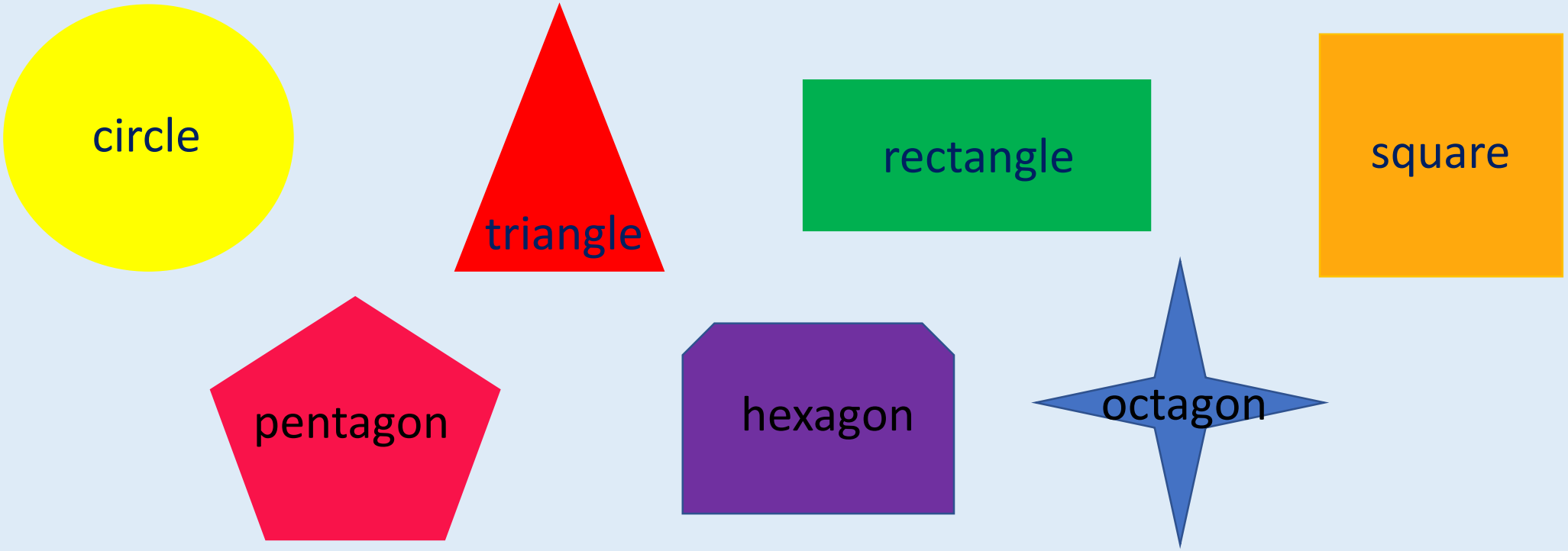


When comparing the **properties** of **3D shapes**, we need to look for:

- faces
- edges
- vertices

Teach

A **2D** shape is a form or an outline which is **flat**.
The ‘D’ stands for the word **dimensional**.



Teach

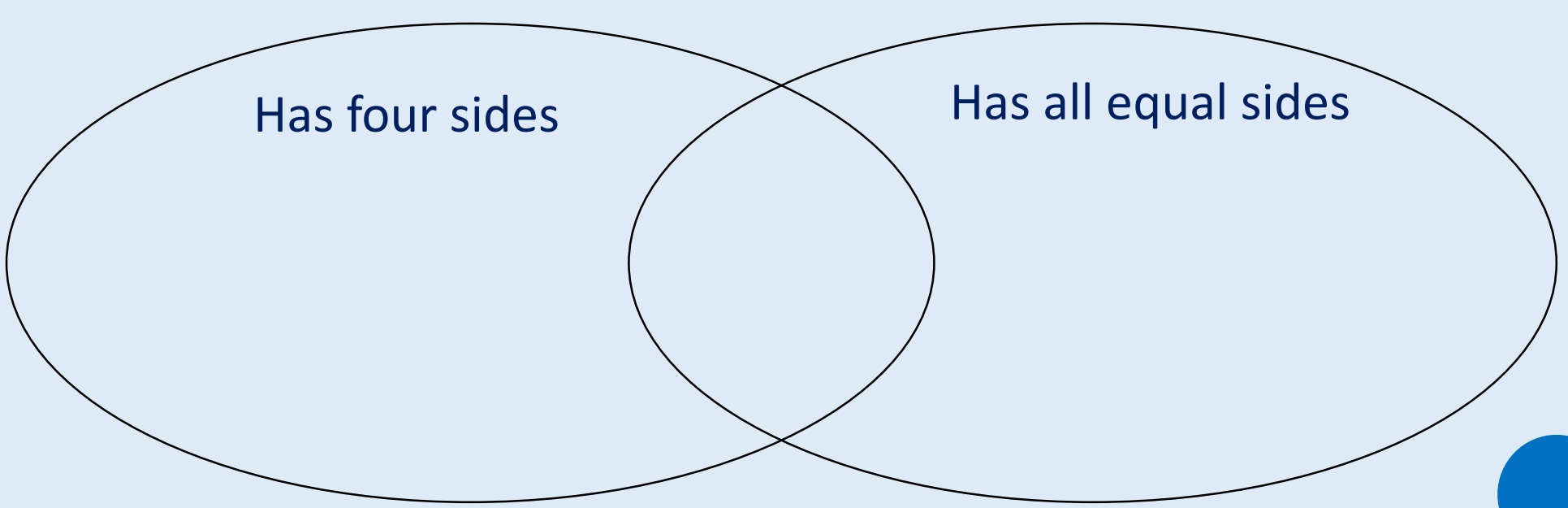
A **2-D** shape can sometimes be described as a **polygon** or a **quadrilateral**.

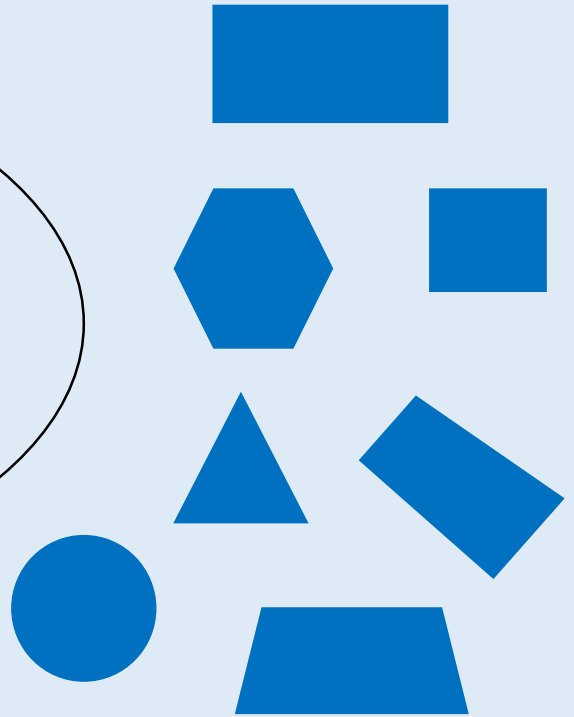
A **polygon** is the name given to all 2-D shapes with **straight sides** that are **fully closed** (all of the sides are joined up). The sides must be **straight**.

A **quadrilateral** is the name given to all 2-D shapes with **four straight sides** and **four vertices (corners)**.

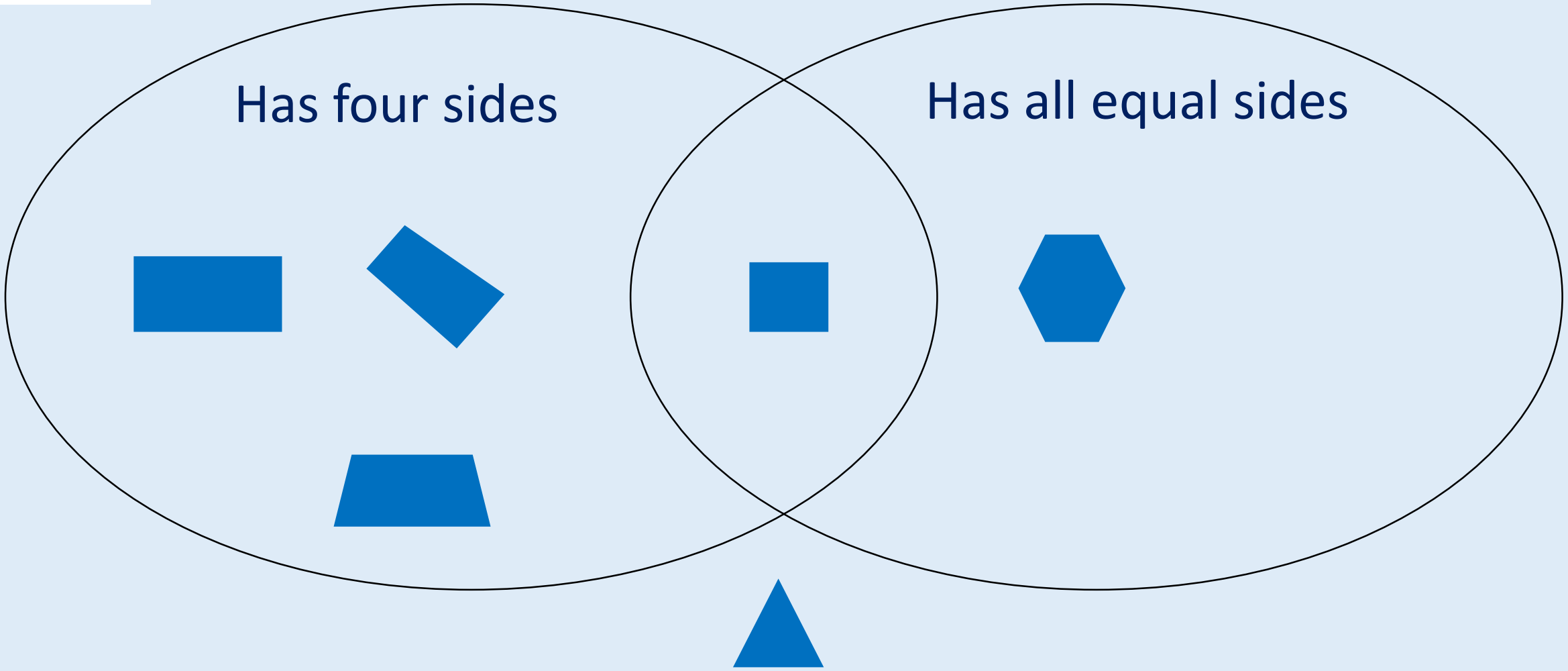
Teach

We are going to use a **Venn** diagram to sort some shapes. If the shape has the **property** described in the label, it goes in that circle. If it has both **properties** it goes in the middle. This means we are **comparing** their **properties**.

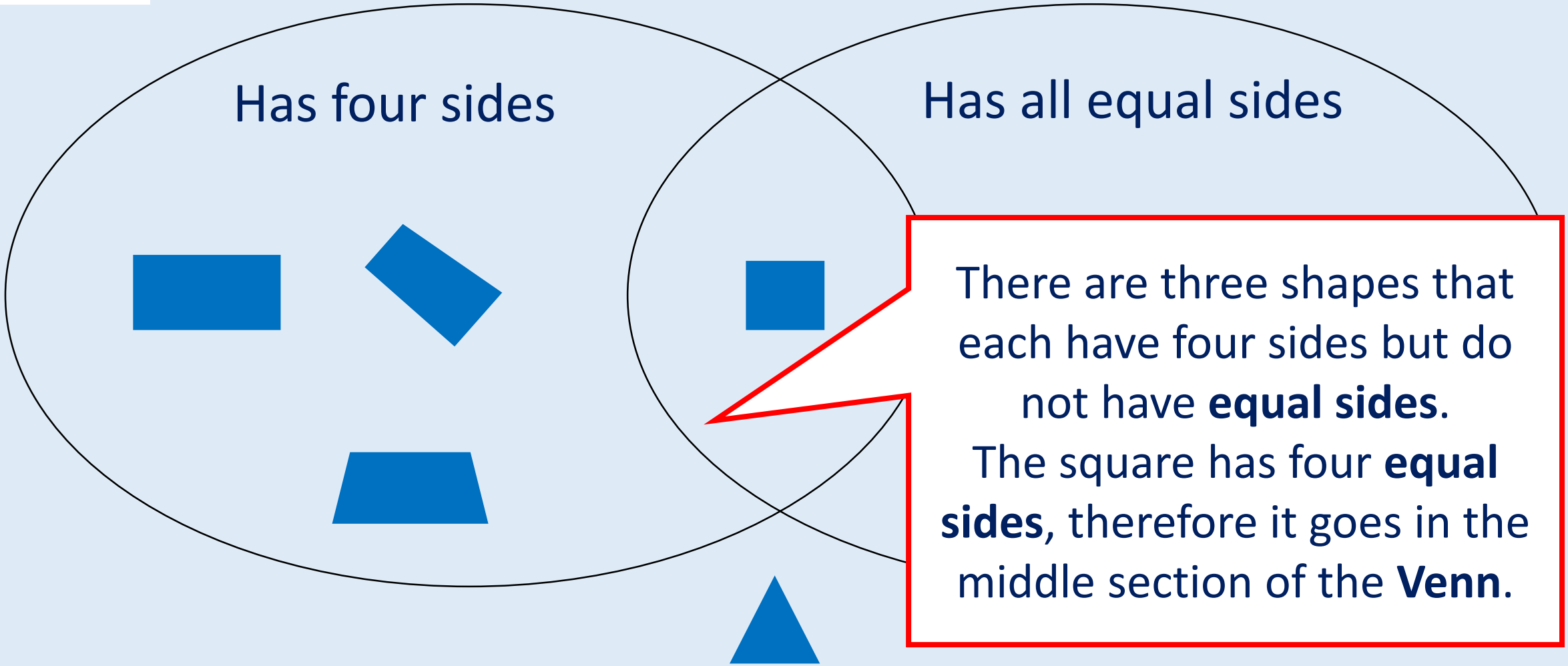




Model

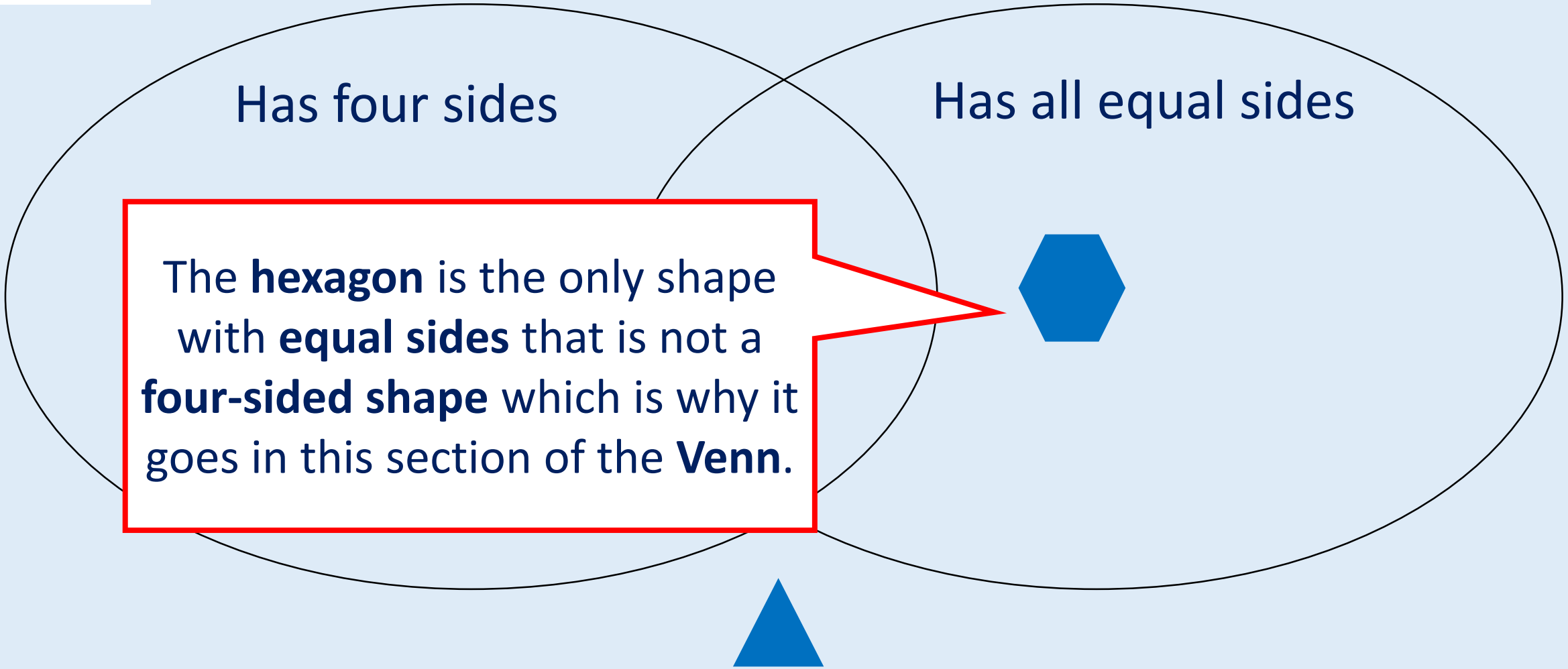


Model

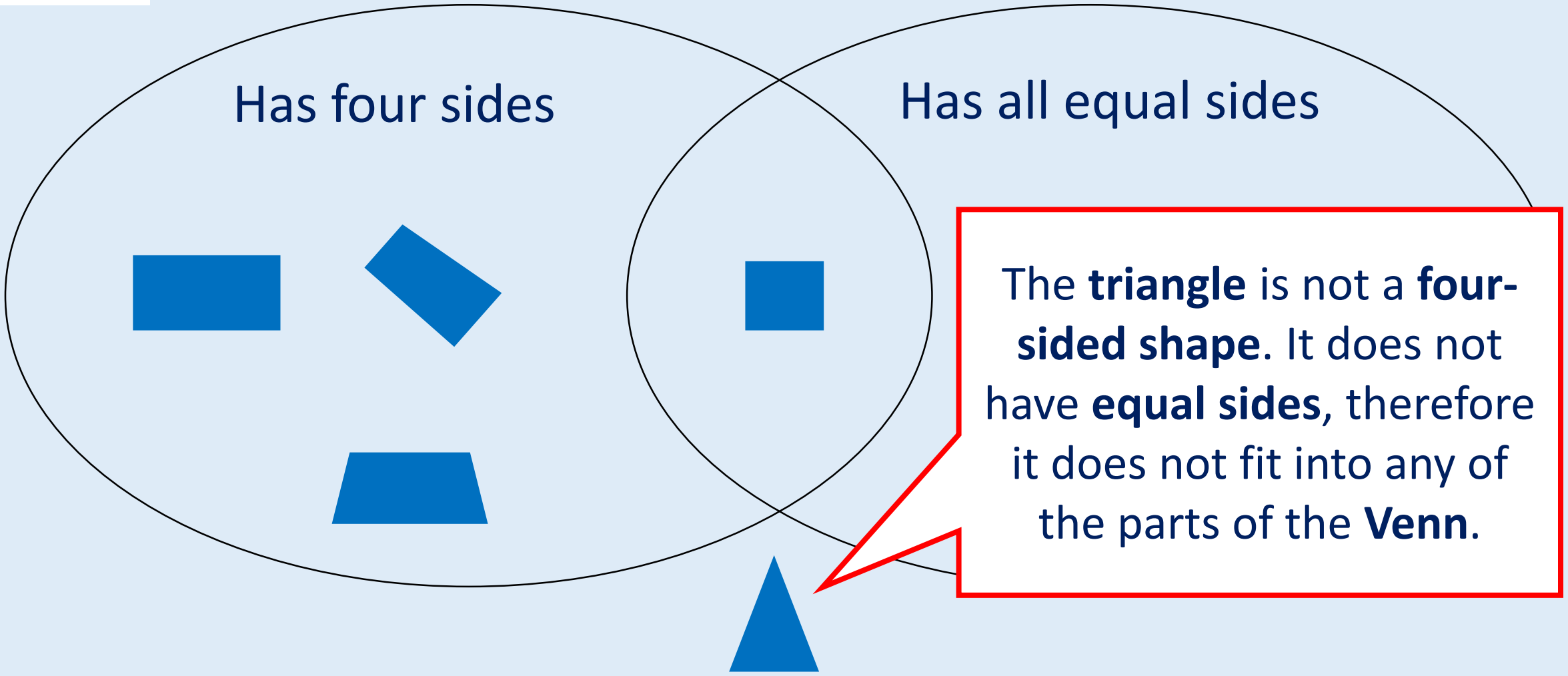


There are three shapes that each have four sides but do not have **equal sides**.
The square has four **equal sides**, therefore it goes in the middle section of the **Venn**.

Model


Has four sides
Has all equal sides
The **hexagon** is the only shape with **equal sides** that is not a **four-sided shape** which is why it goes in this section of the **Venn**.

Model

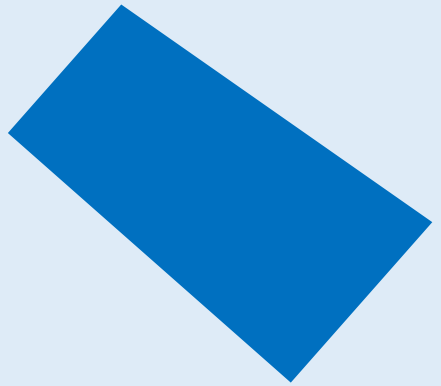


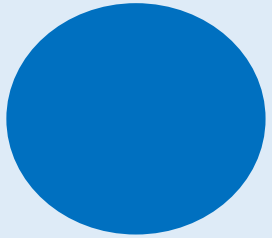
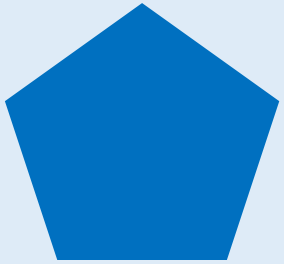
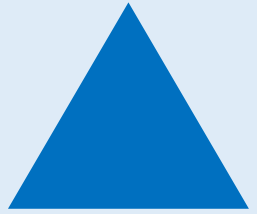
The **triangle** is not a **four-sided shape**. It does not have **equal sides**, therefore it does not fit into any of the parts of the **Venn**.

Apply

Pick 2 shapes. Compare the 2-D shapes you have chosen. What is similar? What is different? Think of properties to describe them.

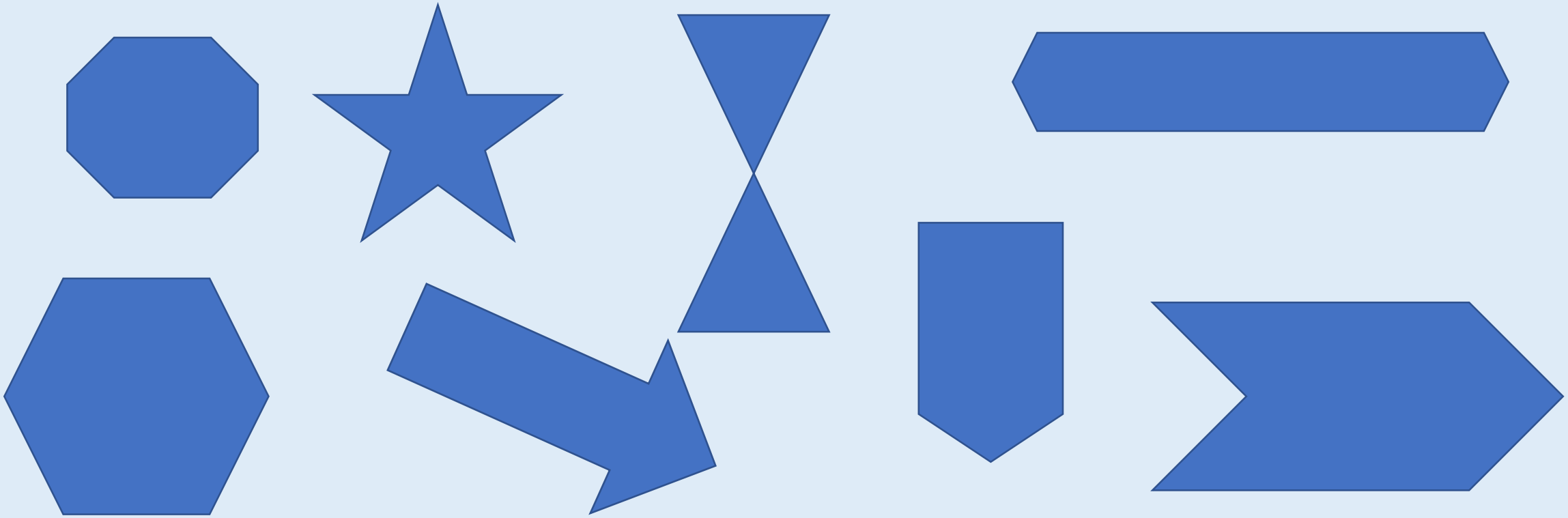


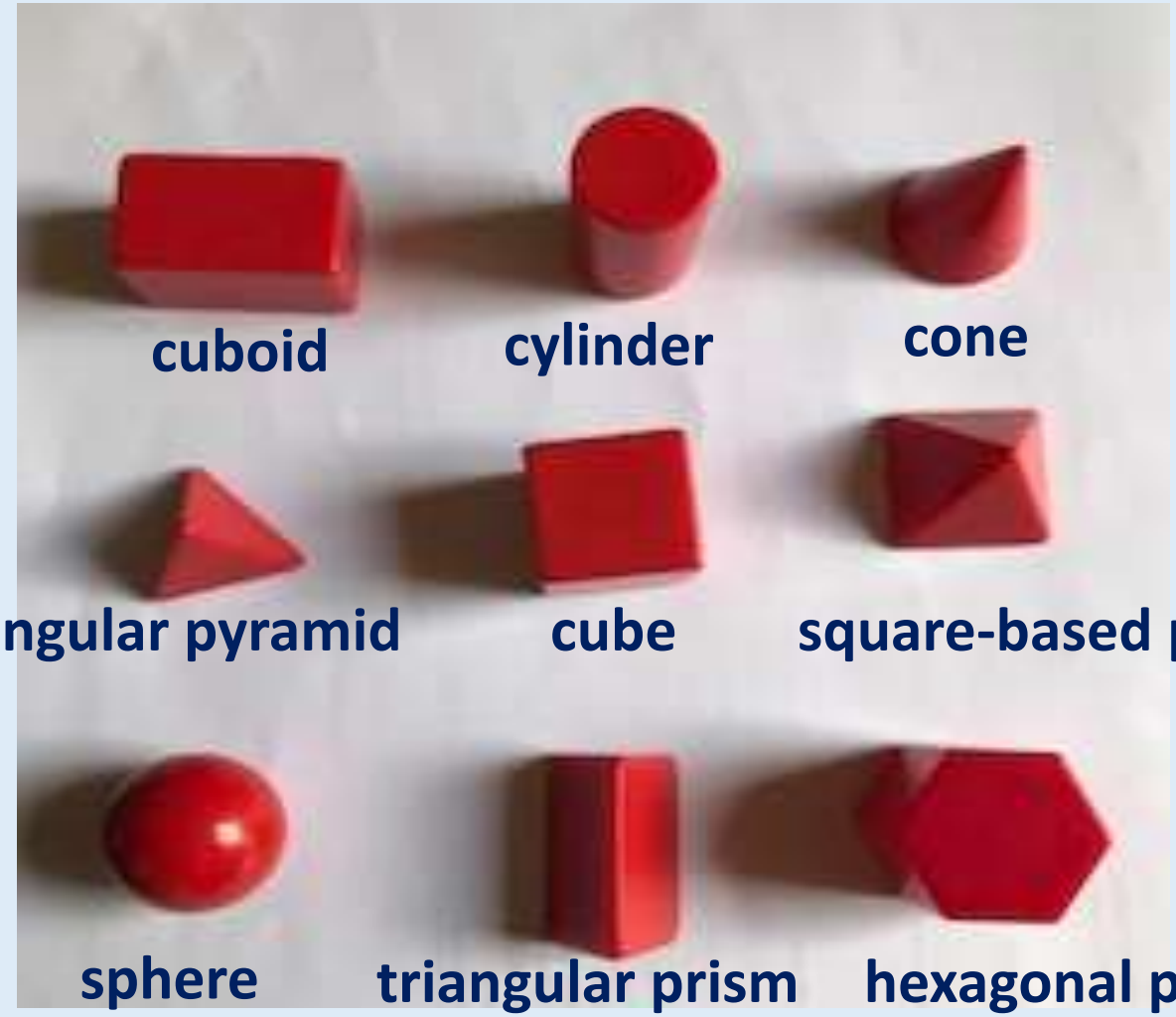
Apply – Problem Solving

Sort these shapes using a Venn diagram. Decide on the properties for sorting.

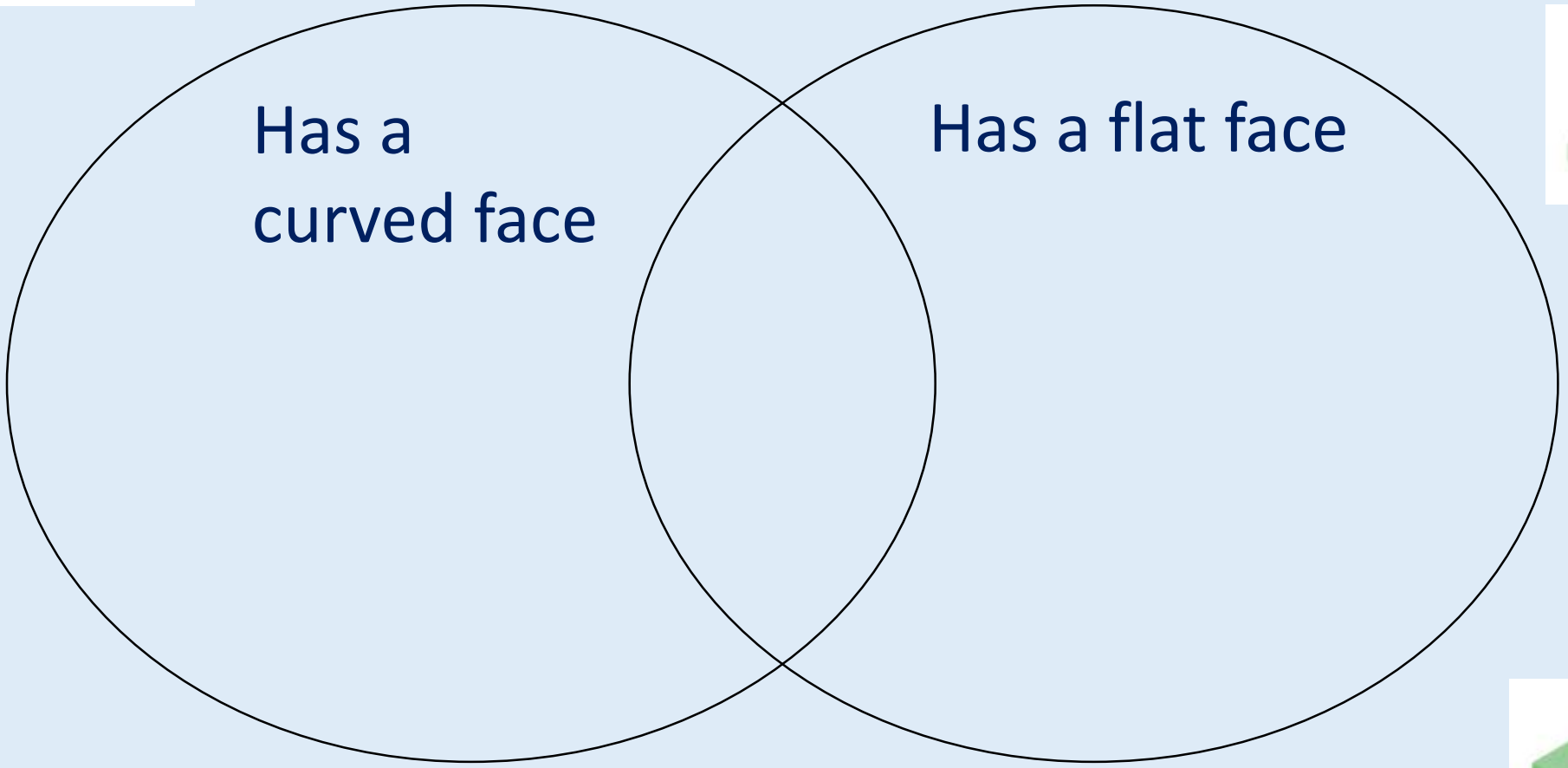


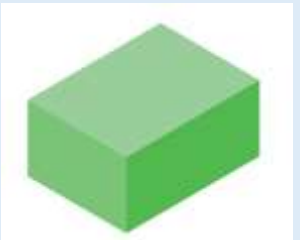
Teach

A 3-D shape is a **solid** shape. It has a **length**, **width** and **height**.
This means it can be seen all the way around.
The ‘D’ stands for the word **dimensional**.

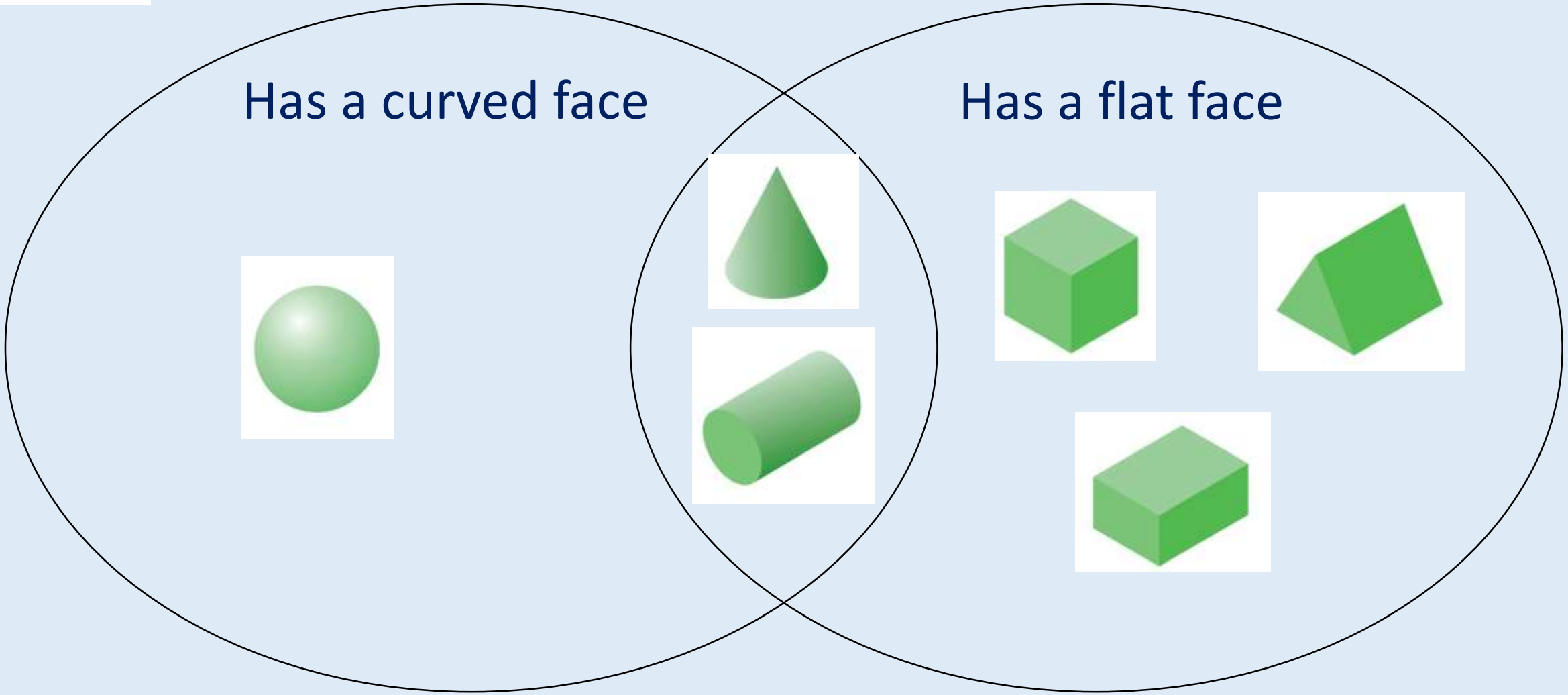


Model





Model



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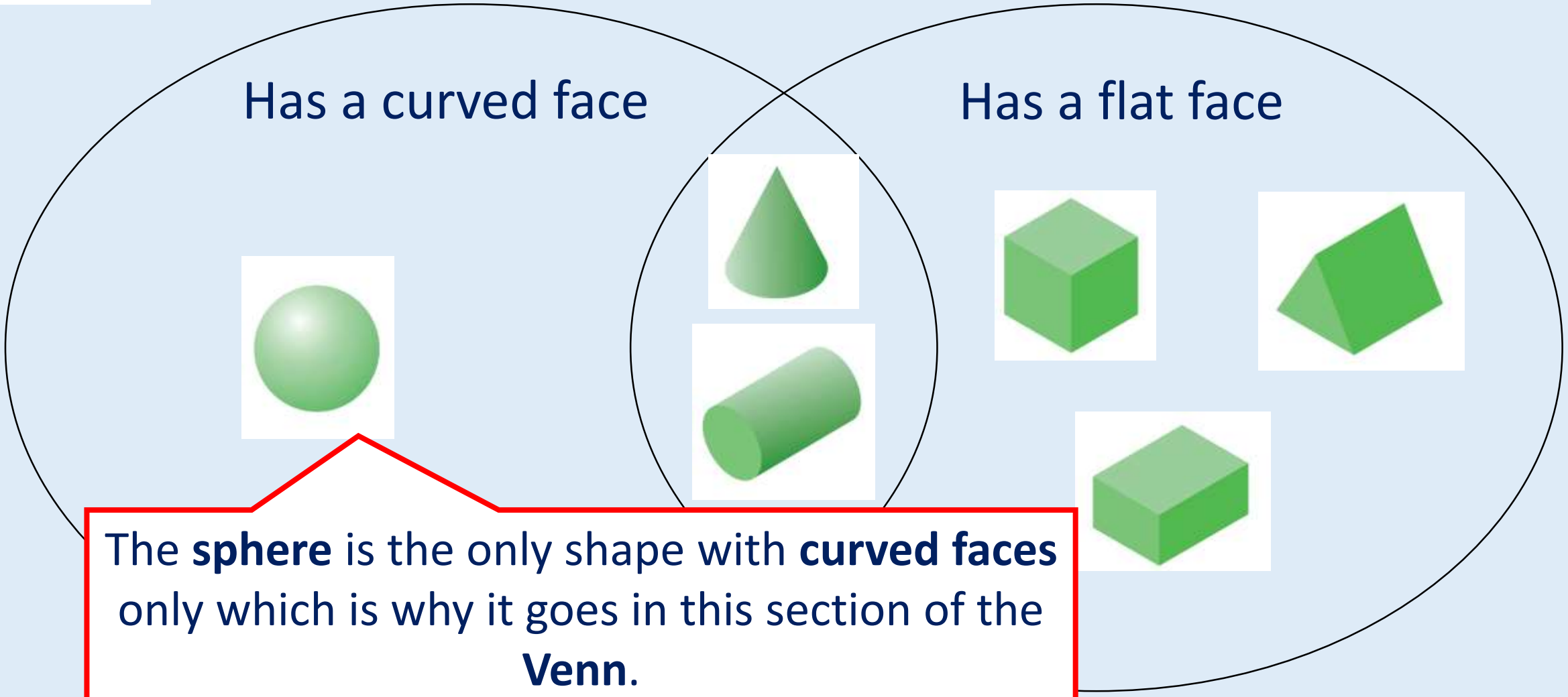
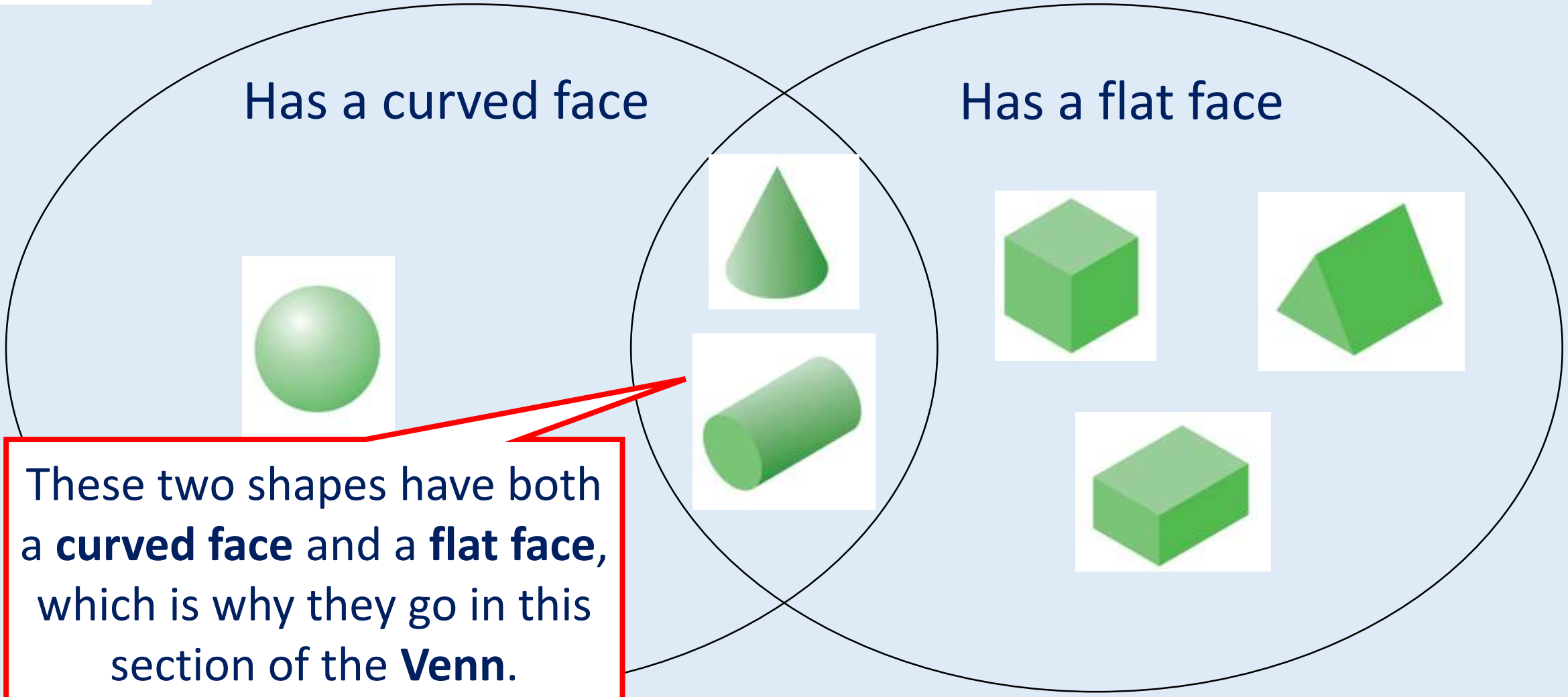


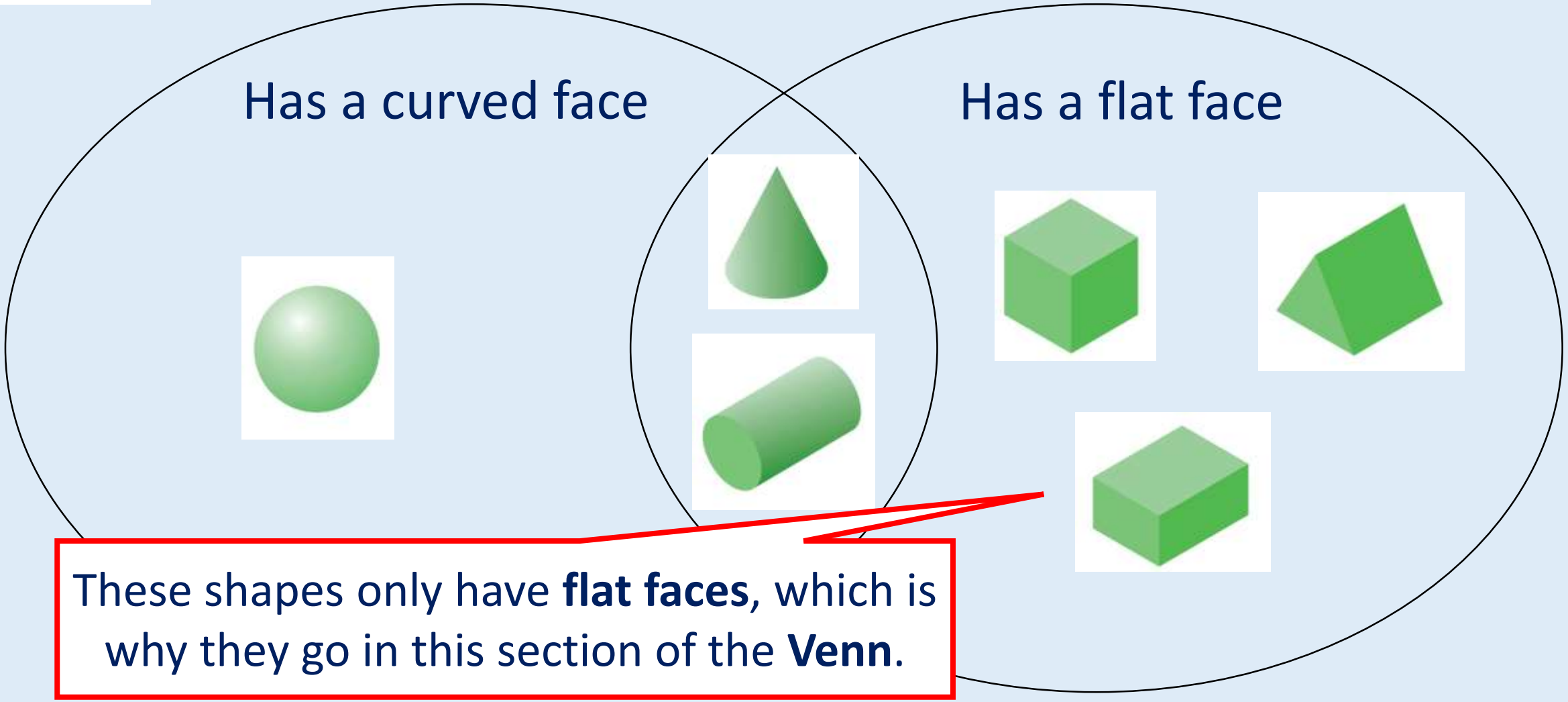
The **sphere** is the only shape with **curved faces** only which is why it goes in this section of the **Venn**.

Model



These two shapes have both a **curved face** and a **flat face**, which is why they go in this section of the **Venn**.

Model



These shapes only have **flat faces**, which is why they go in this section of the **Venn**.

Apply

Compare the following 3-D shapes.
What is similar?
What is different?
Think of properties to describe them.

Apply – Reasoning

Trey has sorted these 3-D shapes. His friend Kim says he has not sorted them correctly. Who is correct? Explain your reasoning.