Shape: Recognise and Describe 2D Shapes

Aim:	**Success Criteria:**	**Resources:**
Draw 2-D shapes and make 3-D shapes using modelling materials. Recognise 3-D shapes in different orientations and describe them. To name and describe properties of 2D shapes.	I can describe a 2D shape using the properties of number of vertices or sides. I can describe a shape as regular or irregular. I can recognise the quadrilaterals kite, parallelogram and trapezium. I can sort 2D shapes according to different properties, including lines of symmetry.	Lesson Pack Scissors Glue Dice
	Key/New Words: Polygon, vertex, vertices, regular, irregular, quadrilateral, symmetry.	**Preparation:** Differentiated Recognise and Describe 2D Shapes Activity Sheet – one per child. Diving into Mastery Activity Sheets - as required.

Prior Learning: It will be helpful if children know the names of the common 2D shapes and have had experience describing and sorting them.

Learning Sequence

	Remember It: Children individually sketch a 2D shape on whiteboards. Then, using the sorting headings shown on the Lesson Presentation, they move to the side of the classroom with the label that describes the number of sides their shape has. Quickly discuss the outcomes. Repeat on the next slide with two different headings describing whether their shape has a vertical line of symmetry.	
	Vertices: Use the corresponding slide on the Lesson Presentation to rehearse that the mathematical term for a corner is a vertex and that, if there is more than one corner, we use the word vertices.	
	Polygons: Use the corresponding slide on the Lesson Presentation to rehearse that a polygon is a 2D shape with straight sides. Discuss why the second set of shapes are not polygons, emphasising that a polygon must have straight sides that create a closed shape.	
	Regular and Irregular Polygons: Use the corresponding slides on the Lesson Presentation to rehearse that regular polygons have straight sides that are all equal in length and irregular polygons have straight sides of any length that are not equal. Practise identifying and describing the displayed shapes using the properties of equal or unequal length sides. Can the children describe a shape as regular or irregular?	
	Quadrilaterals: Use the corresponding slide on the Lesson Presentation to rehearse that quadrilaterals are shapes with four sides and four vertices and that the four sides are always straight. Practise identifying and describing kites, parallelograms and trapeziums. Can the children recognise the quadrilaterals kite, parallelogram and trapezium?	
	Guess My Shape: Using the first corresponding slide on the Lesson Presentation, one partner secretly draws a 2D shape on their whiteboard. They describe the properties of the shapes to their partner, who tries to identify the shape. Using the second corresponding slide on the Lesson Presentation, one partner secretly chooses one of the five boats shown. The other partner asks questions using shape vocabulary to identify which boat has been chosen. Can the children describe a 2D shape using the properties of number of vertices or sides?	
	Sorting 2D Shapes: Using the corresponding slides on the Lesson Presentation, the children sort a selection of 2D shapes into the correct place on the Venn diagram. Can the children sort 2D shapes according to different properties, including lines of symmetry?	
	2D Shape Activity: The children work independently to complete the Differentiated Recognise and Describe 2D Shapes Activity Sheet. Please note that the 3 star activity sheet does not have an answer sheet as it's an open-ended question. ★ Children cut out and sort the smaller selection of 2D shapes, labelling each shape. ★★ Children cut out and sort the 2D shapes, labelling each shape. ★★★ Children cut out and sort the 2D shapes onto their own sorting diagram, labelling each shape.	

	Diving into Mastery: Schools using a mastery approach may prefer to use the following as an alternative activity. These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding. Children complete fluency questions naming and identifying properties of a hexagon, right-angled triangle and octagon. Children answer reasoning questions involving drawing a shape with given properties and explaining their answer to a true or false statement. Children work individually or collaboratively on problem solving questions involving finding common properties between an octagon, scalene triangle and trapezium.	
Whole Class	**Robot Roll & Race:** Use individual whiteboards for this activity and the illustration shown on the Lesson Presentation. The children play as a team. They take turns rolling a dice. On each roll, everyone in the team draws the corresponding shape for the robot while saying the shape name. The first group to complete drawing the robot shouts out 'robot!' and wins.	

Exploreit

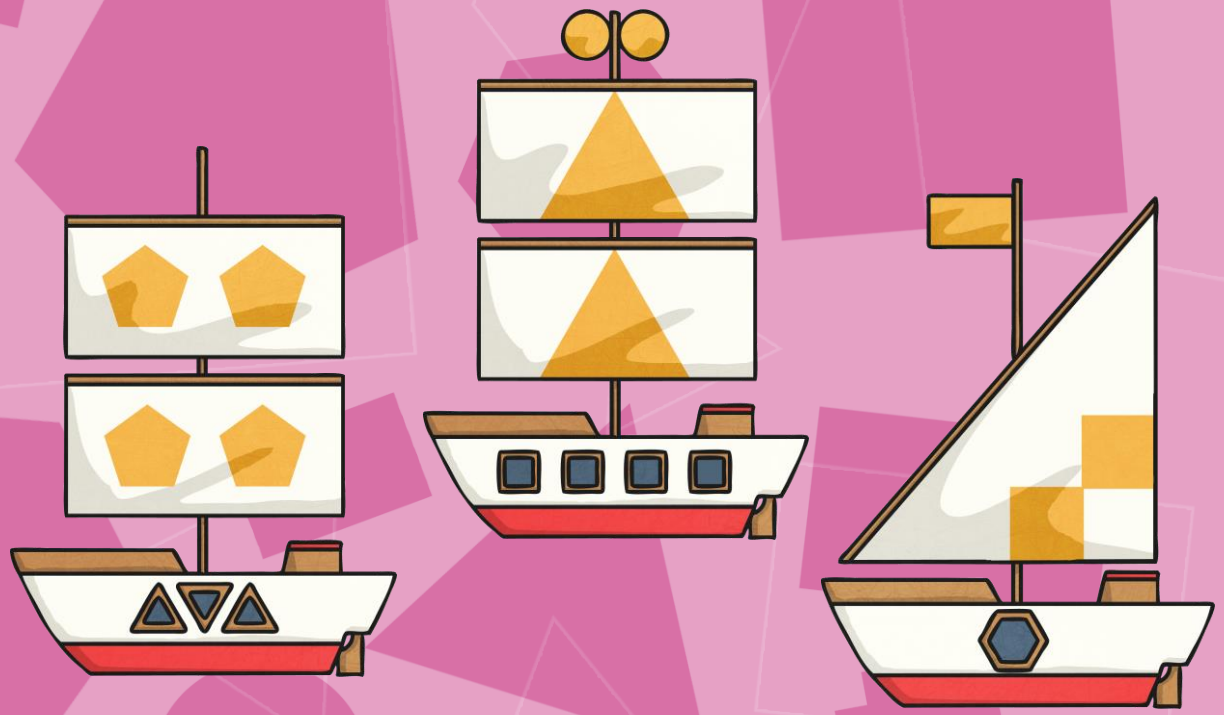
Learnit: Children will find this visually exciting Knowledge Organiser a useful tool to support their understanding of shapes.

Photographit: Use tablets or digital cameras to photograph examples of 2D shapes they can find in the classroom or playground and sort them using their own criteria.

Maths

Properties of Shapes

Recognise and Describe 2D Shapes



Aim

- To name and describe properties of 2D shapes.

Success Criteria

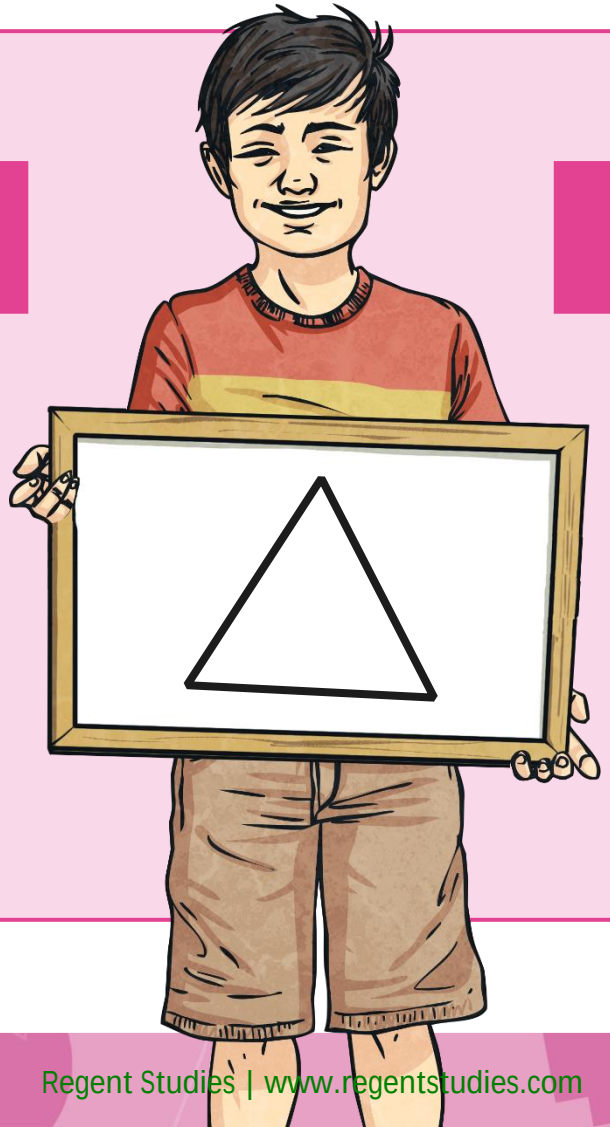
- I can use the number of vertices or sides to describe the properties of 2D shapes.
- I can describe a shape as regular or irregular.
- I can recognise the quadrilaterals kite, parallelogram and trapezium.
- I can sort 2D shapes according to different properties, including lines of symmetry.

Remember It

Sketch a 2D shape on your whiteboard.

Now, move to the side of the classroom that matches your shape!

My shape has 4 sides or less.



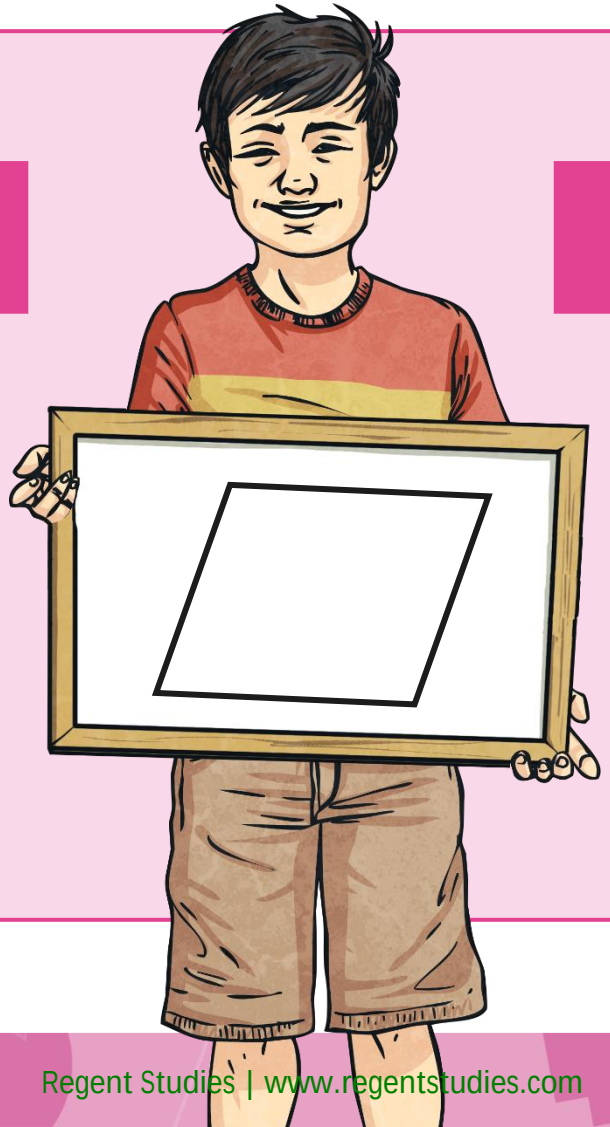
My shape has more than 4 sides.

Remember It

Sketch a different 2D shape on your whiteboard.

Now, move to the side of the classroom that matches your shape!

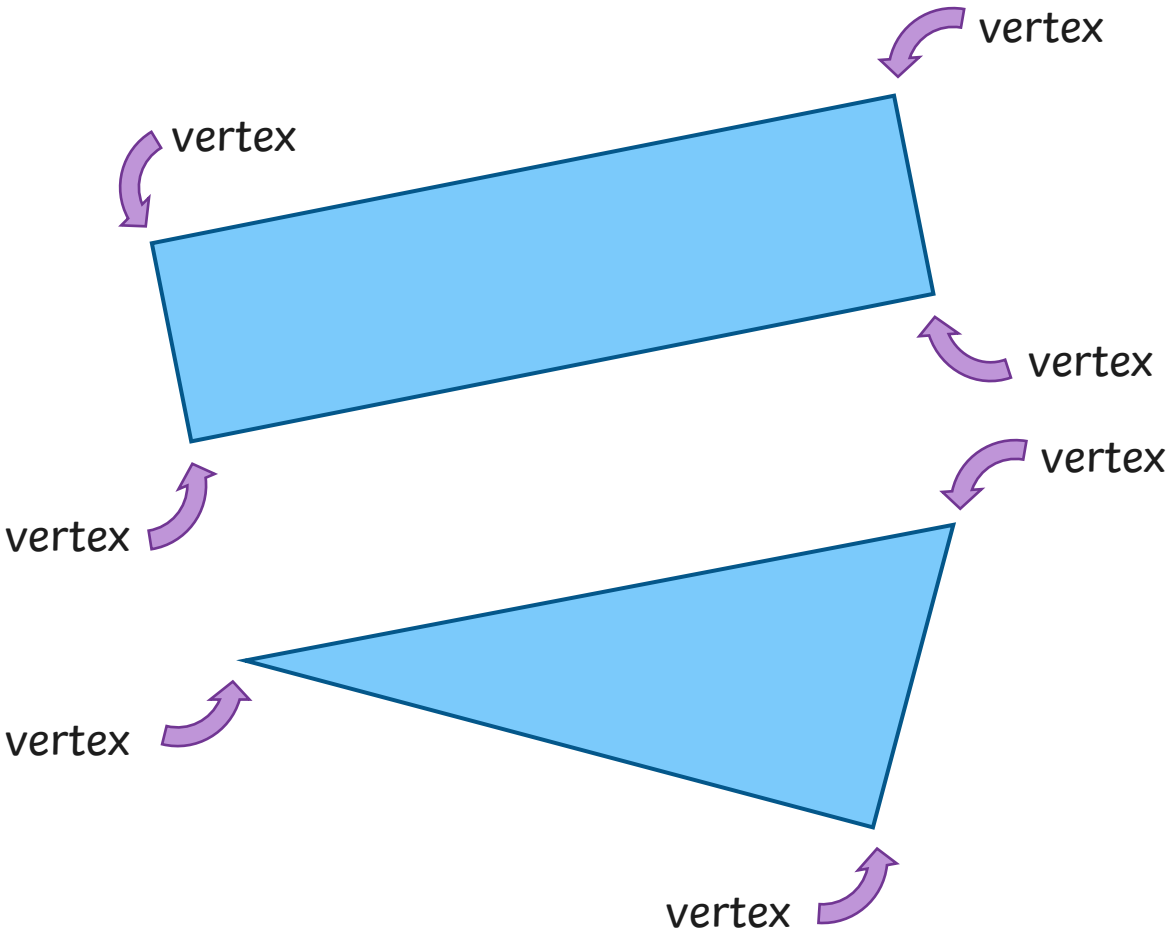
My shape has a vertical line of symmetry.



My shape does not have a vertical line of symmetry.

Vertices

In maths, we call a corner a **vertex**.
If there is more than one corner, we use the word **vertices**.

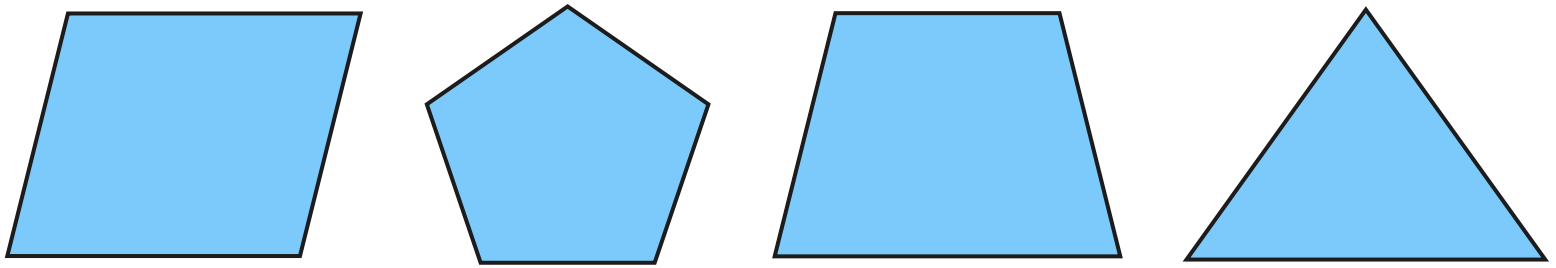


This rectangle has **4 vertices.**

This triangle has **3 vertices.**

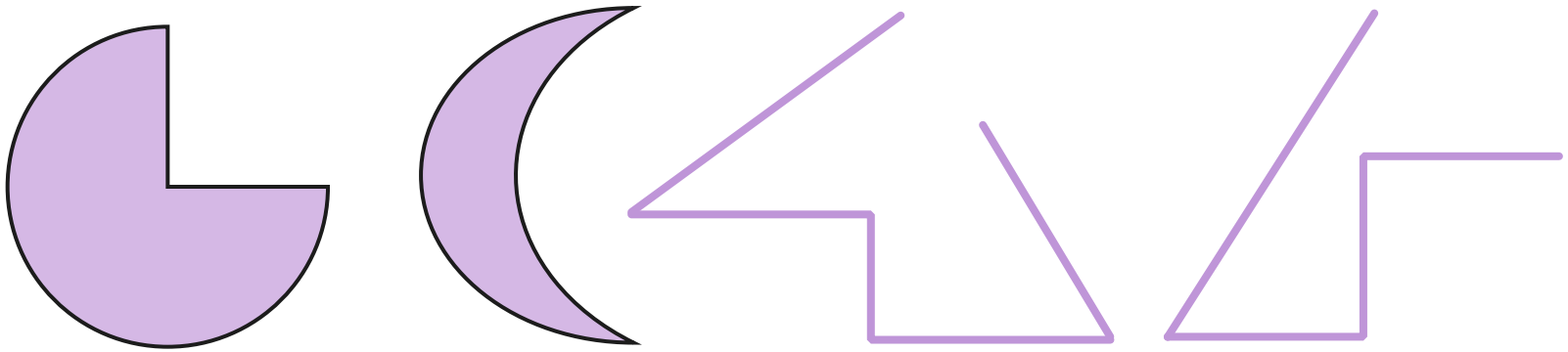
Polygons

A polygon is a 2D shape with straight lines.
These shapes are all polygons:



Polygons are closed shapes with straight sides.

Are these shapes polygons? Explain your ideas.

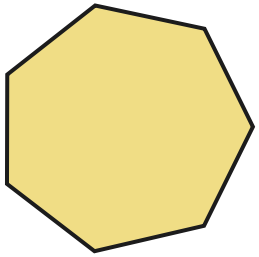


Regular and Irregular Polygons

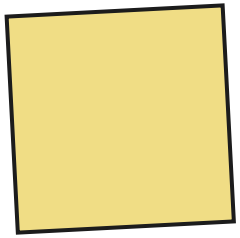
Regular polygons have straight sides that are all the same length.
We can describe them by counting the number of **sides** and **vertices**.

Here are some examples:

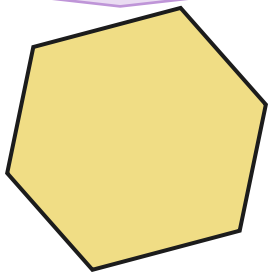
regular heptagon



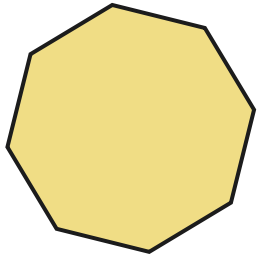
square



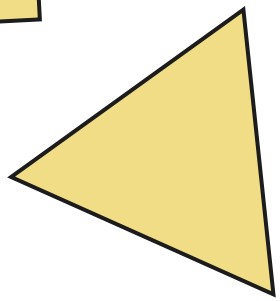
regular hexagon



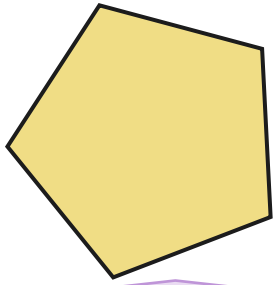
regular octagon



equilateral Triangle



regular pentagon



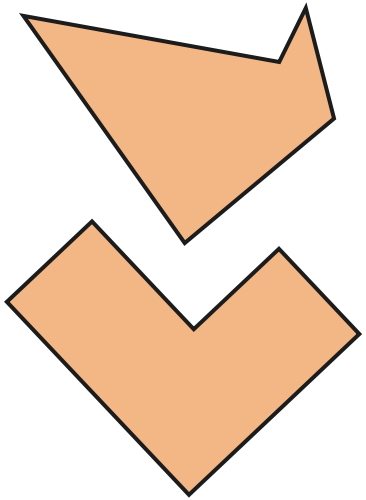
Can you name any of these shapes?

Regular and Irregular Polygons

Irregular polygons have straight sides that are not the same length.

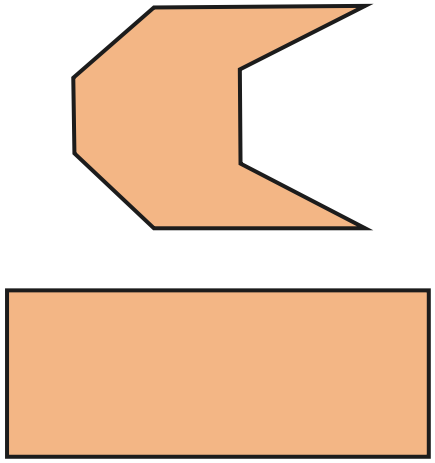
Here are some examples:

irregular pentagon



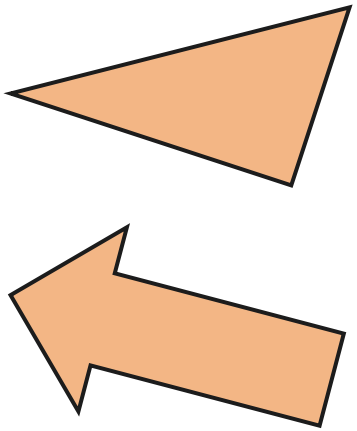
irregular hexagon

irregular octagon



rectangle

triangle



irregular heptagon

Can you name any of these shapes?

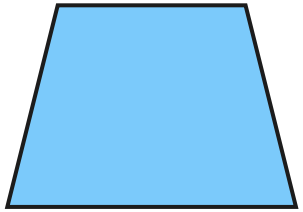
Quadrilaterals

Quadrilaterals are shapes with **4 sides** and **4 vertices**. The 4 sides are always straight. Do you know the names of any of these quadrilaterals?

kite

parallelogram

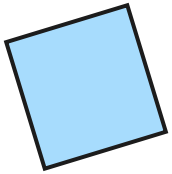
trapezium



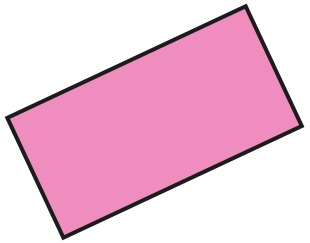
Can you describe the properties of these quadrilaterals to a friend?

What other quadrilaterals do you know?

square

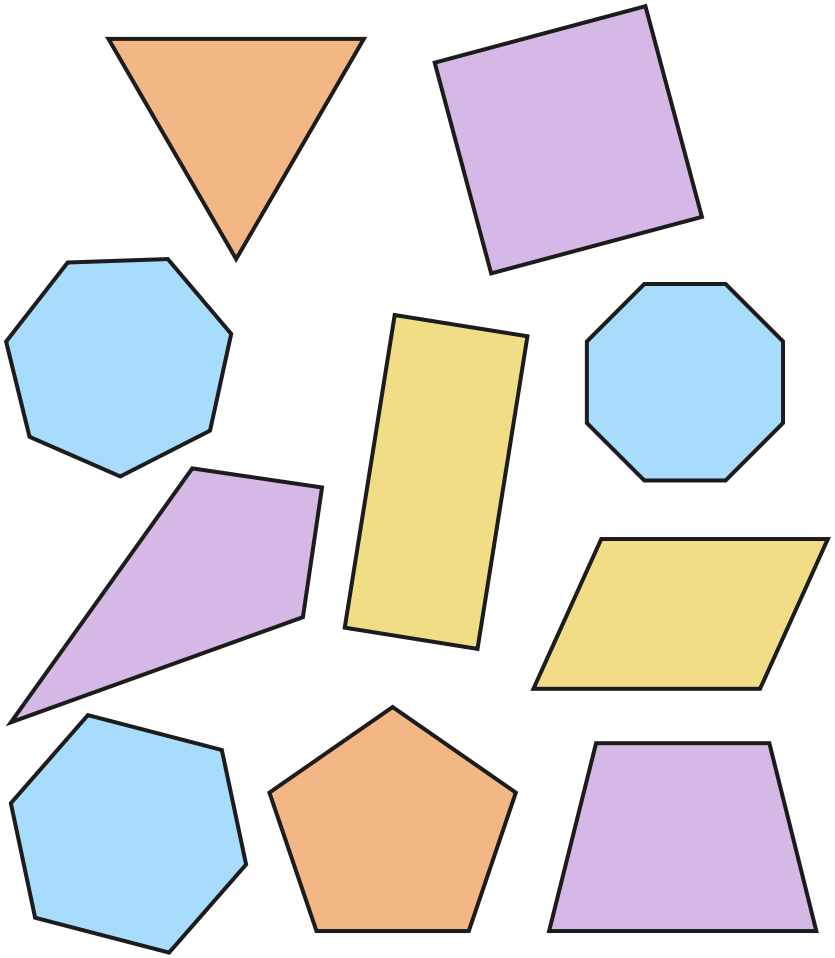


rectangle



Guess My Shape

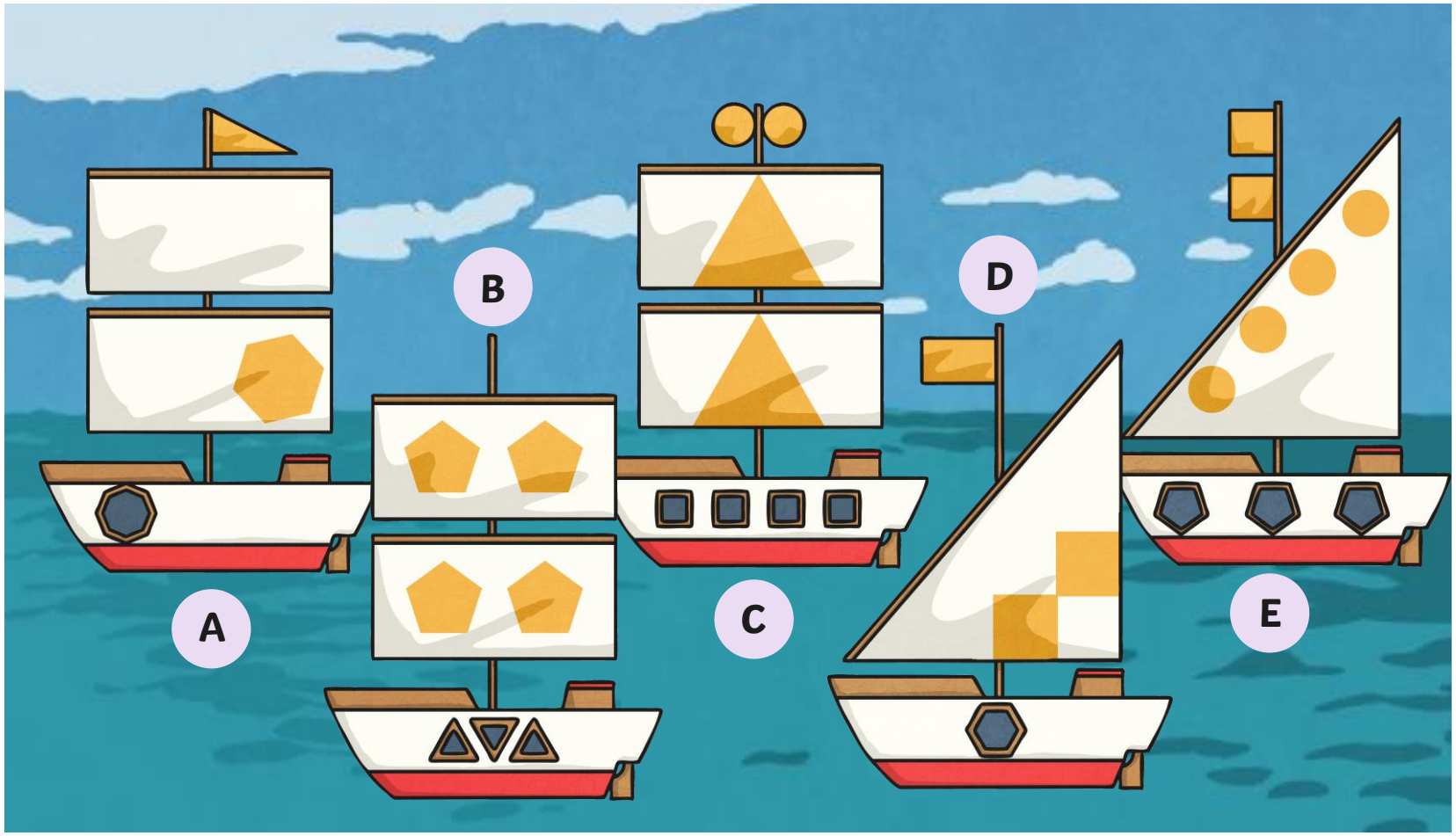
Choose a shape and describe it to your partner.
Can they guess which one you have described?



Words to use:

- vertices
- straight side
- polygon
- quadrilateral
- vertical line of symmetry
- horizontal line of symmetry

Guess My Shape



Partner A:
Secretly choose one of the boats.

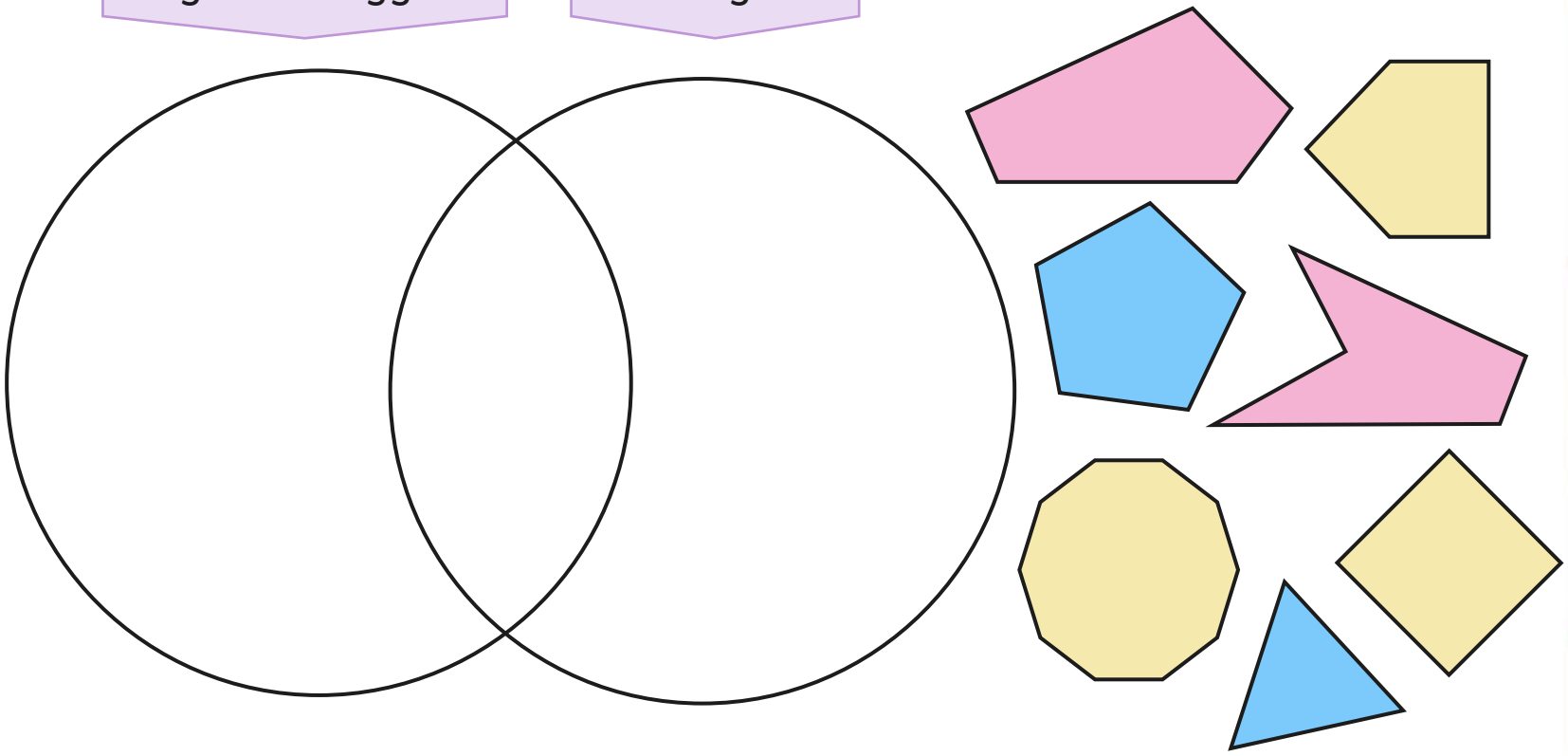
Partner B:
Ask questions using your shape vocabulary to work out which boat your partner is thinking of.

Sorting 2D Shapes

Can you sort these shapes into the two sets?

Regular Polygons

Pentagons



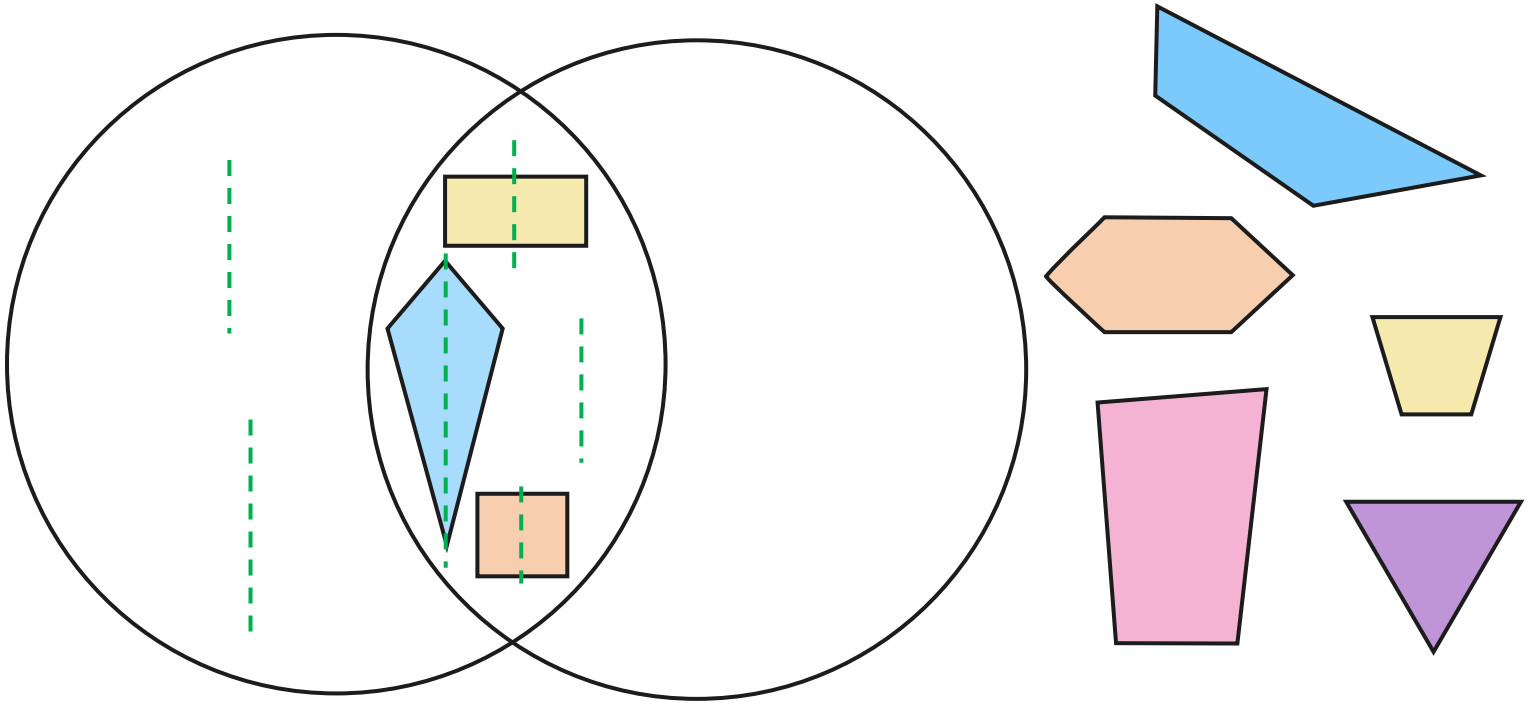
Can you explain why there can only be one shape in the middle section?

Sorting 2D Shapes

Can you sort these shapes into the two sets?

Vertical Line of Symmetry

4 Vertices



Can you think of any more shapes that could go in the middle?

2D Shapes Activity

Recognise and Describe 2D Shapes

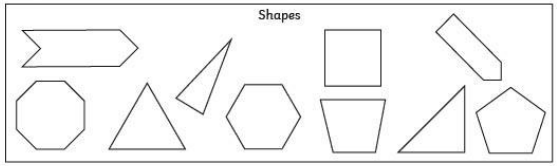
To name and describe properties of 2D shapes.

Cut out and sort the 2D shapes into the correct boxes.
In the bottom two boxes, write the name next to each shape.

Octagon Hexagon Triangle Square Trapezium

	Regular	Irregular
Pentagon		
Not a Pentagon		

Shapes



se and Describe 2D Shapes

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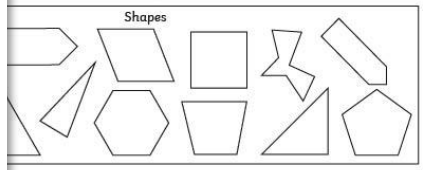
triangle equilateral triangle square parallelogram trapezium

	Regular	Irregular

Shapes

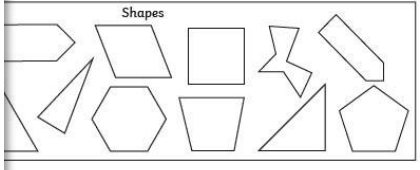


se and Describe 2D Shapes

roperties of 2D shapes.

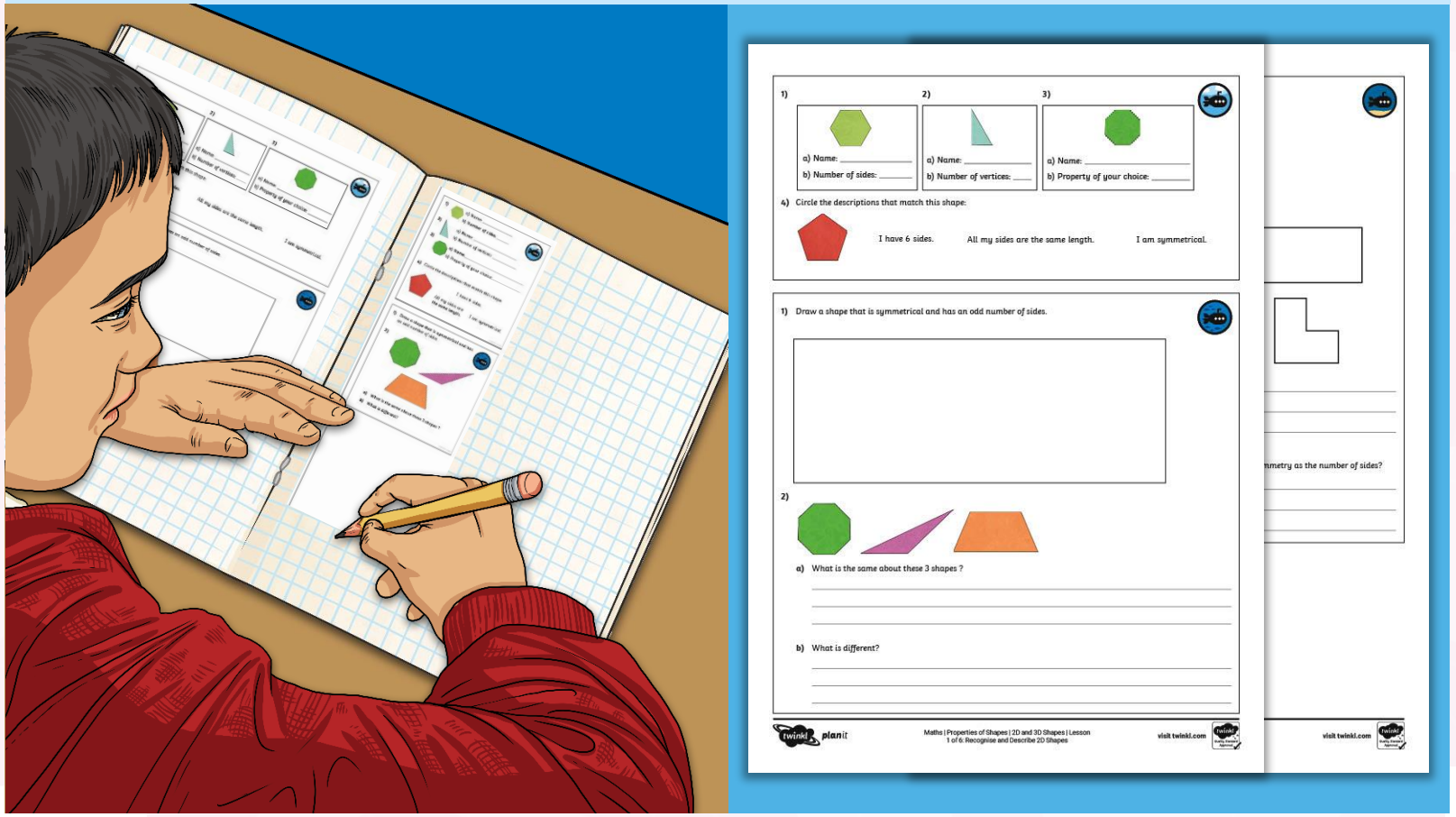
lings for the sorting diagram.
our diagram and label them.

Shapes



Diving into Mastery

Dive in by completing your own activity!



Robot Roll and Race

How to Play

Take it in turns to roll the dice. Everyone in your group draws the numbered part of the robot. The winning group is the first to finish and shout 'robot'!

Key

1 = circle eyes and mouth

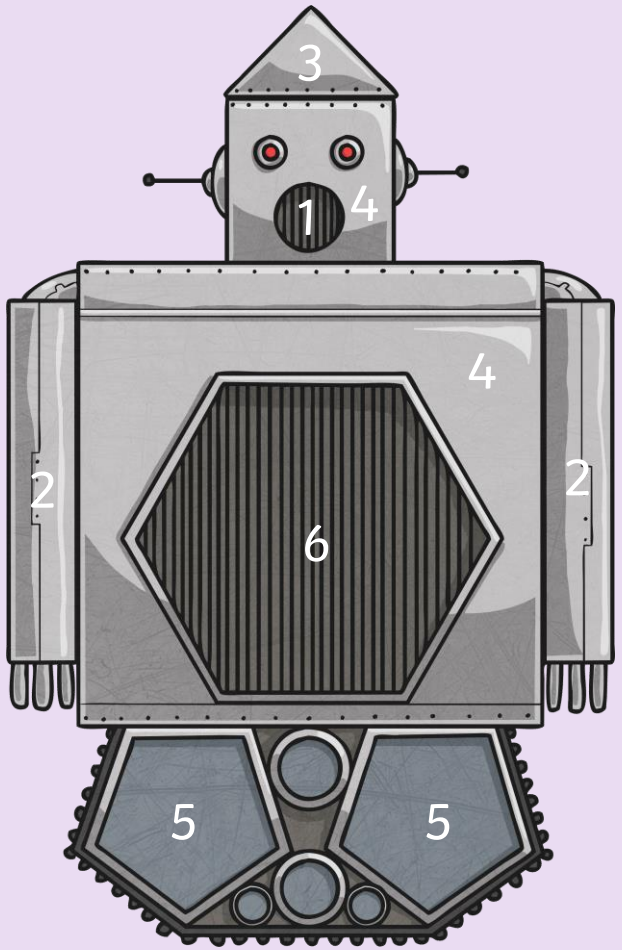
2 = rectangle arms

3 = triangle hat

4 = square head and body

5 = pentagon legs

6 = hexagon tummy



Aim

- To name and describe properties of 2D shapes.

Success Criteria

- I can use the number of vertices or sides to describe the properties of 2D shapes.
- I can describe a shape as regular or irregular.
- I can recognise the quadrilaterals kite, parallelogram and trapezium.
- I can sort 2D shapes according to different properties, including lines of symmetry.

Recognise and Describe 2D Shapes

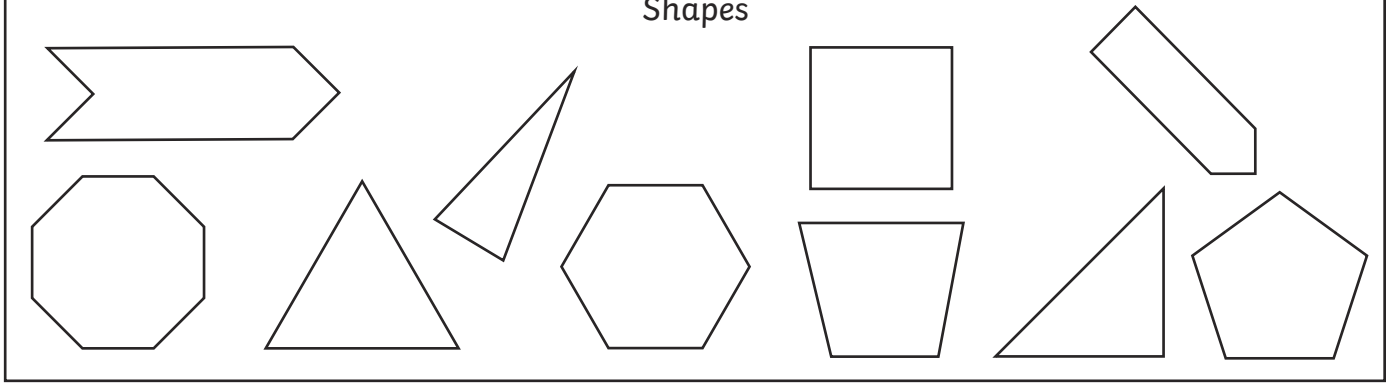
To name and describe properties of 2D shapes.

Cut out and sort the 2D shapes into the correct boxes.
In the bottom two boxes, write the name next to each shape.

octagon	hexagon	triangle	square	trapezium

	Regular	Irregular
Pentagon		
Not a Pentagon		

Shapes



Recognise and Describe 2D Shapes

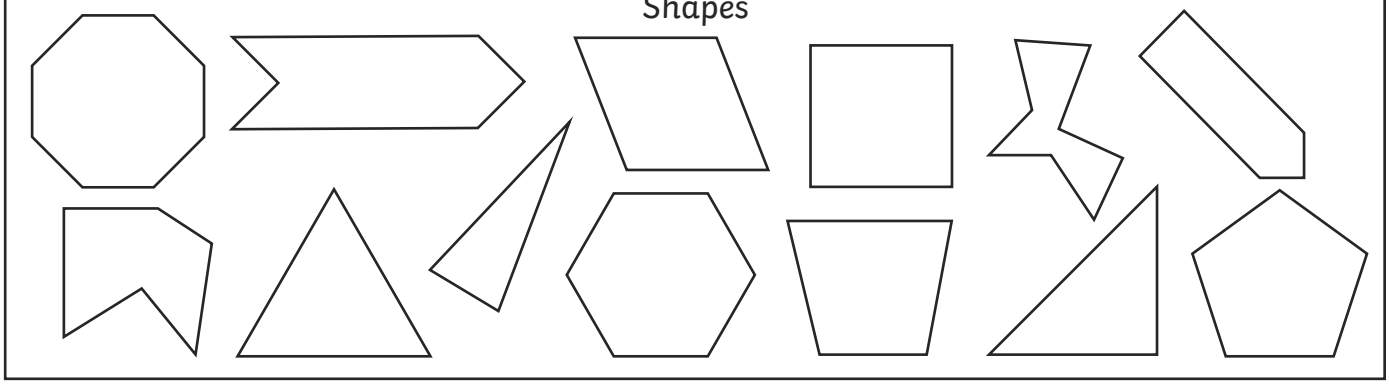
To name and describe properties of 2D shapes.

Cut out and sort the 2D shapes into the correct boxes.
In the bottom two boxes, write the name next to each shape.

octagon	hexagon	triangle	equilateral triangle	square	parallelogram	trapezium

	Regular	Irregular
Pentagon		
Not a Pentagon		

Shapes

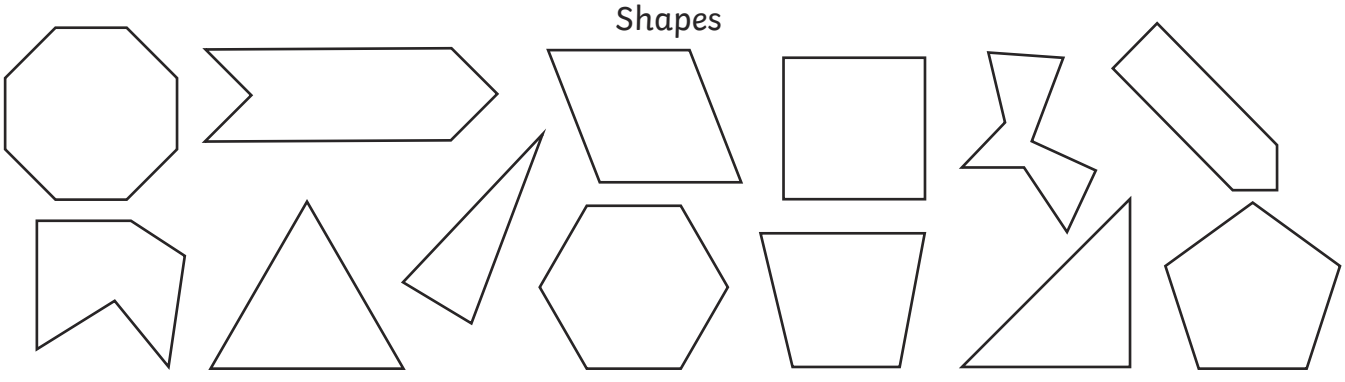


Recognise and Describe 2D Shapes

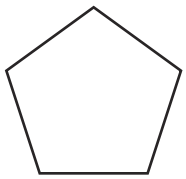
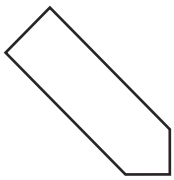
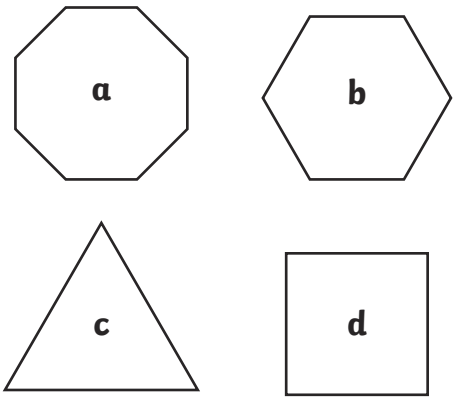
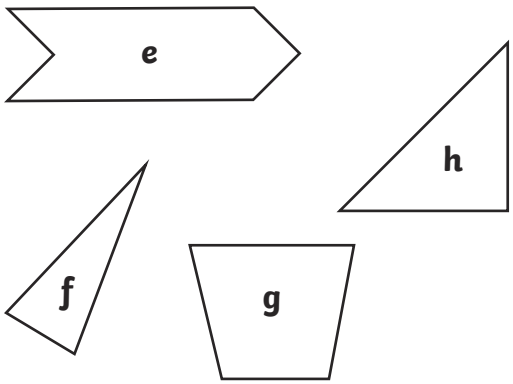
To name and describe properties of 2D shapes.

Cut out the 2D shapes.
Choose your own headings for the sorting diagram.
Sort the shapes onto your diagram and label them.

Shapes



Recognise and Describe 2D Shapes **Answers**

	Regular	Irregular
Pentagon		
Not a Pentagon		

a) Octagon

b) Hexagon

c) (Equilateral) Triangle

d) Square

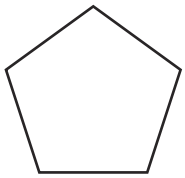
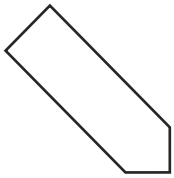
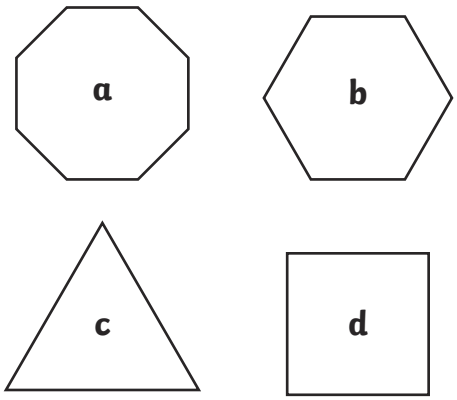
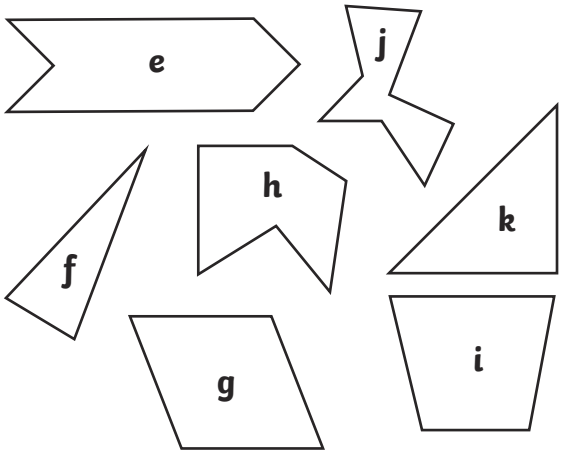
e) Hexagon

f) Triangle

g) Trapezium

h) Triangle

Recognise and Describe 2D Shapes **Answers**

	Regular	Irregular
Pentagon		
Not a Pentagon		

a) Octagon

b) Hexagon

c) Equilateral Triangle

d) Square

e) Hexagon

f) Triangle

g) Parallelogram

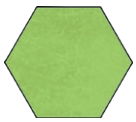
h) Hexagon

i) Trapezium

j) Octagon

k) Triangle

1)



Name: **(regular) hexagon**

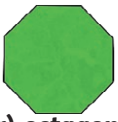
Number of sides: **6**

2)

Name: **right-angled triangle**

Number of vertices: **3**

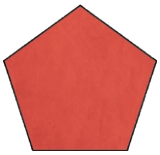
3)



Name: **(regular) octagon**

Property of your choice: **Accept any correct property, such as: 8 sides; 8 vertices; all sides the same length**

4)



a) It has 6 sides.

b) All the sides are the same length.

c) It is symmetrical.

1) Accept any symmetrical shape with an odd number of sides, for example a triangle or pentagon.

2)

a) Answers may include: they have one or more lines of symmetry, they have straight sides.

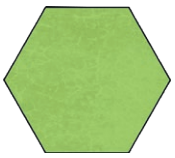
b) Answers may include: they have different numbers of sides/vertices/lines of symmetry, some are symmetrical and some are not.

1)

a) Leo is wrong. Not all the shapes have the same number of lines of symmetry as the number of sides.

b) If the shape is regular then it will have the same number of lines of symmetry as the number of sides. If a shape is irregular then it will have fewer (or no) lines of symmetry.

1)



a) Name: _____

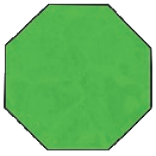
b) Number of sides: _____

2)

a) Name: _____

b) Number of sides: _____

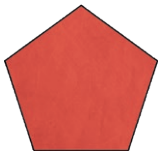
3)



a) Name: _____

b) Describe a property of this shape: _____

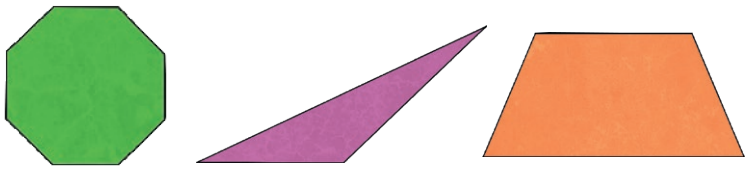
4) Circle the descriptions that match this shape:



I have 6 sides. All my sides are the same length. I am symmetrical.

1) Draw a shape that is symmetrical and has an odd number of sides.

2)



a) What is the same about these 3 shapes ?

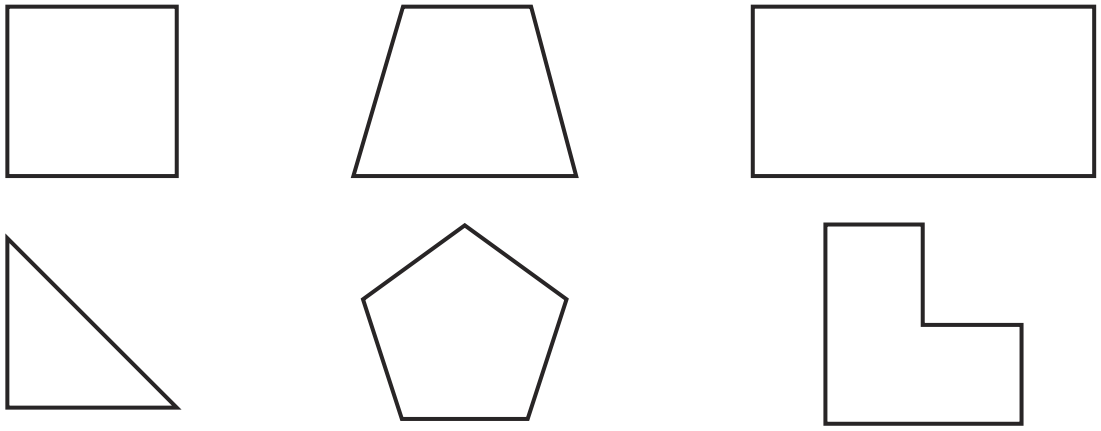
b) What is different?

1)

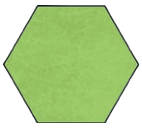
A shape always has the same number of lines of symmetry as the number of sides.

Leo

a) Is Leo right or wrong? Use these shapes to help you find out.



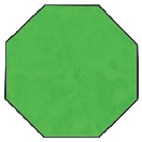
b) Can you think of a rule for when a shape has the same number of lines of symmetry as the number of sides?

1) 

a) Name:
b) Number of sides:

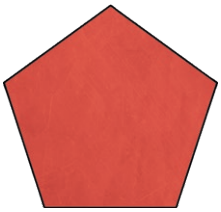
2)

a) Name:
b) Number of vertices:

3) 

a) Name:
b) Describe a property of this shape:

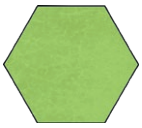
4) Write the letters of the descriptions that match this shape.



a) It has 6 sides.

b) All the sides are the same length.

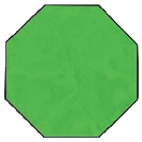
c) It is symmetrical.

1) 

a) Name:
b) Number of sides:

2)

a) Name:
b) Number of vertices:

3) 

a) Name:
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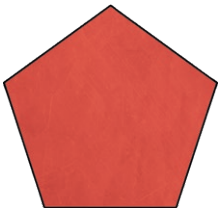
4) Write the letters of the descriptions that match this shape.



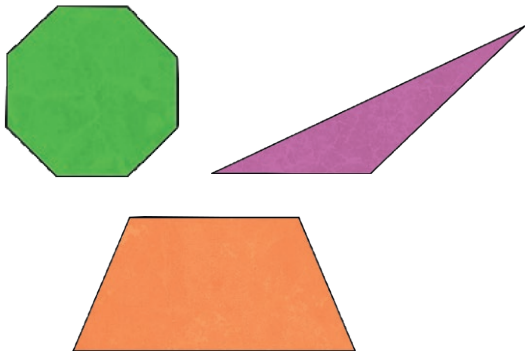
a) It has 6 sides.

b) All the sides are the same length.

c) It is symmetrical.

1) Draw a shape that is symmetrical and has an odd number of sides.

2)

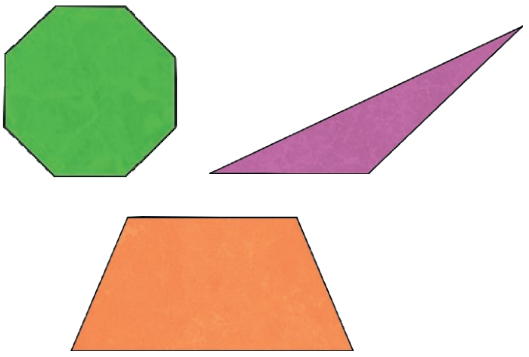


a) What is the same about these 3 shapes ?

b) What is different?

1) Draw a shape that is symmetrical and has an odd number of sides.

2)



a) What is the same about these 3 shapes ?

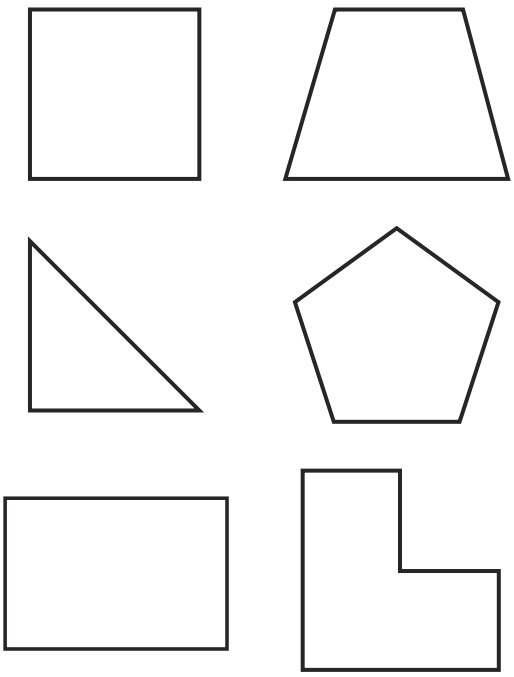
b) What is different?

1)

Leo

A shape always has the same number of lines of symmetry as the number of sides.

a) Is Leo right or wrong? Use these shapes to help you find out.



b) Can you think of a rule for when a shape has the same number of lines of symmetry as the number of sides?

1)

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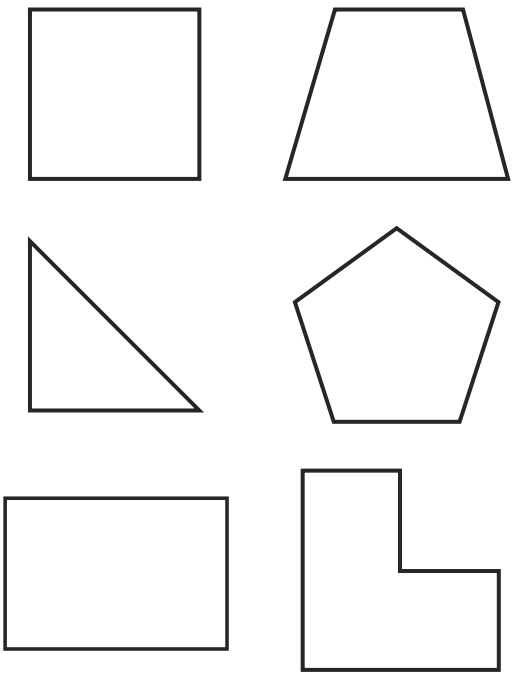

b) Can you think of a rule for when a shape has the same number of lines of symmetry as the

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Shape | Recognise and Describe 2D Shapes

To name and describe properties of 2D shapes.		
I can describe a 2D shape using the properties of number of vertices or sides.		
I can describe a shape as regular or irregular.		
I can recognise the quadrilaterals kite, parallelogram and trapezium.		
I can sort 2D shapes according to different properties, including lines of symmetry.		

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