

Acute and obtuse angles

Identify acute and obtuse angles



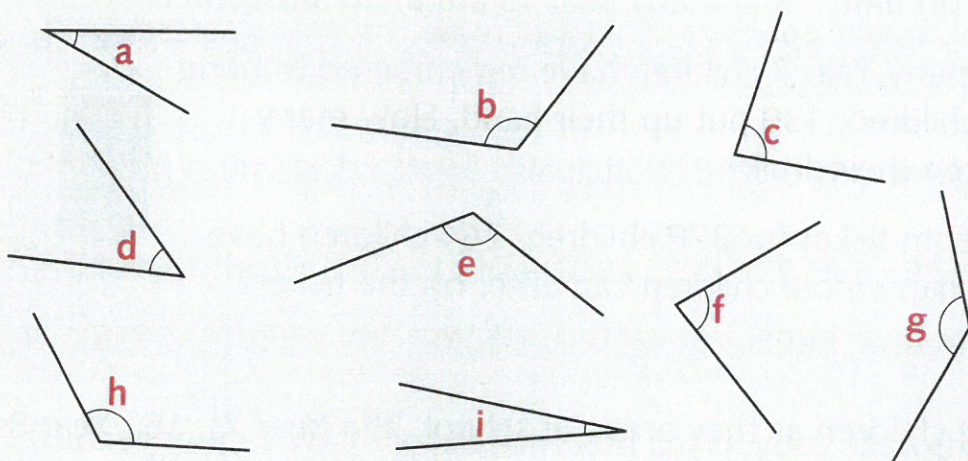
You will need:

- right-angle tester

Hint

An acute angle is less than a right angle.
An obtuse angle is greater than a right angle.

- 1 Use your right-angle tester to find the acute and obtuse angles.



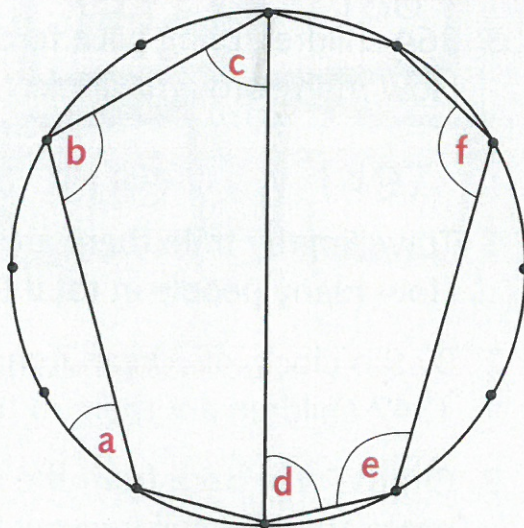
- 2 Copy and complete the table.

Acute angle	Obtuse angle
a,	

- 1 List the acute and obtuse angles in the circle.

- 2 a Using Resource 32: 12-dot circles, investigate drawing a continuous line in a 12-dot circle which makes at least two acute and two obtuse angles.

- b Colour the acute angles red and the obtuse angles blue.



You will need:

- Resource 32: 12-dot circles
- red and blue pencils

Acute and obtuse angles in 2-D shapes

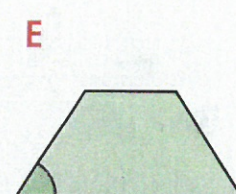
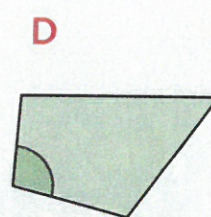
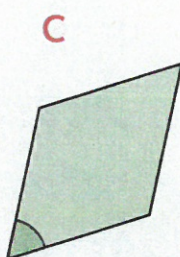
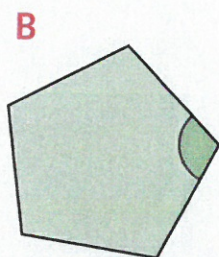
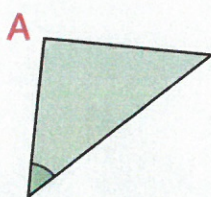
Identify acute and obtuse angles in 2-D shapes



challenge

1

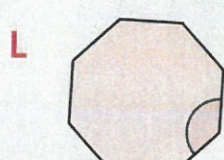
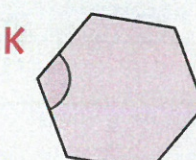
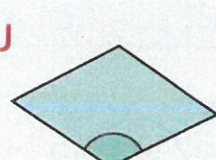
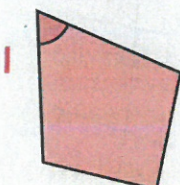
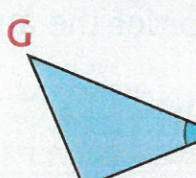
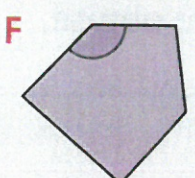
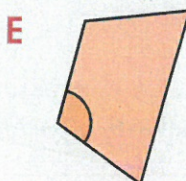
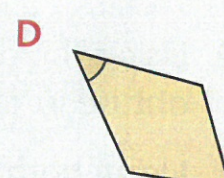
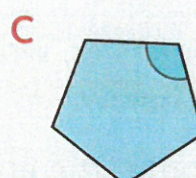
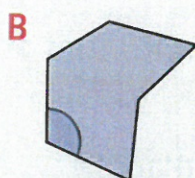
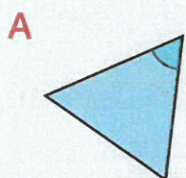
Name the marked angle in each shape as acute or obtuse.



challenge

2

Name the marked angle in each shape as acute or obtuse.



challenge

3

Write the letters of the shapes in Challenge 2 that have:

- a at least two acute angles b at least two obtuse angles
- c two pairs of acute angles and two pairs of obtuse angles



Ordering angles by size

Compare and order angles up to two right angles by size



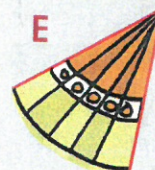
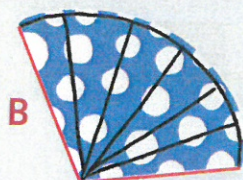
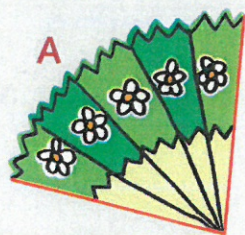
You will need:

- right-angle tester

Use your right-angle tester. Write which fans show:

a an acute angle

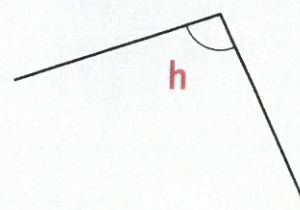
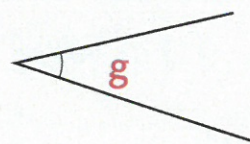
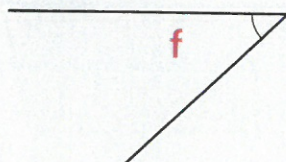
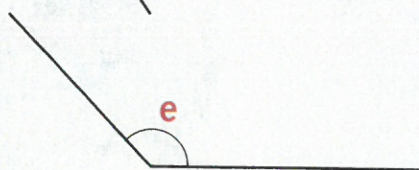
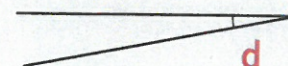
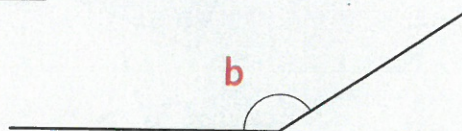
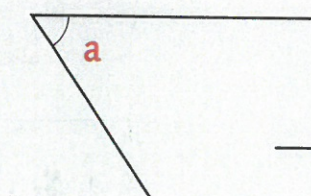
b an obtuse angle



- 1 Using the right-angle tester, write all the angles that are acute in the angles below.
- 2 Using the right-angle tester, write all the angles that are obtuse in the angles below.
- 3 Using both testers, order the angles that are acute.
- 4 Using both testers, order the angles that are obtuse.

You will need:

- right-angle tester
- half right-angle tester



Write the letter of the angle in Challenge 2 which is:

a about half a right angle

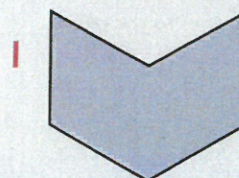
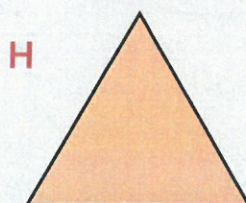
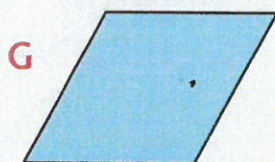
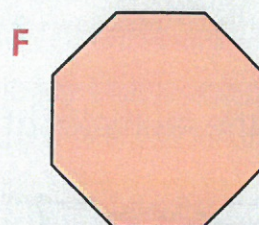
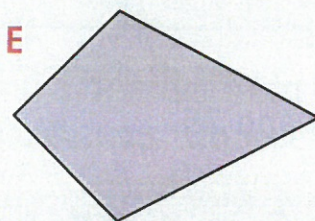
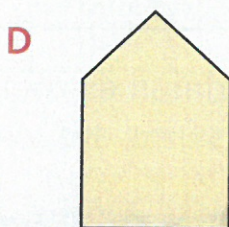
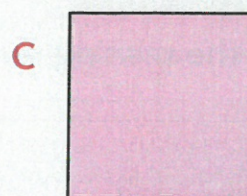
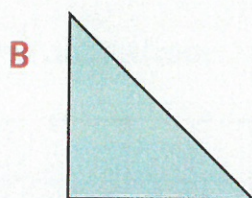
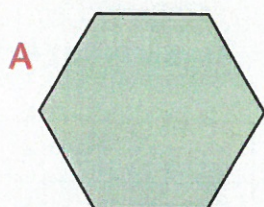
b about half a right angle plus a right angle

c the smallest obtuse angle

d the greatest acute angle

Regular polygons

Decide if a polygon is regular or irregular by comparing lengths and angles



Challenges
1,2

1 Use your ruler to measure the sides of each 2-D shape. Write the letters of the shapes which have:

a all sides equal **b** all angles equal

You will need:
• ruler

2 Copy and complete the table for shapes A to I.

Regular	Irregular
A,	

Challenge
3

Look for lines of symmetry in shapes A to I and complete the table.

Property	Regular	Irregular
One line of symmetry	A,	
More than one line of symmetry		

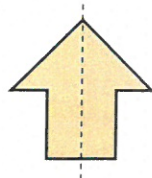


TARGET To identify lines of symmetry in 2-D shapes.

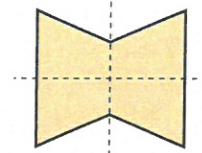
A shape is symmetrical if half of its shape matches the other half exactly. The line separating the two halves is the line of symmetry or mirror line.

Examples

One line of symmetry



Two lines of symmetry



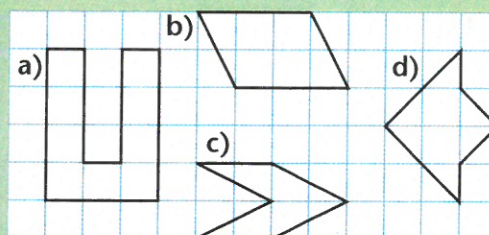
A

1 Which of these letters are not symmetrical?

R C T H P W
B Z M E F Y

2 Copy the symmetrical letters and draw on the line of symmetry.

3 Which of these shapes is not symmetrical?



4 Copy the symmetrical shapes and draw on the line of symmetry.

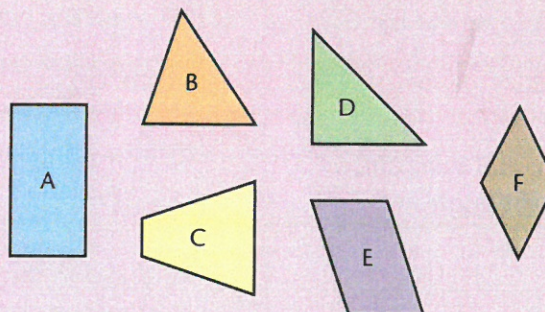
B

1 Which of these shapes have:

- a) one line of symmetry
- b) no line of symmetry?

2 Which of these shapes has:

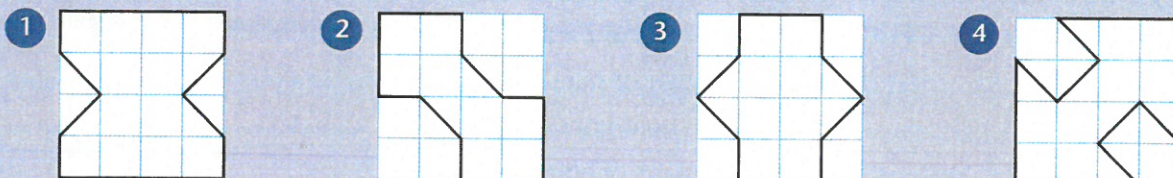
- a) two lines of symmetry
- b) four lines of symmetry?



3 Use squared paper. Copy the symmetrical shapes. Draw on the line(s) of symmetry.

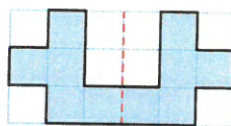
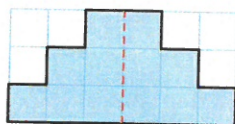
C

Use squared paper. Copy the shapes. Draw both lines of symmetry.



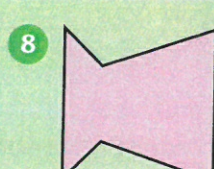
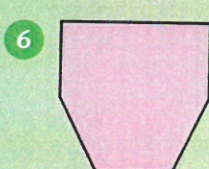
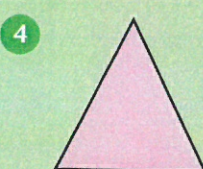
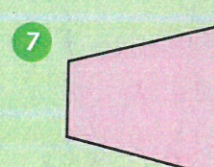
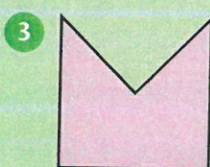
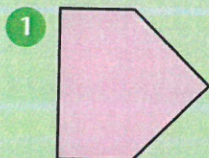
TARGET To complete a symmetric figure with respect to a line of symmetry.

Examples



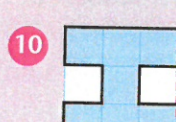
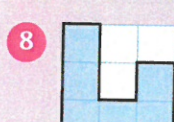
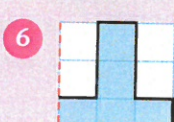
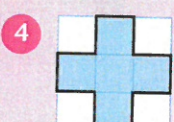
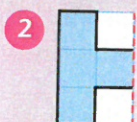
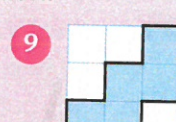
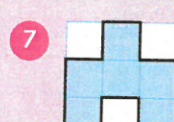
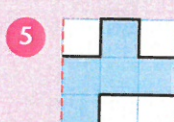
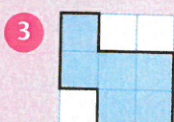
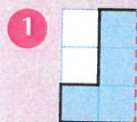
A

Copy the shapes. Draw on one line of symmetry.



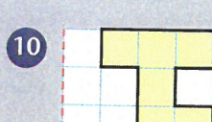
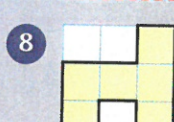
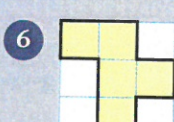
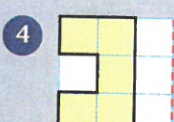
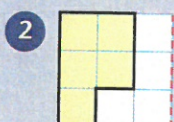
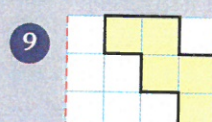
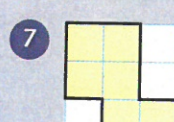
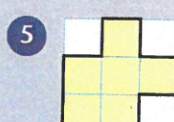
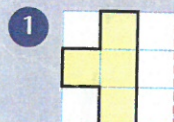
B

Used squared paper. Copy the shape and the mirror line and draw the reflection.



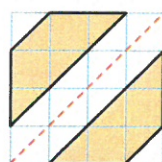
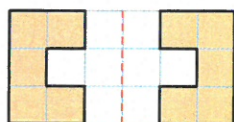
C

Used squared paper. Copy the shape and the mirror line and draw the reflection.



TARGET To complete symmetric patterns involving different orientations of lines of symmetry.

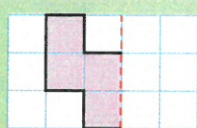
Examples



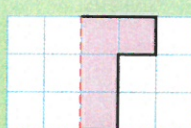
Used squared paper. Copy the shape and the mirror line. Sketch the reflection.

A

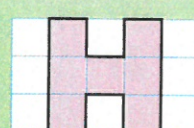
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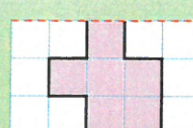
3



5



7



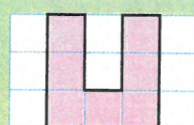
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4



6



8

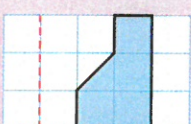


B

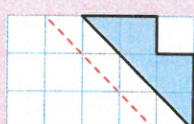
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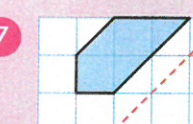
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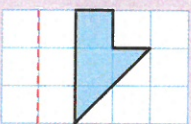
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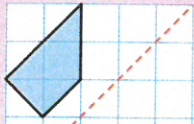
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4



6

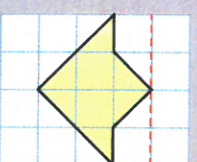


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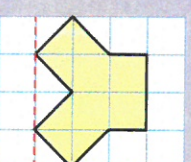


C

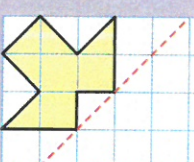
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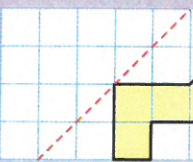
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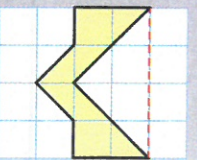
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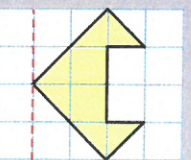
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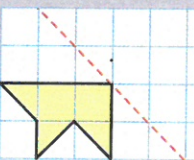
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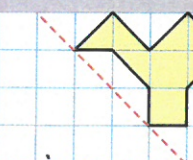
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6

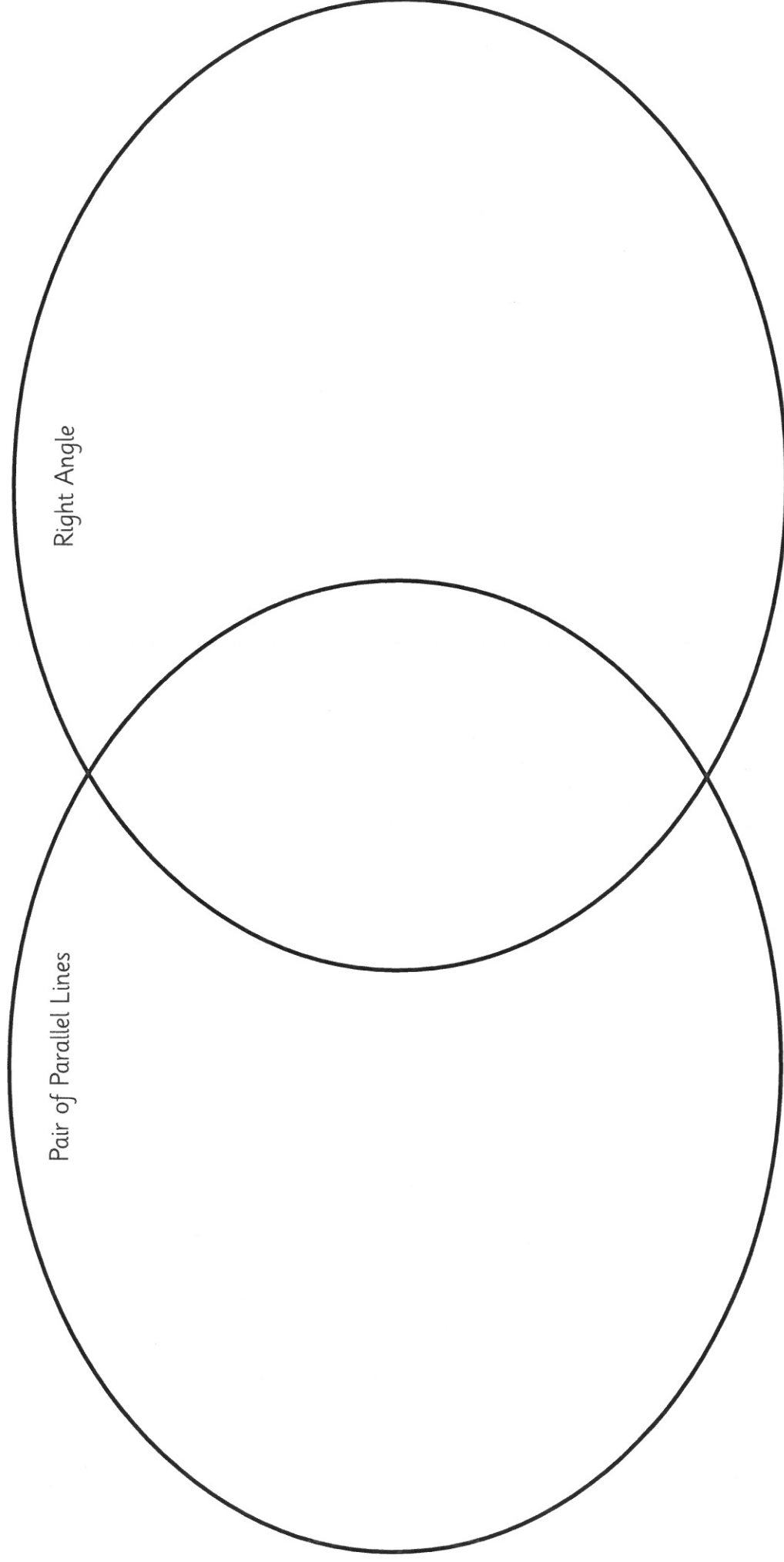


8



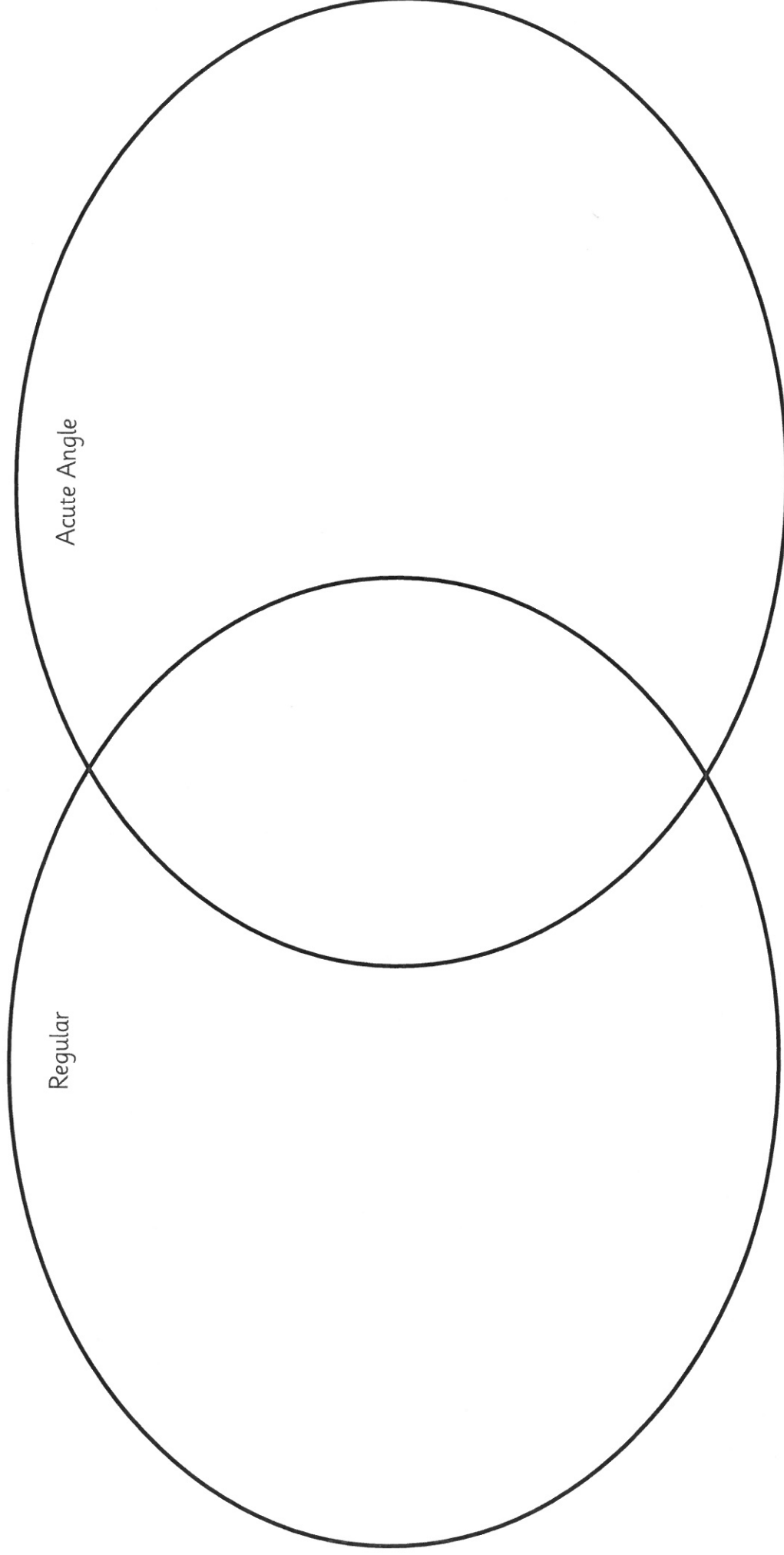
Shape Sort

Sort the shapes into the correct place on the Venn diagram.



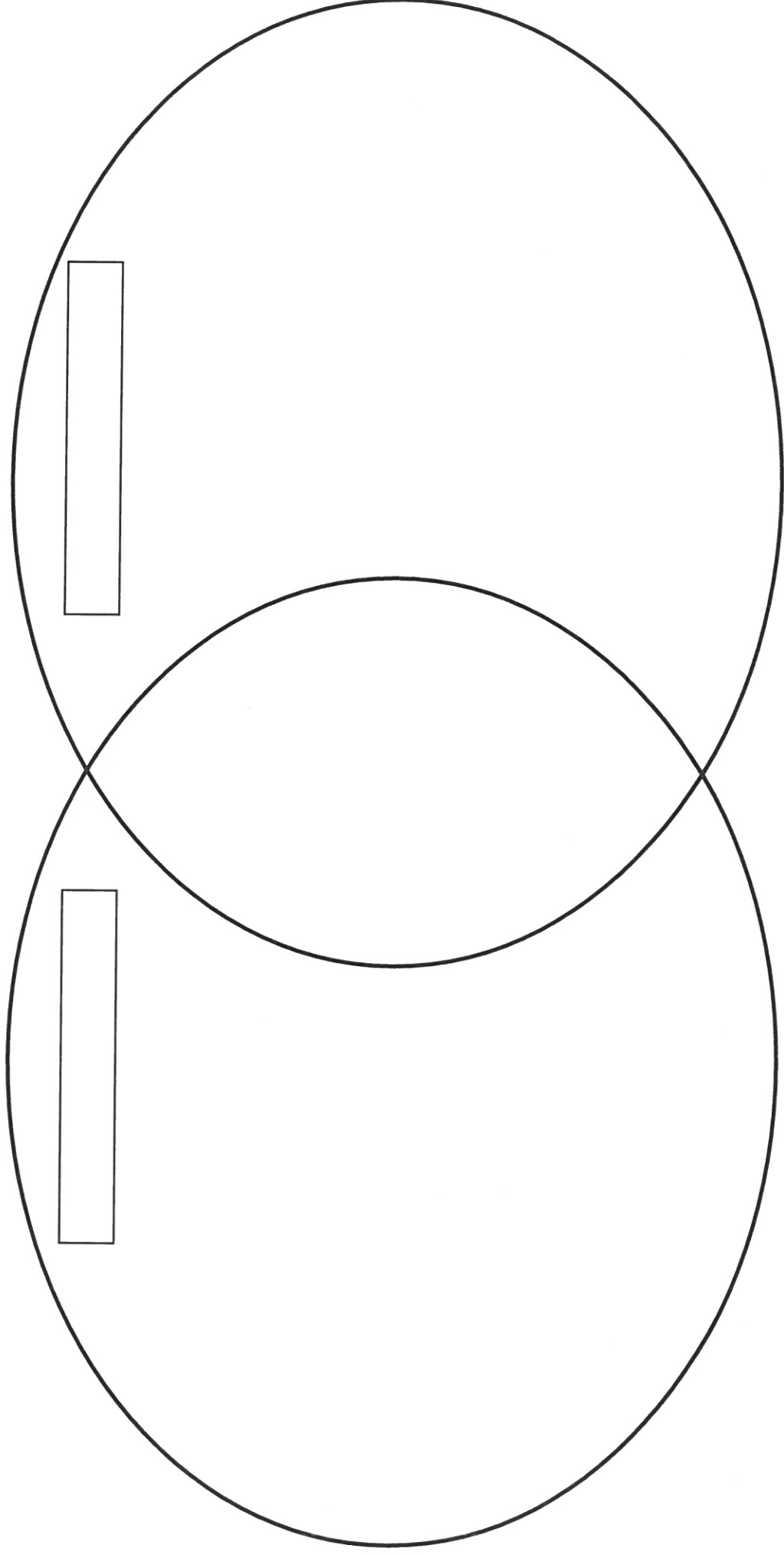
Shape Sort

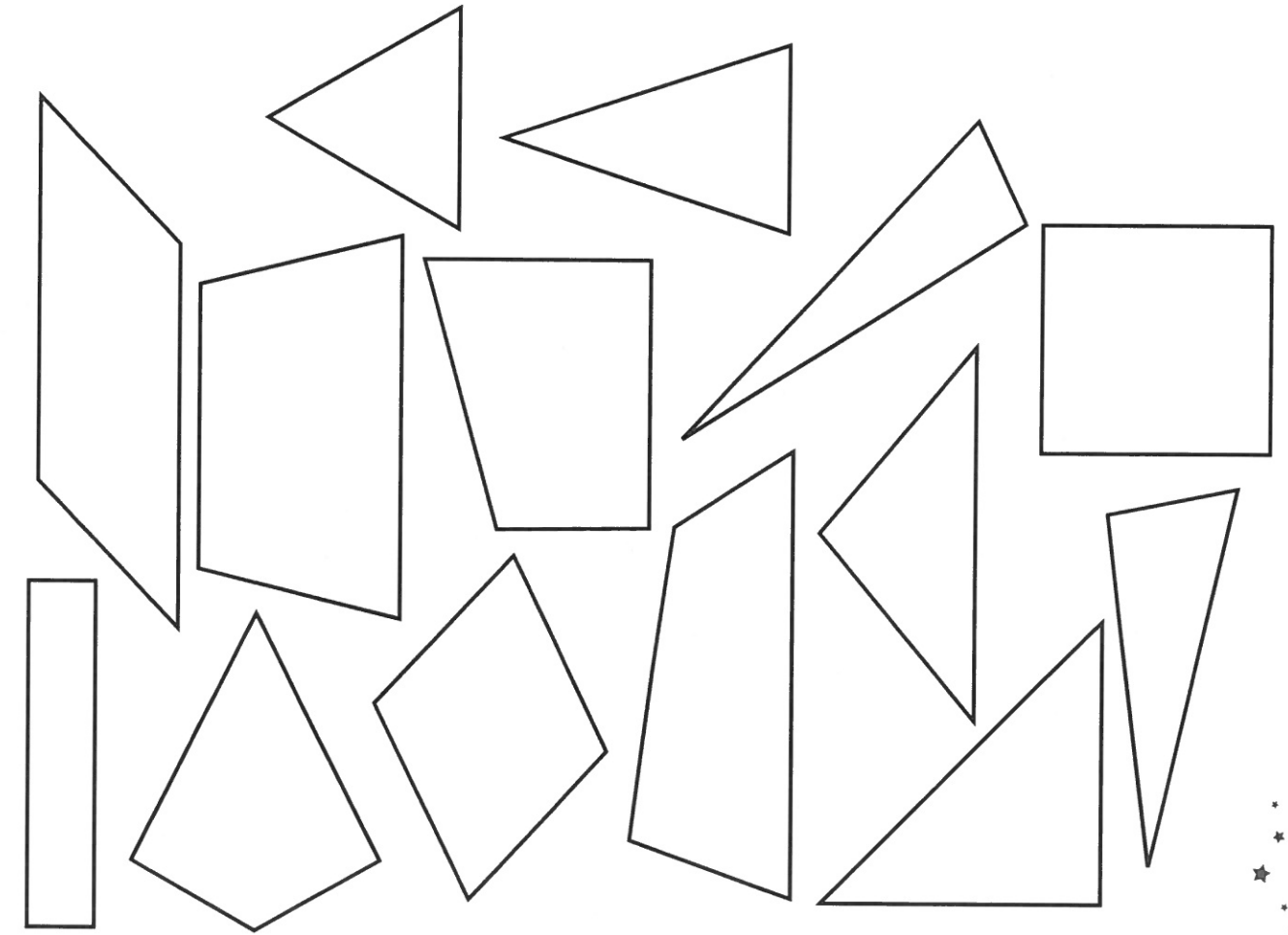
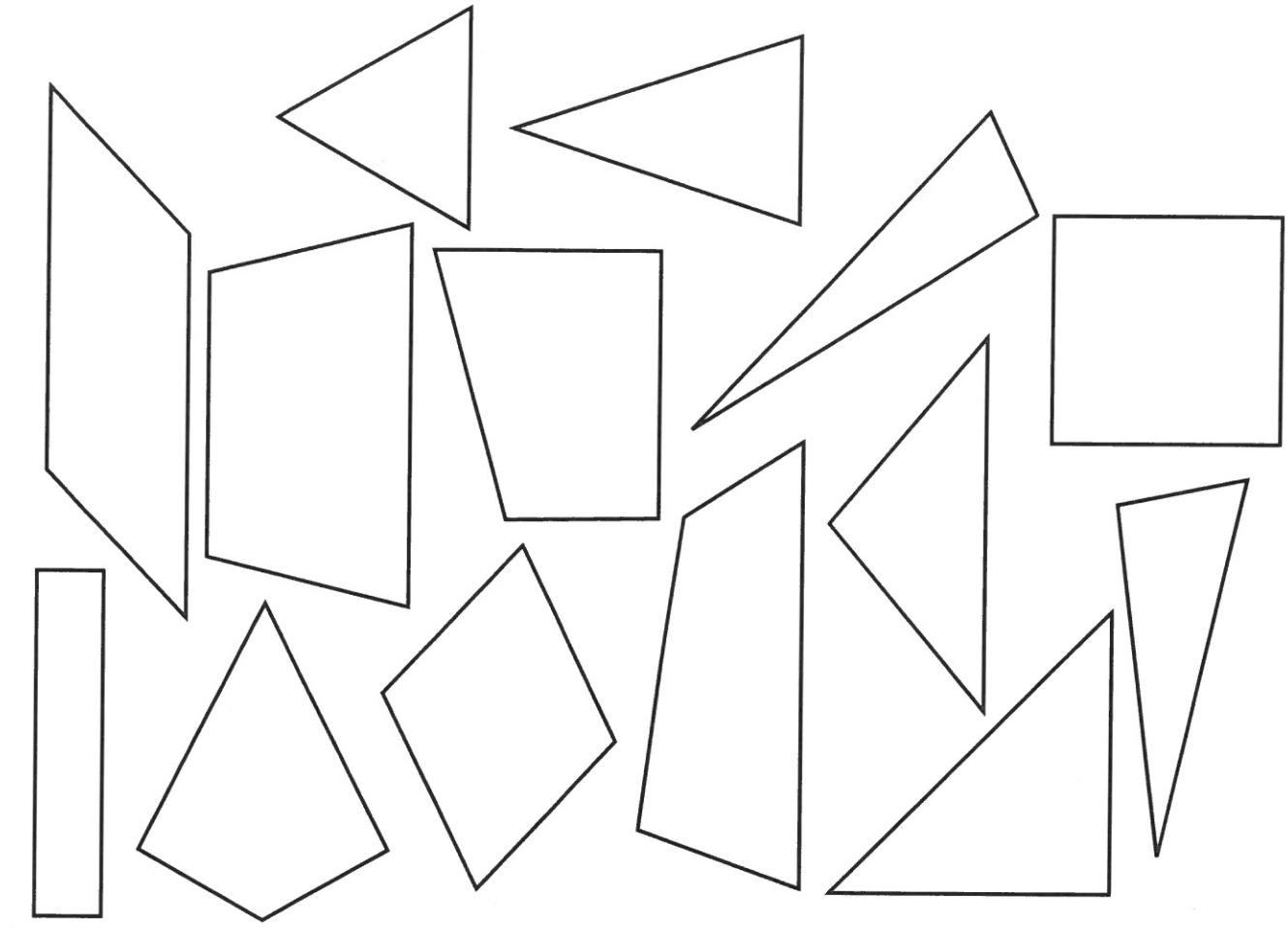
Sort the shapes into the correct place on the Venn diagram.



Shape Sort

Sort the shapes into the correct place on the Venn diagram.

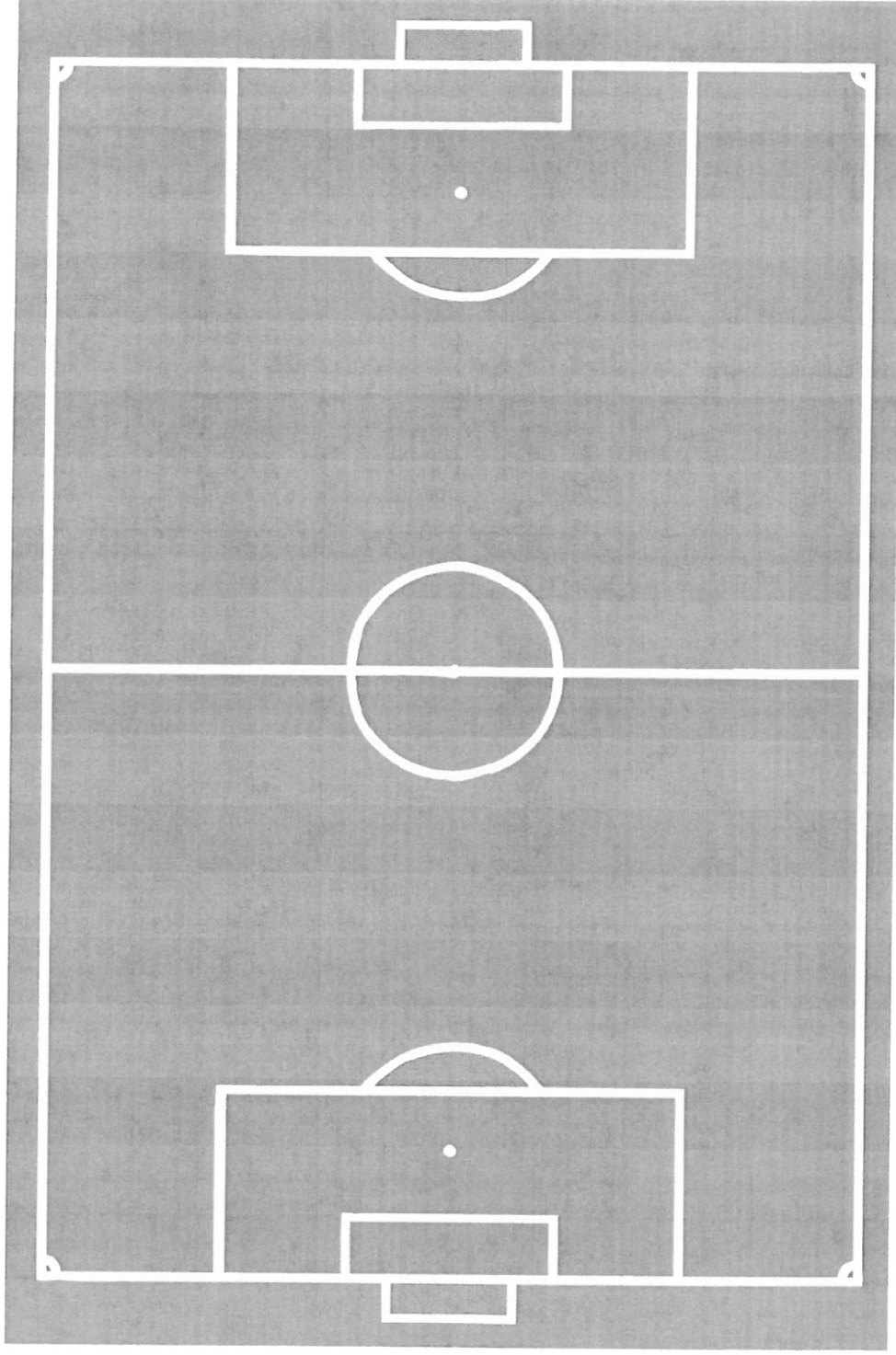






Football Angles

Label the right angles you can see on a football pitch.

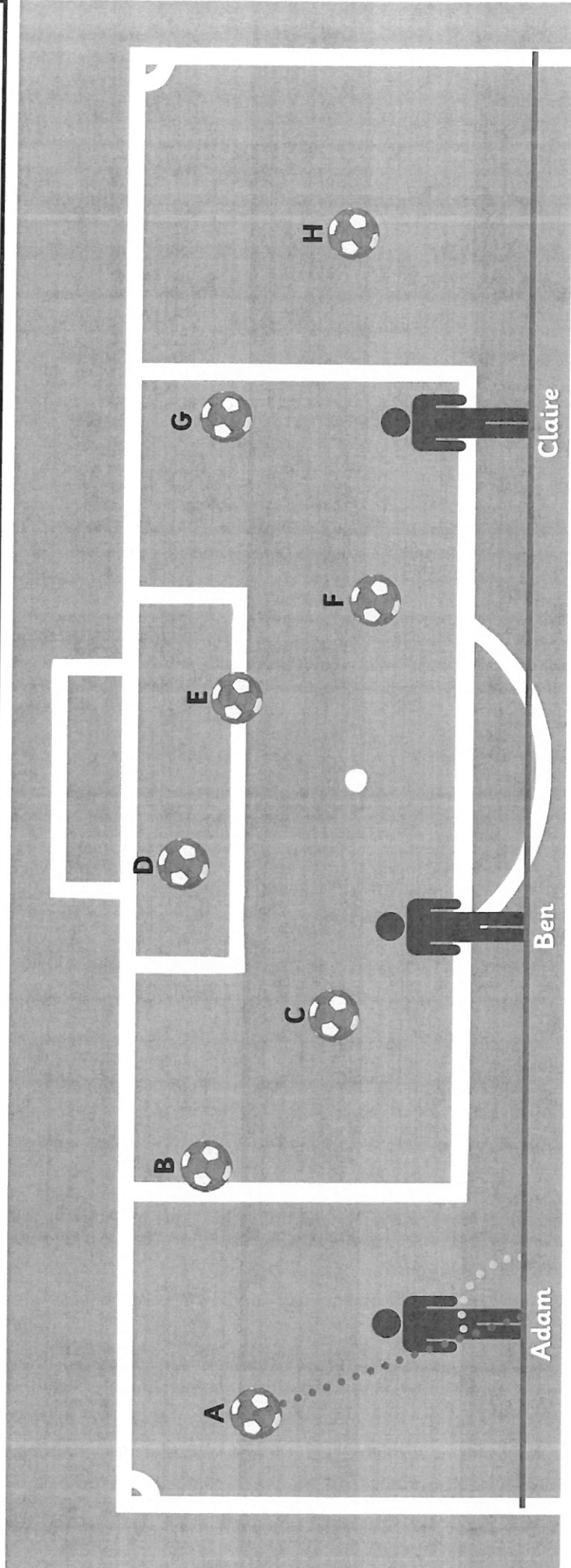




Football Angles

Complete the table describing the angle of the kicks.

Adam		Ben		Claire	
Kick A		Kick C		Kick F	
Kick B		Kick E		Kick G	
Kick D		Kick H		Kick H	

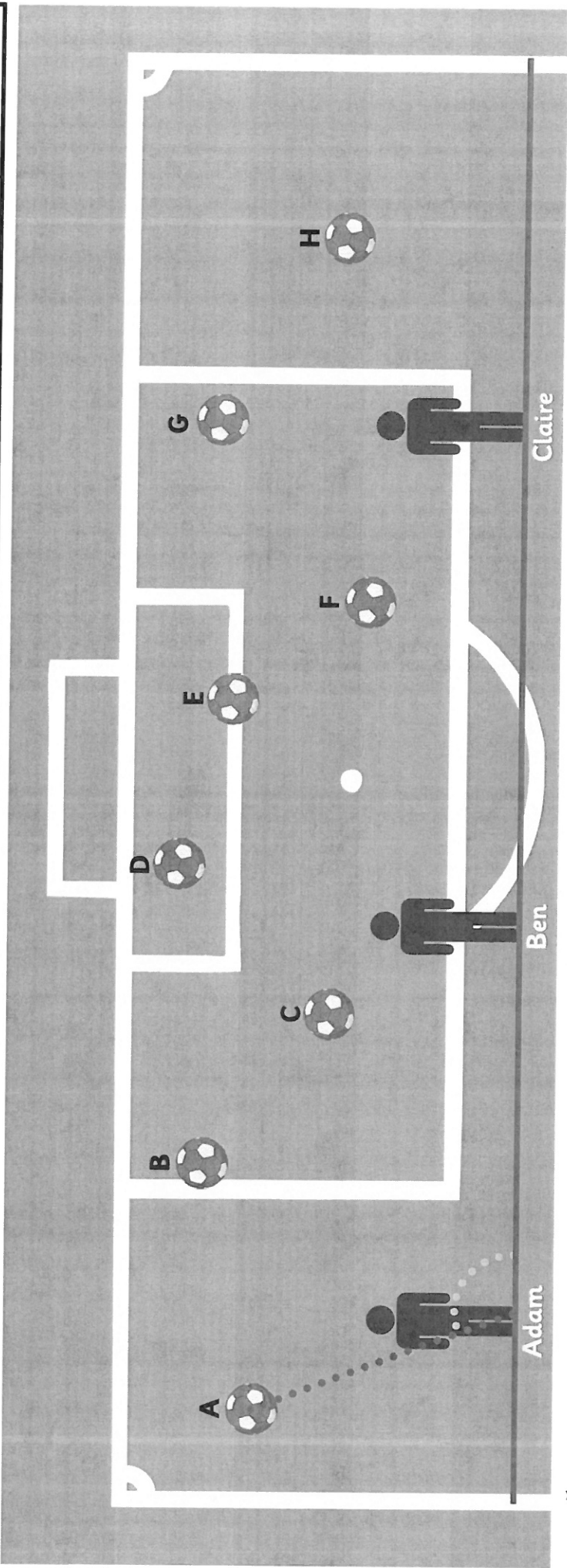




Football Angles

Complete the table describing and ordering the angle of the kicks. (1 being the smallest and 9 being the largest).

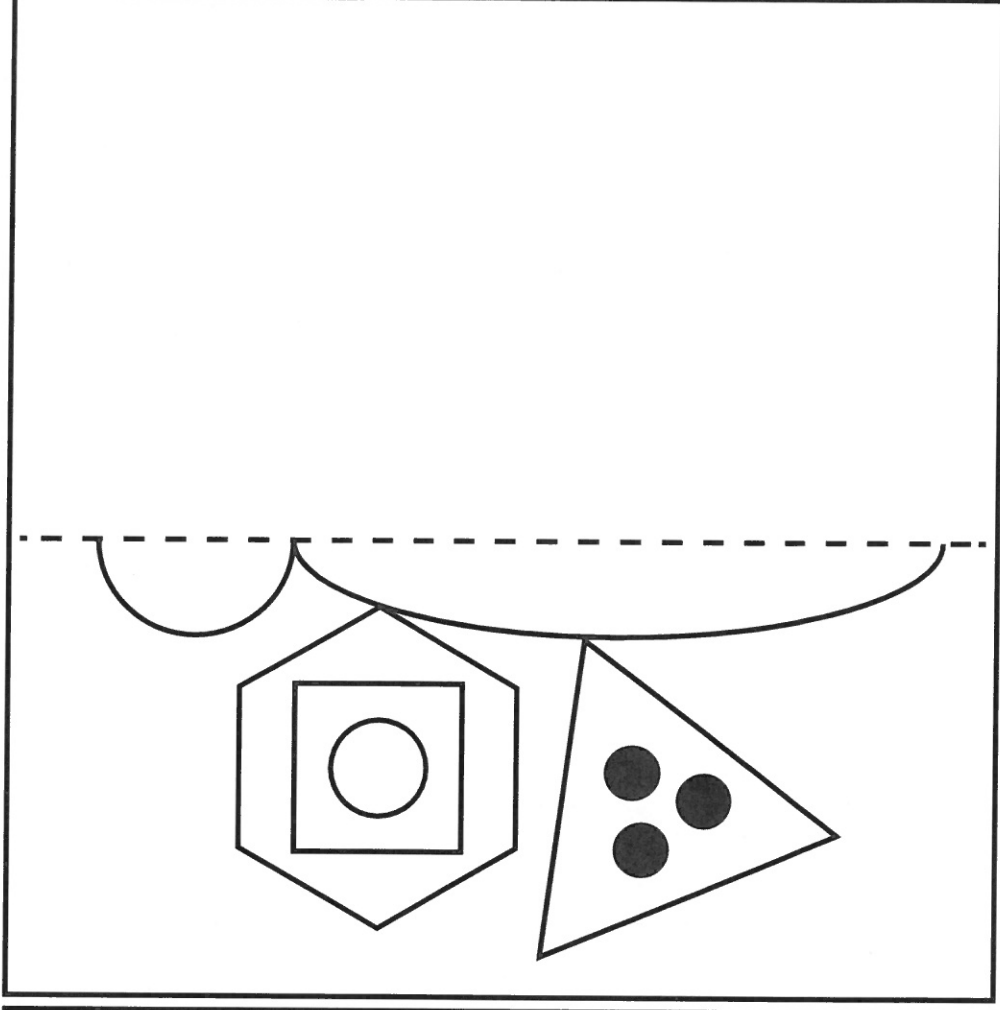
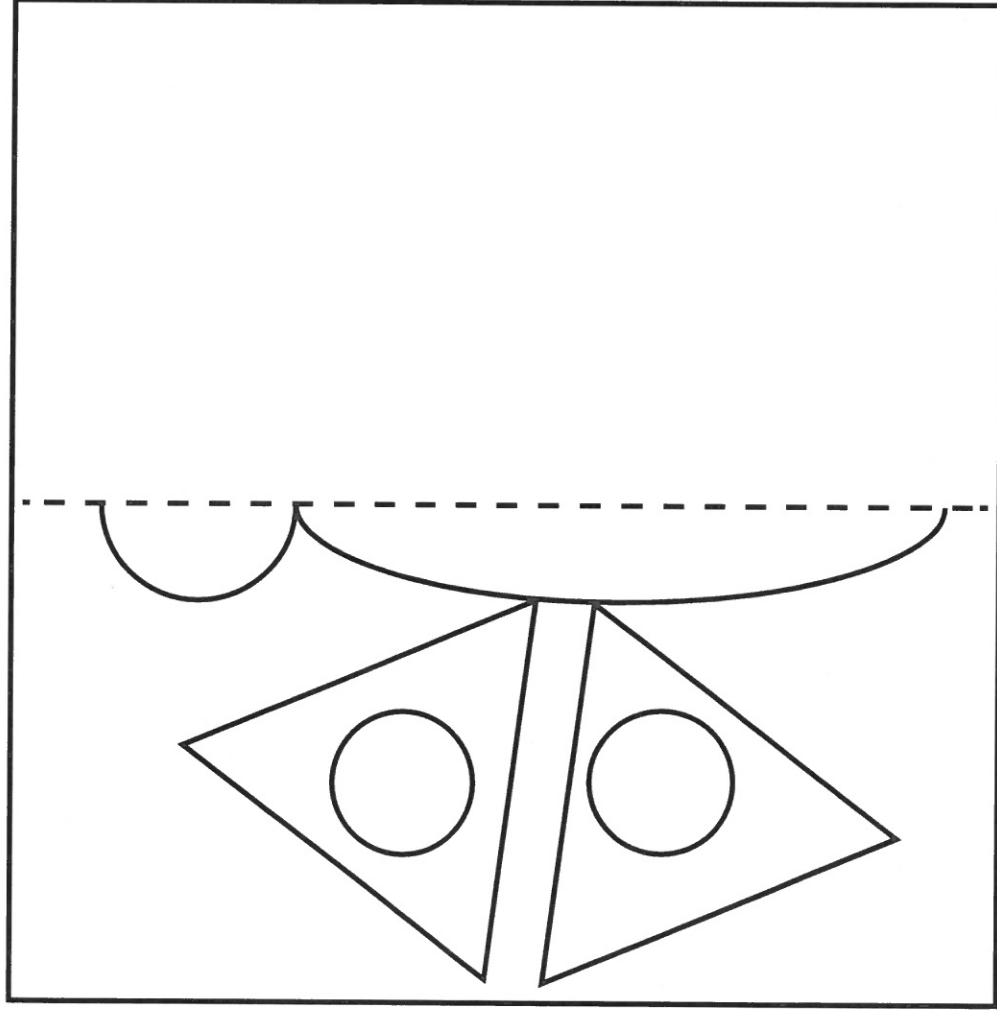
Adam		Ben			Claire		
Kick A				Kick C			Kick F
Kick B				Kick E			Kick G
Kick D				Kick H			Kick H





Symmetrical Butterflies

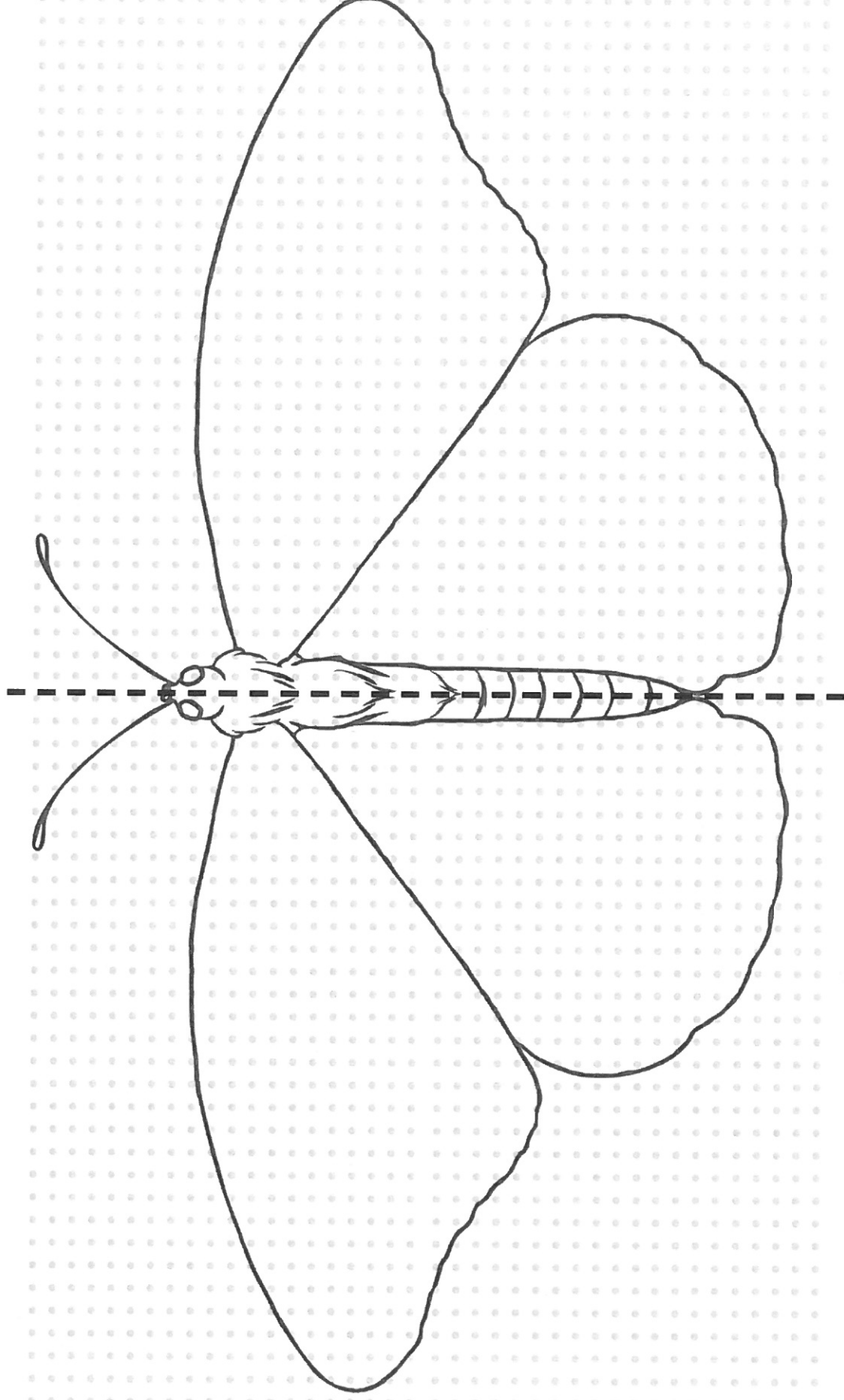
Complete the symmetrical drawings.





Symmetrical Butterflies

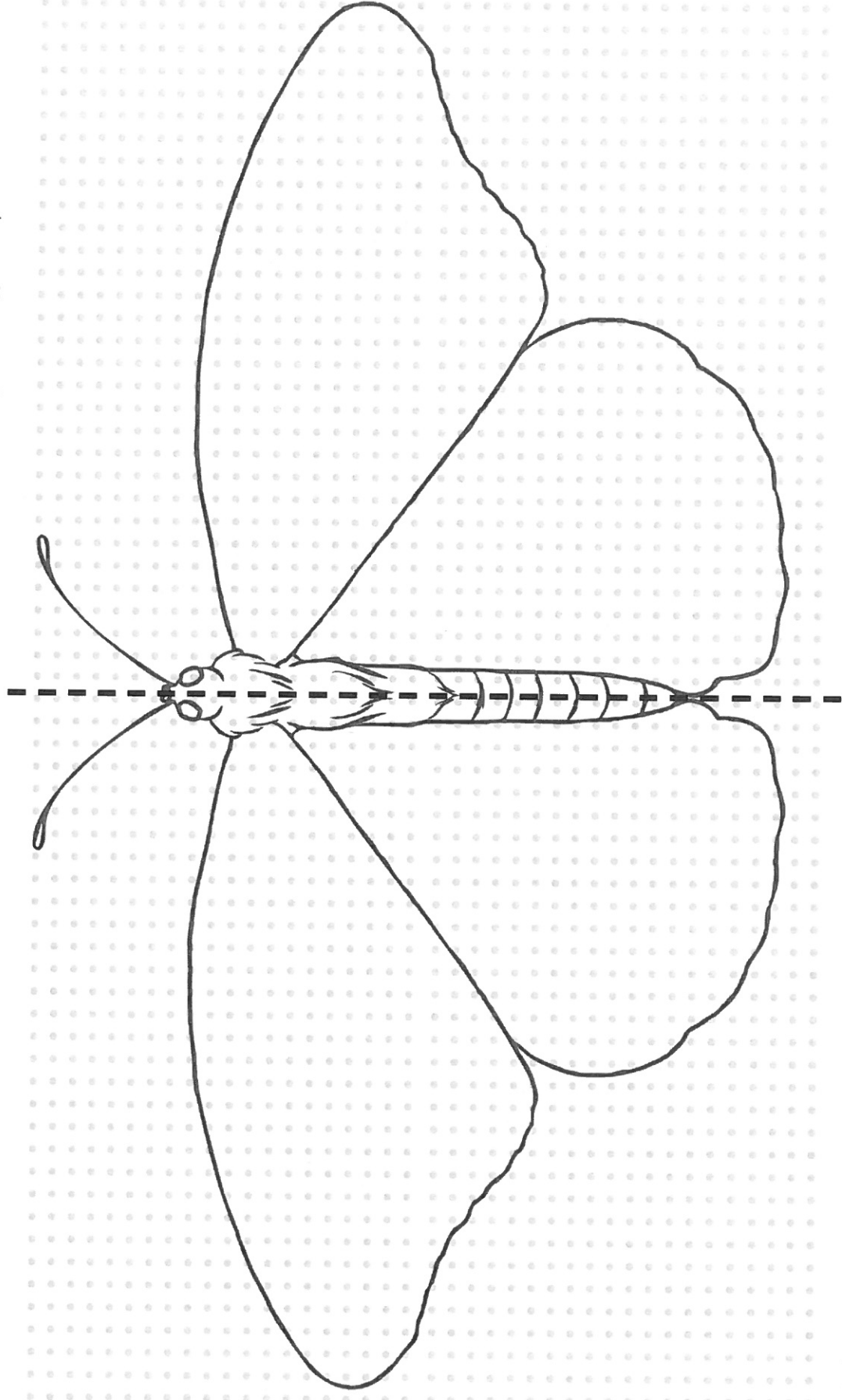
Complete a symmetrical butterfly using 2D shapes.





Symmetrical Butterflies

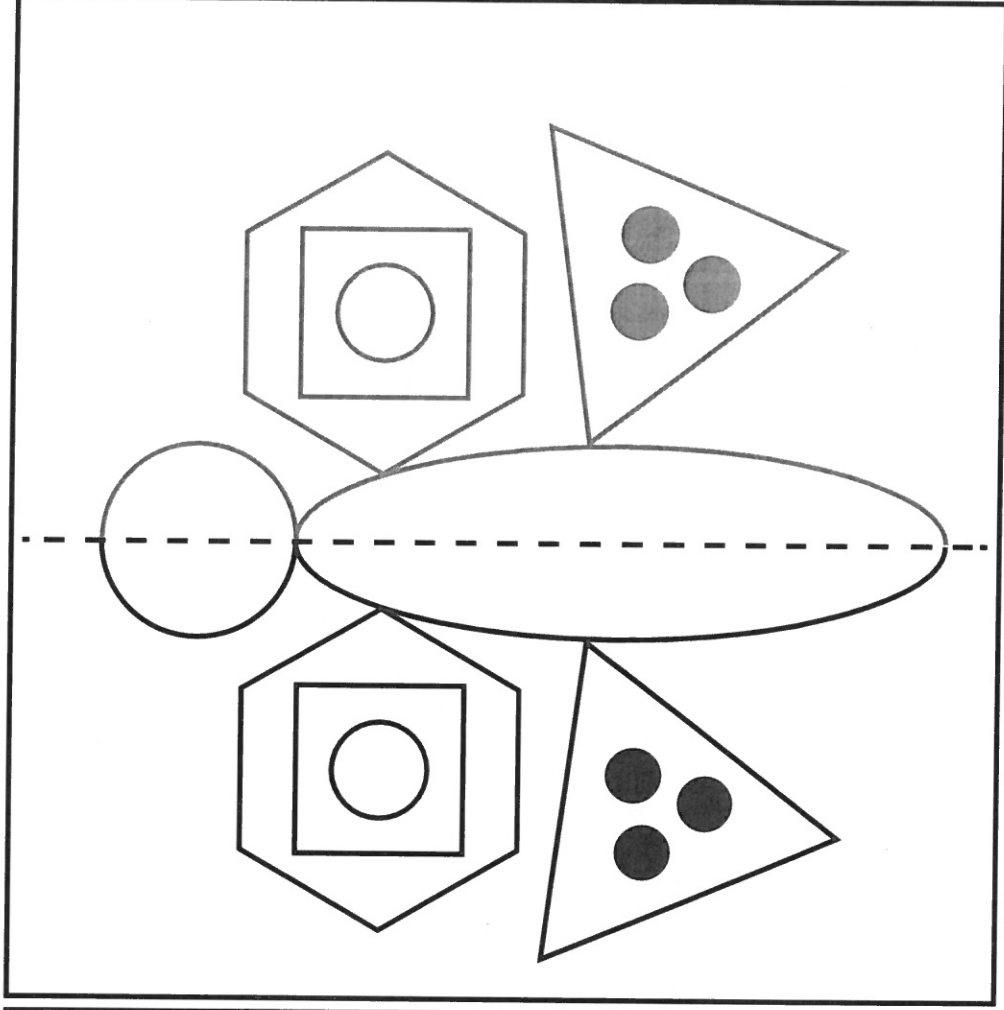
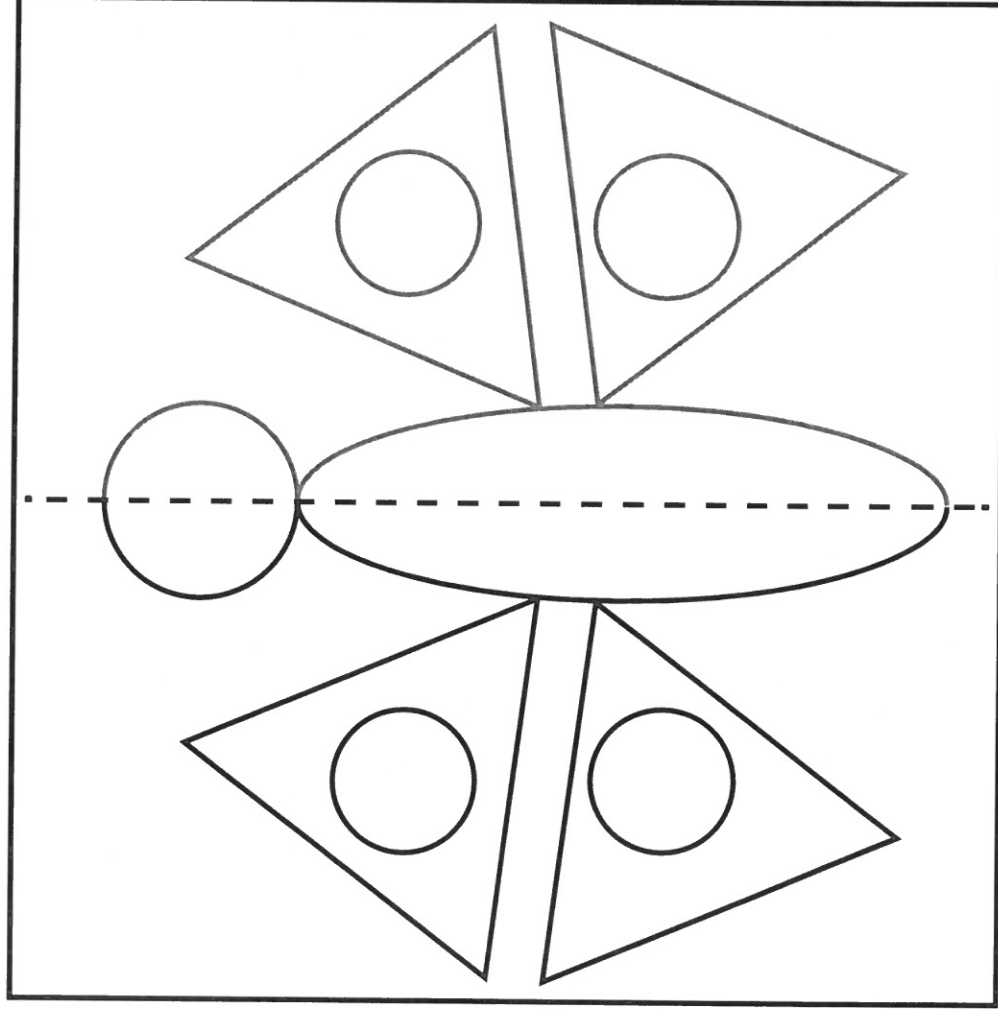
Complete a symmetrical butterfly using 2D shapes including pentagons and hexagons in different positions.





Symmetrical Butterflies Answers

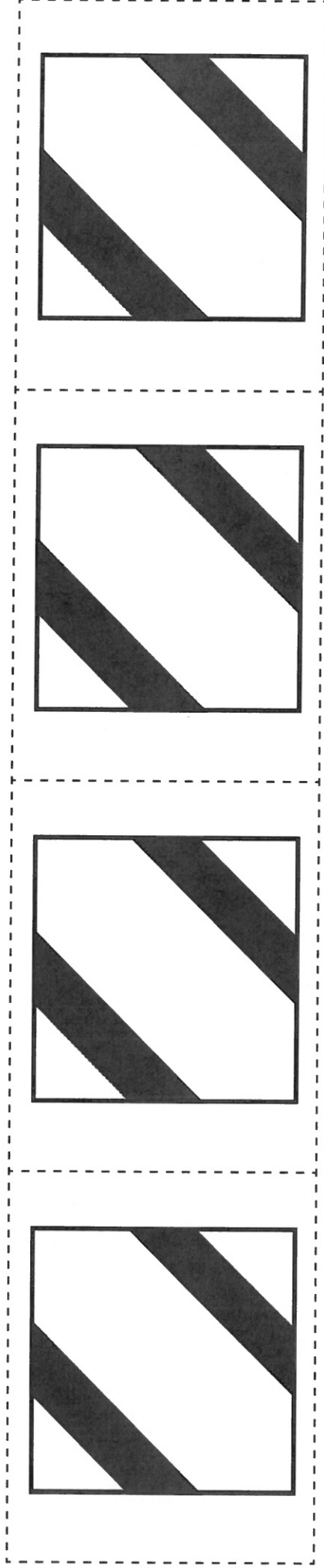
Complete the symmetrical drawings.





Symmetrical Tile Patterns

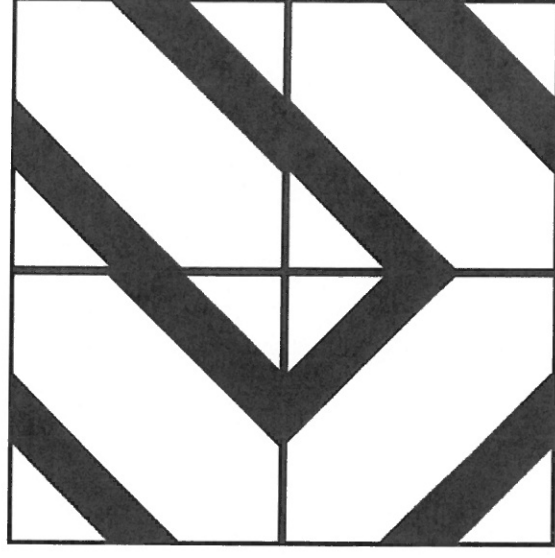
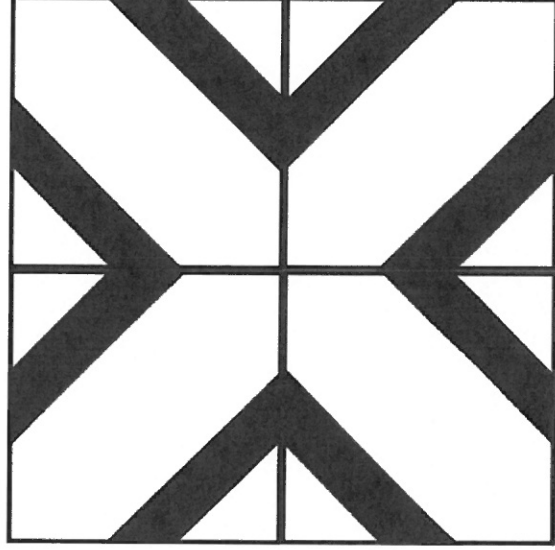
Cut out these four square tiles and make a 2×2 square with them.



What different patterns can you make?

Which patterns have:

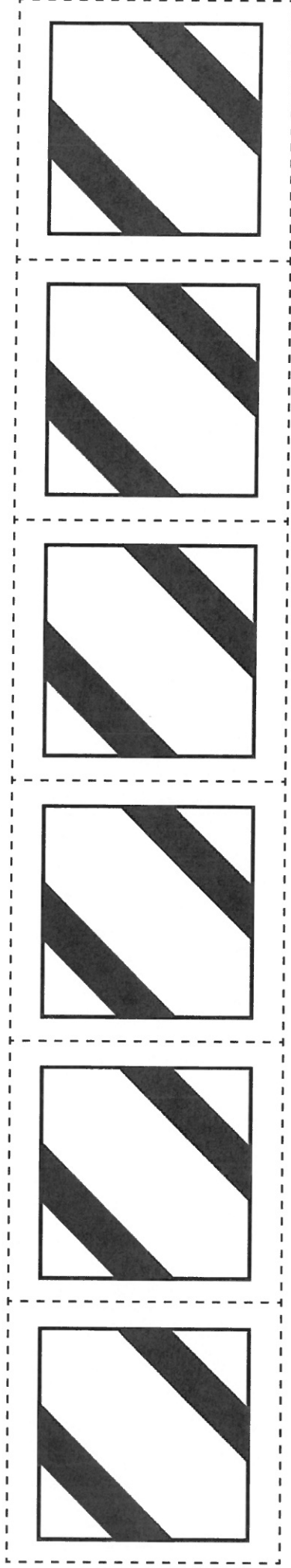
- 0 lines of symmetry?
- 1 line of symmetry?
- 2 lines of symmetry?





Symmetrical Tile Patterns

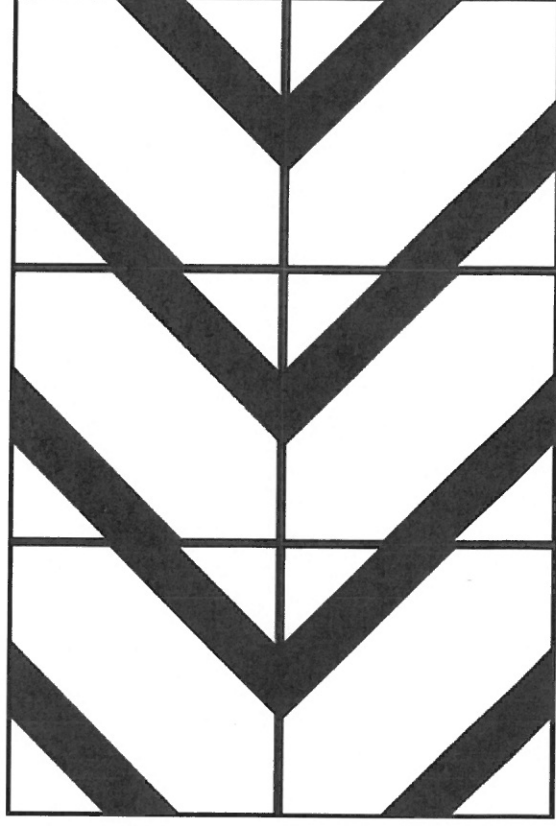
Cut out these four square tiles and make a 3×2 square with them.



What different patterns can you make?

Which patterns have:

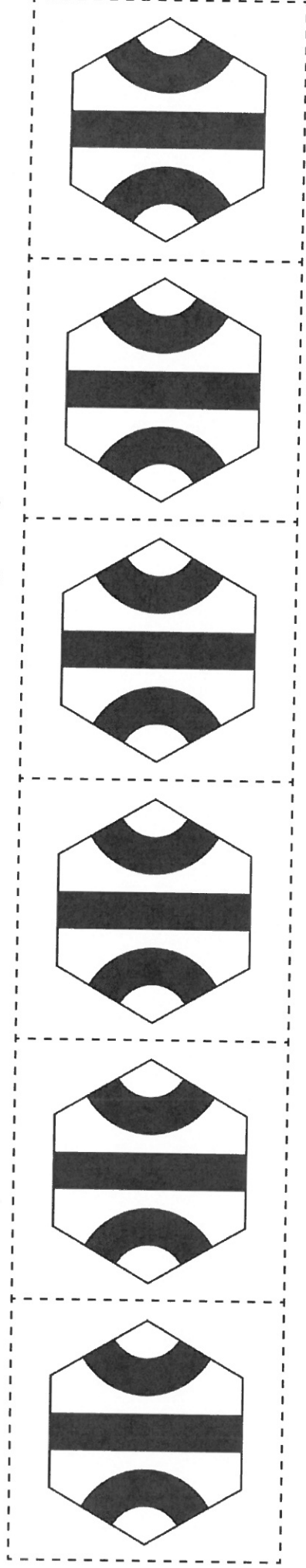
- 0 lines of symmetry?
- 1 line of symmetry?
- 2 lines of symmetry?





Symmetrical Tile Patterns

Cut out these six hexagonal tiles and place them in different patterns.



What different patterns can you make?

Which patterns have:

- 0 lines of symmetry?
- 1 line of symmetry?
- 2 lines of symmetry?

