MATHLETICS

C SERIES

Teacher Book

Space and Shape

Series C – Space and Shape

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Series Author:

Rachel Flenley

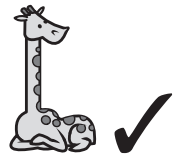
2D space – lines and angles

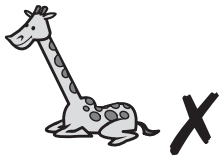
Vertical lines go straight up and down.

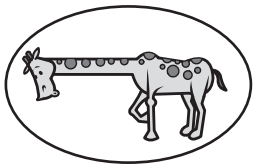
Horizontal lines go straight across.

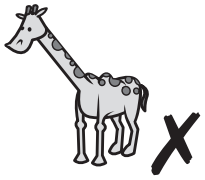
Oblique lines go on a slant.

1 ✓ any vertical necks. ◯ any horizontal necks. ✗ any oblique necks.









2 How many lines are on these shapes?

a

vertical	**0**
horizontal	**2**
oblique	**8**

b

vertical	**2**
horizontal	**3**
oblique	**2**

c

vertical	**6**
horizontal	**6**
oblique	**0**

Shapes can be made up of straight lines, curves, or a mixture of both.

3 Draw a shape that is made up of:

a straight lines

b a curve

Teacher check.

c a mixture of lines

2D space – lines and angles

You will need:  a partner or you can work alone

What to do:

a Look at these letters. Let's explore their shapes and the lines that make them.

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z

b These 2 letters belong together in a group. **P D**
Which other letters do you think belong in the same group?
Record them and explain to your partner why.

B G J Q R

These letters are made up of curves and straight lines.

c These 2 letters belong together in a group. **T Y**
Which other letters belong in the group?
Record them and explain to your partner why.

Sample answer:

E, F, H, I, K, L, M, N, V, W, Z

These letters are made up of only straight lines.

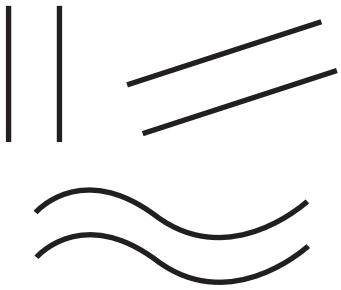
d These letters form a group. **A Q R N M V W X**
Can you see why? Record your thinking here.

They all have oblique lines.

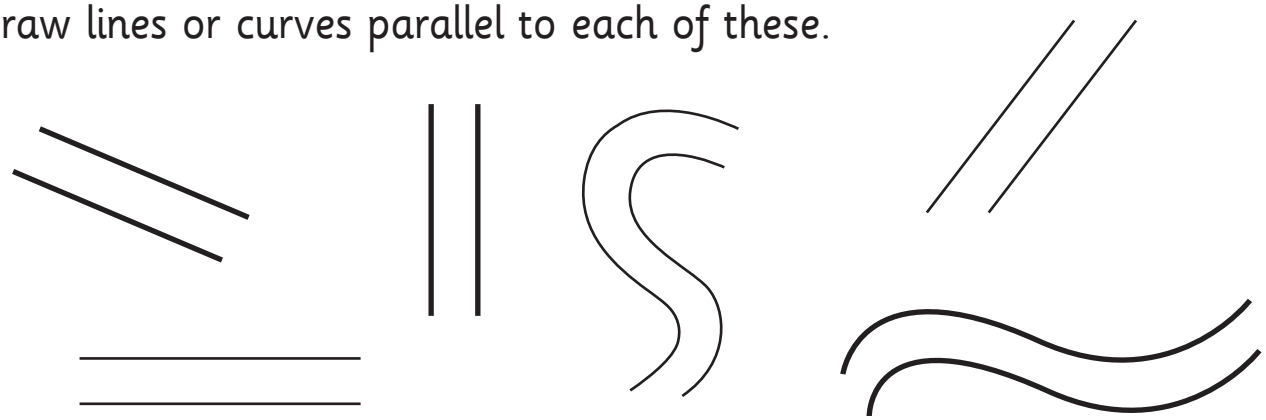
2D space – lines and angles

Parallel lines are always the same distance from each other and can never meet. They can be any length and go in any direction.

Curves can also run parallel to each other.

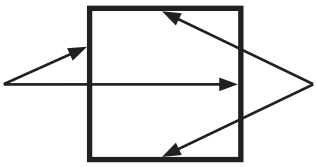


1 Draw lines or curves parallel to each of these.



Shapes can have parallel lines.

Look at this **square**.



A square has 2 sets of parallel lines.

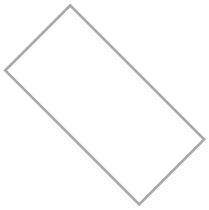
2 Trace any parallel lines in matching colours. Finish the statements.

a 

A square has **2** sets of parallel lines.

b 

A triangle has **0** sets of parallel lines.

c 

A rectangle has **2** sets of parallel lines.

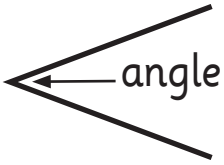
d 

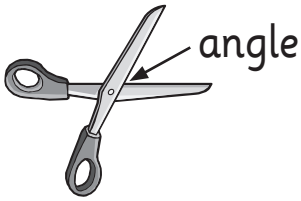
A regular hexagon has **3** sets of parallel lines.

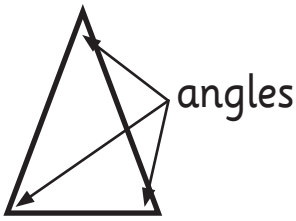
2D space – lines and angles

Angles are formed when 2 or more lines meet.

Here are some different angles.







Sometimes angles are called **corners** or **vertices**.

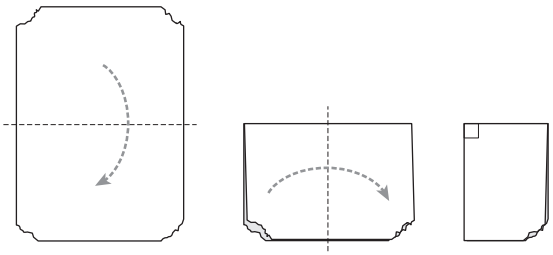
1 Draw sets of 2 lines to make some different angles.

Teacher check.

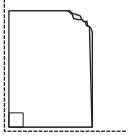
When lines meet like this  we call the angle a square corner.

We can mark the square corner like this  to show we know it's square.

2 **a** You will need a piece of paper. Rip the corners and fold it to make a square corner tester like this.



b Use the tester to measure the corners of this page like this. Are they square corners? **Yes**

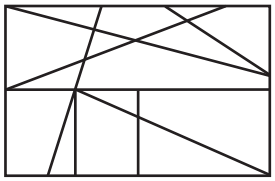


c Use your square corner tester and find other square corners around your room.

2D space – lines and angles

You will need: a ruler and pencil

What to do:



Rule some lines in the box below. This is one example of how it could be done.

Did you make any square corners? Find them and mark them.

Teacher check.

What to do next:

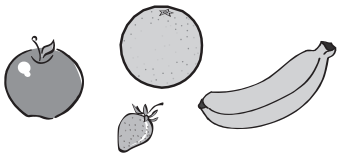
How many triangles did you make? Trace or colour them.

Do any of your triangles have square corners?

Answers will vary.

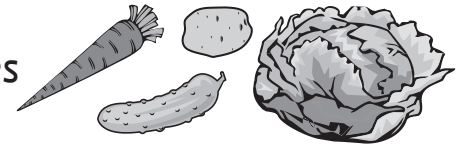
2D space – sorting

How has this food been sorted? It has been sorted into 2 groups:



fruits

vegetables

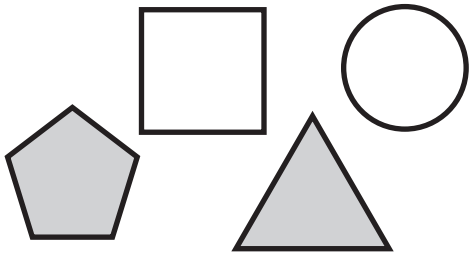


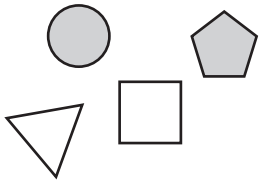
We could also sort them by colour, shape, size or whether we liked them or not. There are LOTS of ways to sort things.

You will need: a partner attribute blocks

What to do:

a How do you think these shapes have been sorted?





They have been sorted ...

by size

b What other ways could you sort them? Work with a partner and your pattern blocks to find some other ways. Record your ways here.

Teacher check.

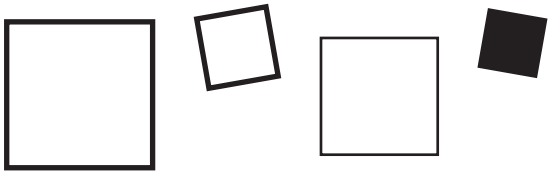
What to do next:

Sort your pattern blocks following a secret rule. See if your partner can work out what your secret rule is.

Answers will vary.

2D space – sorting

Mathematicians sort and group shapes according to their **angles**, or **corners**, **sides** and **lines**.

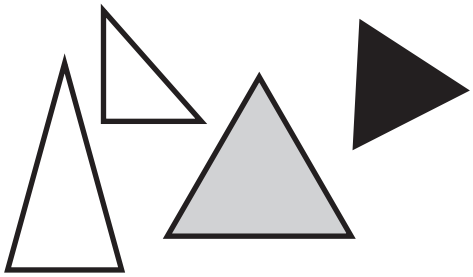


Let's look at these shapes.

We say these are all **squares** because they all have 4 sides, which are all the same length. They each have 2 sets of parallel lines. They have 4 square corners. They are different colours and sizes and in different positions, but they are still squares.

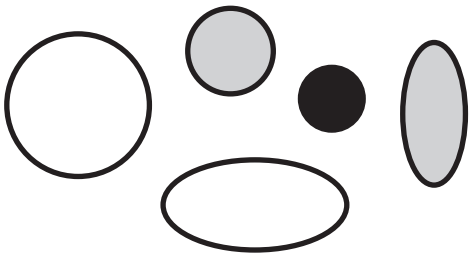
There are different rules for different shapes.

1 Are these all triangles? Explain your thinking.



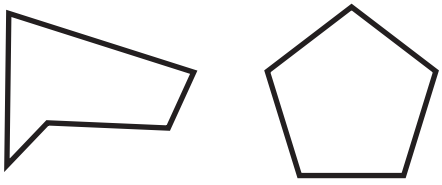
Yes, they all have 3 sides.

2 Are these all circles? Explain your thinking.



No, some are ovals.

3 Are these both pentagons? Explain your thinking.



Yes, they both have 5 sides.

2D space – 4-sided shapes

Here are two 4-sided shapes you probably know already.

square   rectangle

You will need:  a partner  attribute blocks

What to do:

Find a square and a rectangle. Look closely at the sides, angles and lines to work out what is **the same** and what is **different** about these 2 shapes. Record them here.

Same

- they have 2 sets of parallel lines
- **they have 4 corners**
- **they have 4 sides**
- **their opposite sides are equal**

Different

- **the rectangle has 2 short sides and 2 long sides**
- **the square's sides are all the same length**

What to do next:

Look through your attribute blocks. What other 4-sided shapes can you find? Trace or draw them here.

Teacher check.

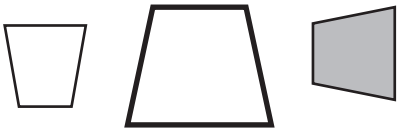
Look closely at the lines, corners and sides to work out how they are the same as squares and rectangles and how they are different. Talk it through with your partner.

2D space – 4-sided shapes

Here are 2 other kinds of 4-sided shapes.

These are **rhombuses**.

These are **trapeziums**.



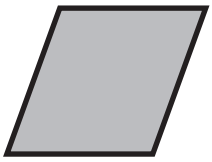
We know these shapes have 4 sides. Let's look closely at the lines and angles to find out more about them.

You will need: a partner rhombus and trapezium blocks

What to do:

Work with your partner to help these shapes answer some questions. Look at the shape blocks to help.

a

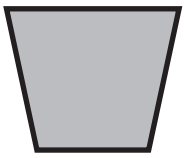


Do I have any sets of parallel lines? If so, how many?	**2**
Are ALL my sides the same lengths?	**Yes**
Do I have any square corners?	**No**

Is there anything else you notice about me?

Answers will vary.

b



Do I have any sets of parallel lines? If so, how many?	**1**
Are ALL my lines the same lengths?	**No**
Do I have any square corners?	**No**

Is there anything else you notice about me?

Answers will vary.

2D space – 4-sided shapes

1 Draw a square, a rectangle, a trapezium and a rhombus. Label them.

Teacher check.

2 Now draw them again, but turn them around and make them a different size. Label them.

Teacher check.

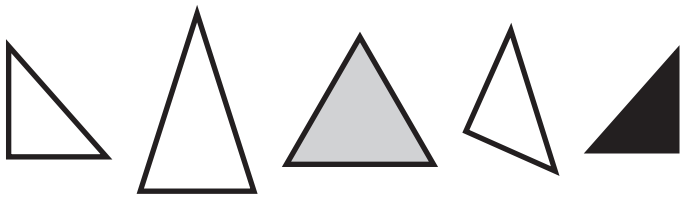
2D space – triangles

Triangles can be different shapes and sizes.

Some have a square corner. Some have all sides the same length.

Some have 2 sides the same length. Some have no sides the same length.

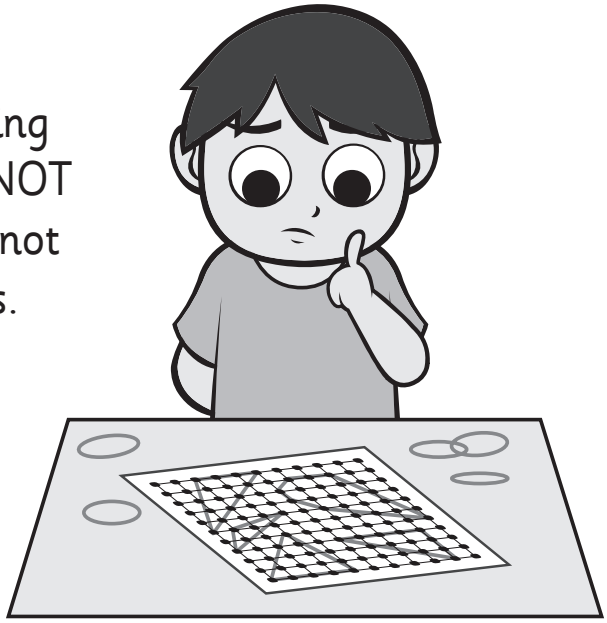
What makes them all triangles is the fact they have 3 sides and 3 angles.



You will need: a partner a geoboard rubber bands

What to do:

On your geoboard make 4 different looking or sized triangles and one shape that is NOT a triangle. Ask your partner to spot the 'not triangle'. Can you trick them? Swap roles. Play a few times.



Answers will vary.

What to do next:

Take turns directing each other to make different kinds of triangles.

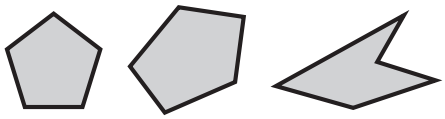
'Make me a triangle with a square corner.' 'Make me a triangle with 2 long sides and 1 short side.'

Check that you can make it yourself before you ask your partner to make it.

Answers will vary.

2D space – 5- and 6-sided shapes

5-sided shapes are called pentagons.
They always have 5 sides and 5 angles.



6-sided shapes are called hexagons.
They always have 6 sides and 6 angles.

If their sides are all the same length, they are called **regular**.

If their sides are NOT all the same length, they are called **irregular**.

1 Draw 2 different pentagons. Make 1 regular and 1 irregular.

Teacher check.

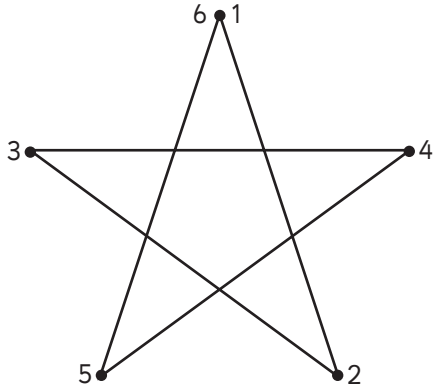
2 Draw 2 different hexagons. Make 1 regular and 1 irregular.

Teacher check.

3 **a** Use a ruler and a pencil to join the dots on this regular pentagon.

b How many triangles have you made?

8

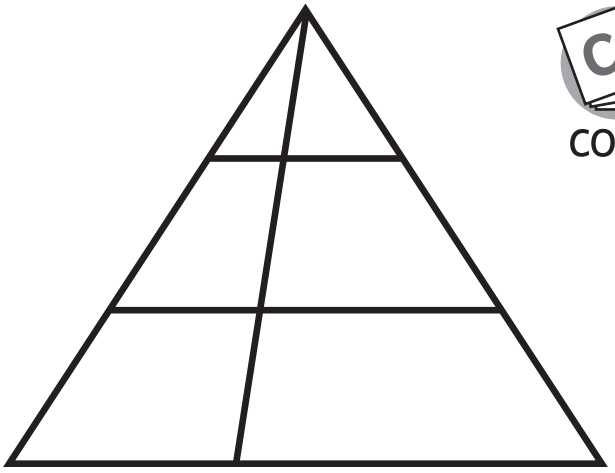


2D space – explore

1 How many triangles can you find?

9

Compare your answer with that of a partner. Do you both agree?

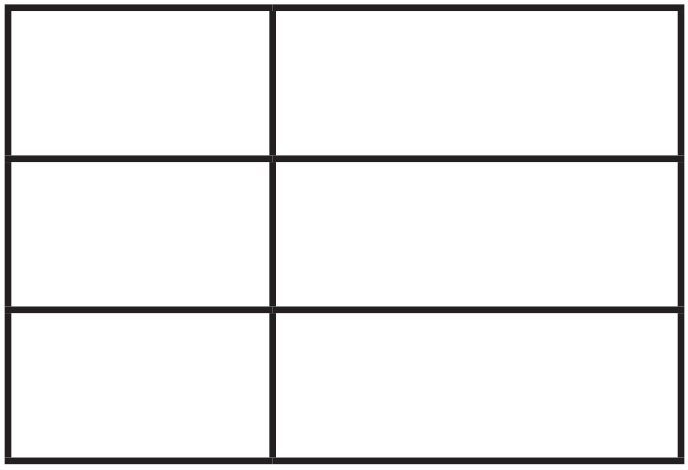


C copy

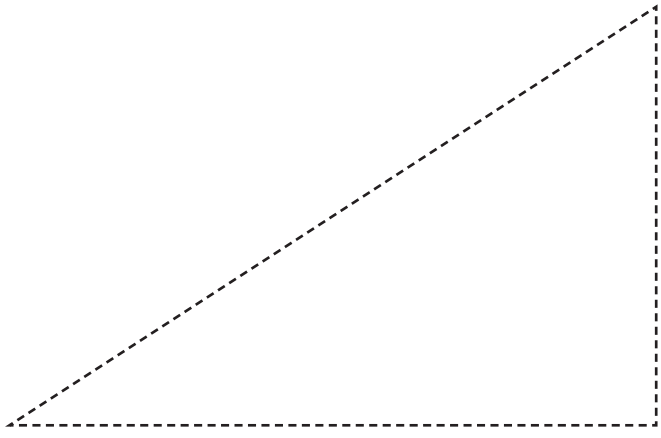
2 How many rectangles can you find?

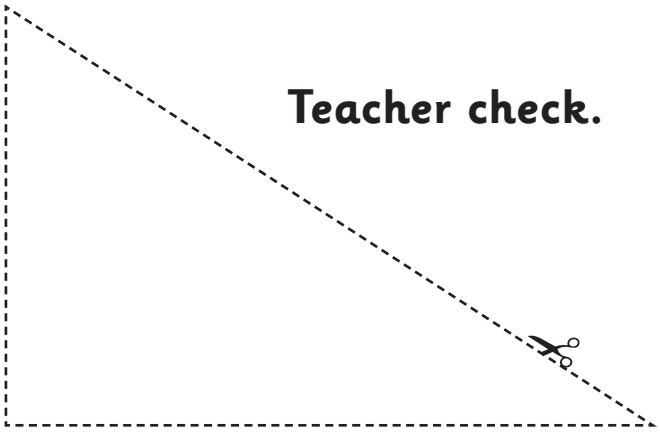
15

Compare your answer with that of a partner. Do you both agree?



3 Cut out the triangles below. What different shapes can you make by joining them in different ways? Remember you can make irregular shapes. Record the different shapes you make in your maths book.





Teacher check.

2D space – explore

You will need:  3 partners  a pillowcase or library bag

 attribute blocks

What to do:

You are going to take turns working out what a shape is that you can feel but not see.

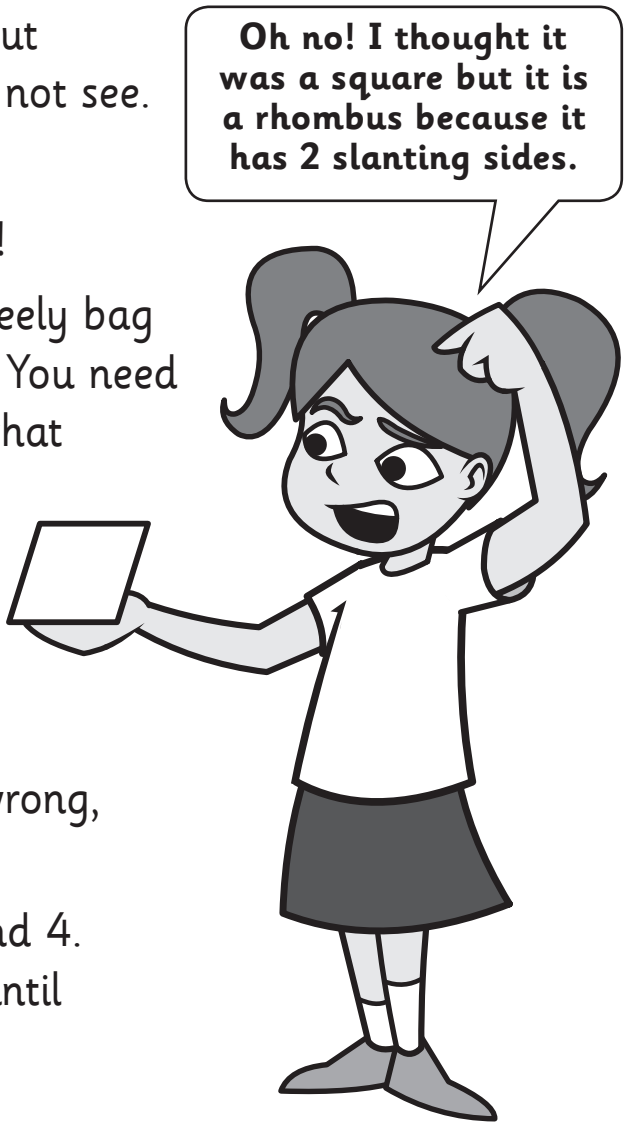
Put 1 shape into the bag at a time.

Don't let the first player see what it is!

Player 1, you need to reach into the feely bag and see if you can identify the shape. You need to name it AND say why you know what it is. For example, you might say 'This is a triangle – I know that because I can feel 3 sides and 3 corners.'

Pull the shape out. If you are right, you keep the shape. If you just name it but don't describe it, or if you are wrong, the shape goes back in the bag.

Player 2 has a turn, then Players 3 and 4. Play until all the shapes are gone or until 1 player has 5 shapes.



What to do next:

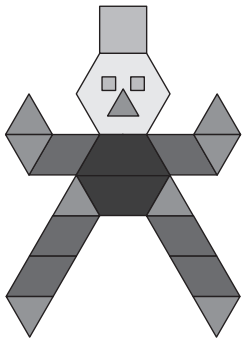
Put all the shapes into the bag. Take turns directing each other to pull out a particular shape – 'Pull out a rhombus, please.'

Answers will vary.

2D space – tessellation

When we fit pattern blocks together like this, we are **tessellating**. When we tessellate, the shapes fit together without any spaces or overlapping.

We often **flip**, **slide** and **turn** shapes when we tessellate.



You will need: a partner or work by yourself pattern blocks

What to do:

Create a pattern or picture with pattern blocks. You could create a robot, person, butterfly or flower.

What different 2D shapes did you use? Record them here.

Teacher check.

What to do next:

Experiment with the pattern blocks to answer these questions.

Remember, you may need to flip, slide or turn the blocks.

Can we tessellate if we **only** use:

a squares? **yes**

b rhombuses? **yes**

c trapeziums? **yes**

d triangles? **yes**

e pentagons? **no**

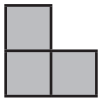
f hexagons? **yes**

2D space – tessellation

You will need: a partner or work by yourself scissors

copy

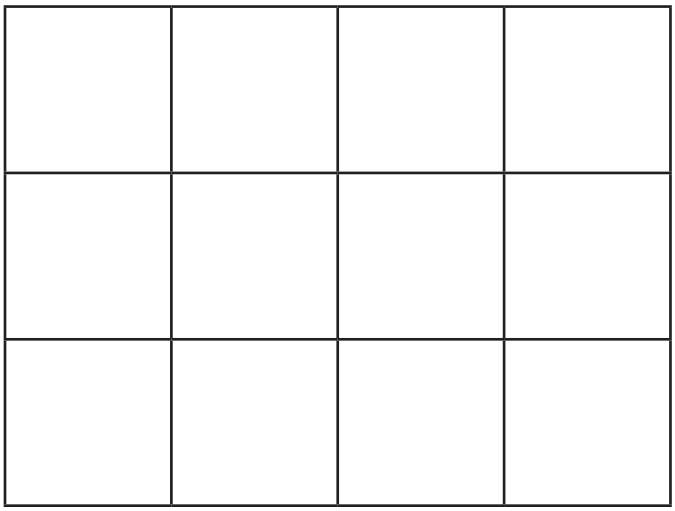
What to do:

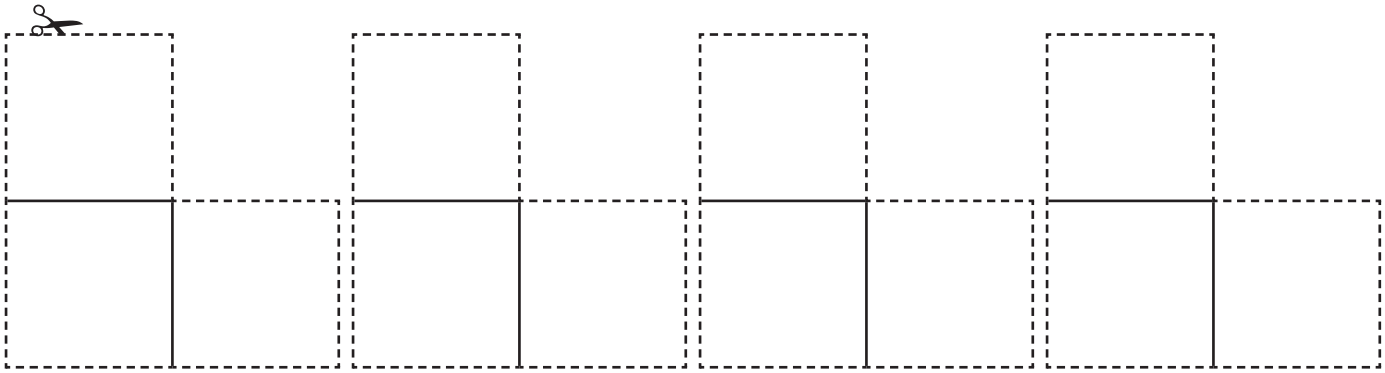
This is a triomino.  It is 3 squares in an L shape.

a Colour each triomino below a different colour and cut them out. Make sure you keep each triomino whole!

b Can you fill the grid with the triominoes? You will need to flip, slide and turn them to make them fit.

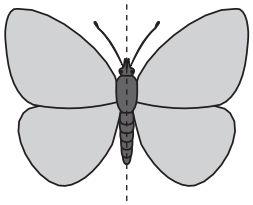
Teacher check.





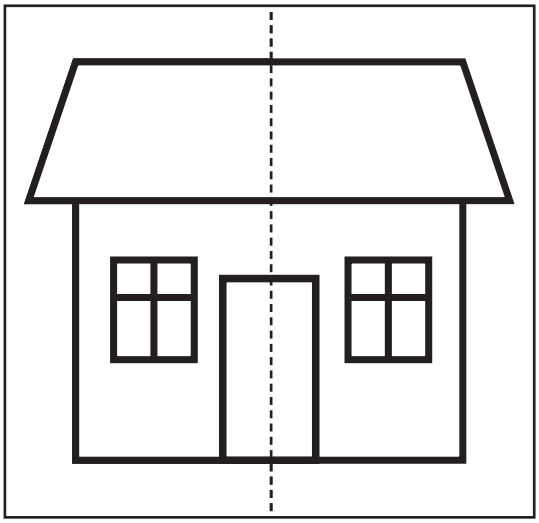
2D space – symmetry

This picture of a butterfly is symmetrical. If we fold it along the dotted line, both sides match exactly. We have 'flipped' the half.

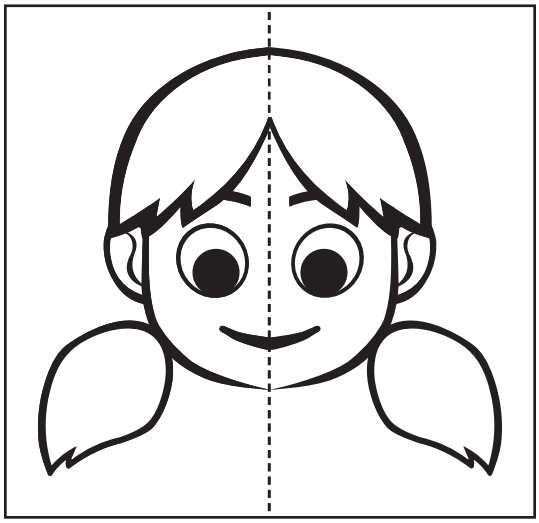


1 Draw the other side of the pictures to make them symmetrical. Colour them symmetrically. **Teacher check.**

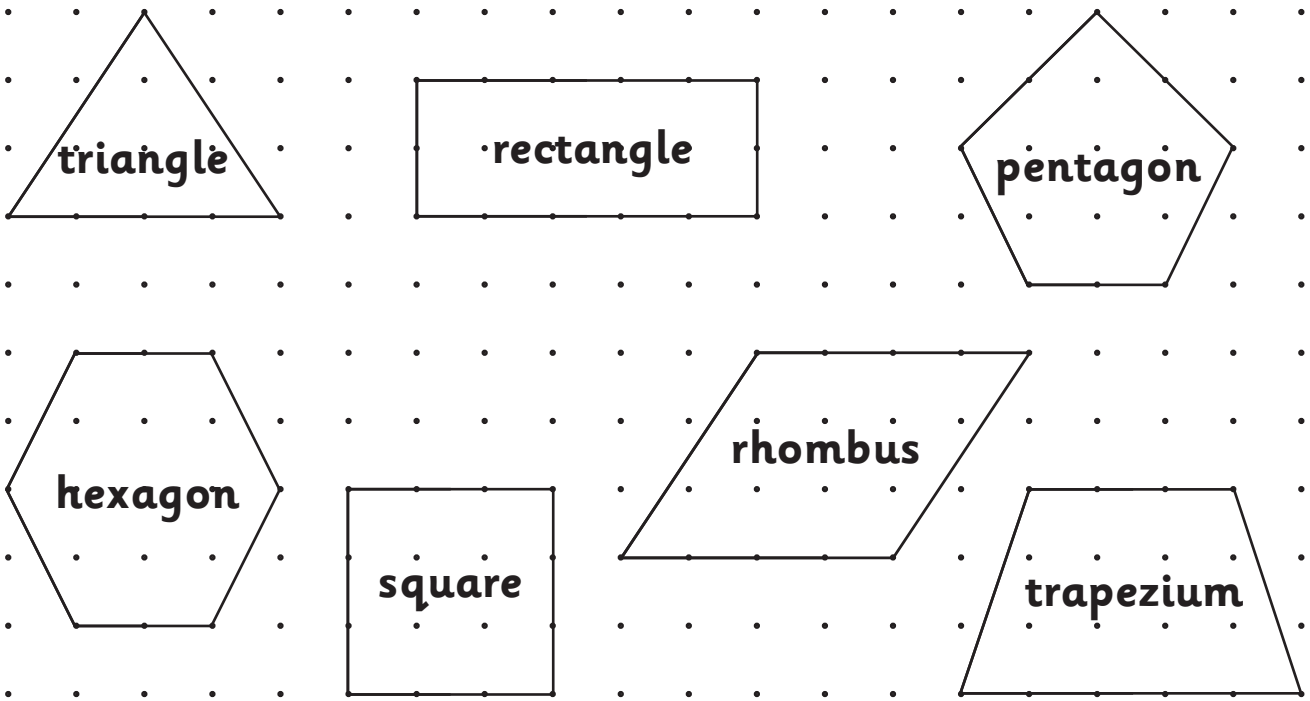
a



b



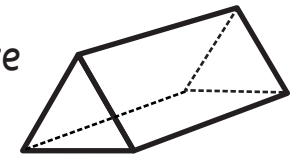
2 Draw the other side of the shape. Label each shape.

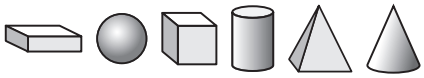


3D space – faces, edges and corners

The flat surfaces of 3D objects or solids are called **faces**. If the face is curved, we usually call it a **curved surface** instead.

This prism has 5 faces. 2 faces are triangles and 3 are rectangles.



You will need:  a partner  these solids

What to do:

Choose a solid and then give it to your partner to hold for you.

Close your eyes and imagine its faces. How many are there? What shapes are they? Are they curved or flat?

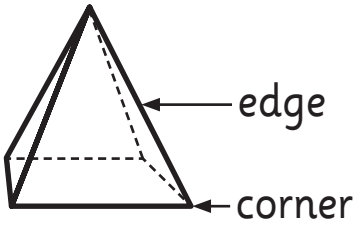
Keep your eyes closed and ask your partner to pass you that solid. Feel its faces. Now tell your partner about the faces. They will record the information for you.

Swap roles and play until the faces of all the solids have been described.

	 **Teacher check.**	
		

3D space – faces, edges and corners

Edges are formed when 2 ***faces*** meet.
Corners are formed when 2 or more edges meet.
This square pyramid has 5 ***faces***.
It has 8 ***edges*** and 5 ***corners***.

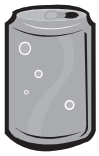


You will need: a partner classroom objects

What to do:

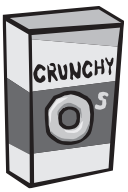
Your task is to investigate the faces, edges and corners of some common classroom or household objects. Record the number of each to finish the fact files.

6	faces
12	edges
8	corners



3	faces
2	edges
0	corners

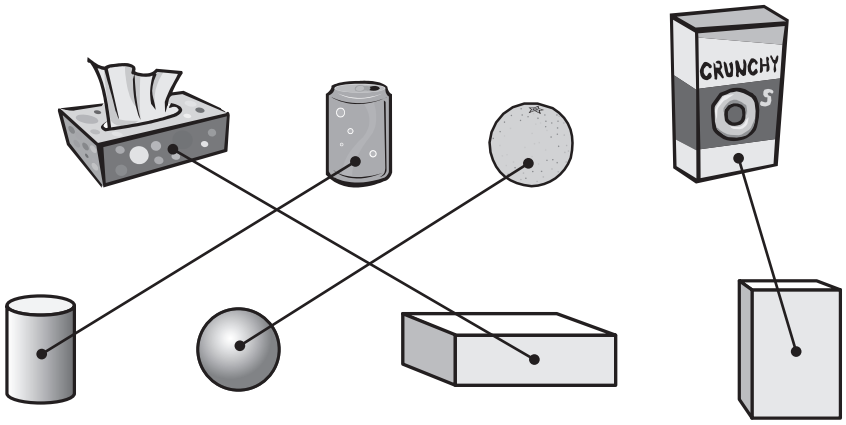
1	face
0	edges
0	corners



6	faces
12	edges
8	corners

What to do next:

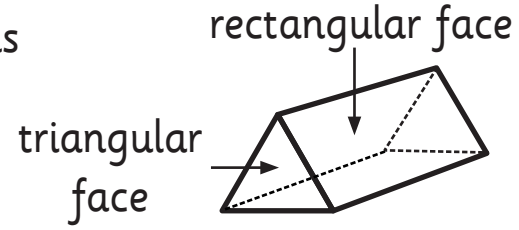
Draw lines to join the objects with their matching solids below.



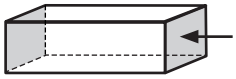
3D space – prisms

Prisms have 2 **identical end faces**. All the other faces are always **rectangles**. Prisms are named according to their end faces.

The end faces of this prism are triangles so we call it a **triangular prism**.

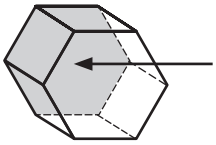


1 Look at the end faces of these solids. Choose words from the box to finish the statements.

a 

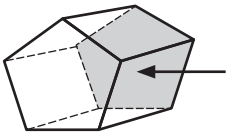
My end faces are **rectangles**.

I am a **rectangular** prism.

b 

My end faces are **hexagons**.

I am a **hexagonal** prism.

c 

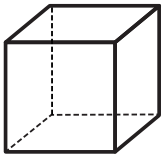
My end faces are **pentagons**.

I am a **pentagonal** prism.

hexagons
hexagonal
pentagons
pentagonal
rectangles
rectangular

This is a rectangular prism even though its faces are square.
Do you know why?
It's because squares are actually part of the rectangle family.

2 Let's look at this shape some more.



a We sometimes call it another name.

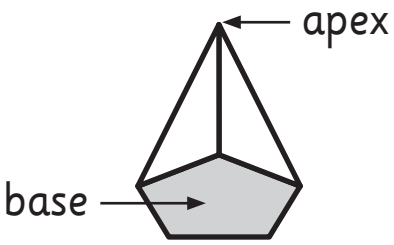
Do you know what it is? **c** u **b** e

b What are some real life objects shaped like it?

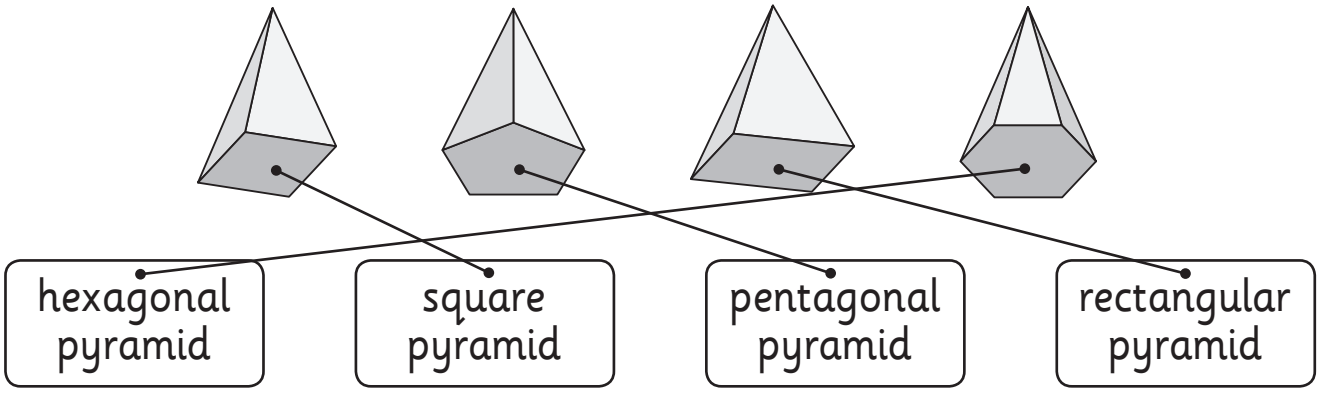
Answers will vary.

3D space – pyramids

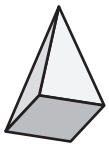
Pyramids have one base. The **base** always has straight sides.
The other faces are always **triangles**.
The triangular faces meet at the **apex**.
Pyramids are named after their bases.
This is a **pentagonal pyramid**.

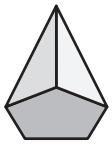


1 Match the pyramids to their labels.



2 Use real solids to help you finish the fact stories, or can you find a rule to help you?

a 
A square pyramid has a square base which has **4** sides. It has **4** triangular faces.

b 
A pentagonal pyramid has a **pentagonal** base which has **5** sides. It has **5** triangular faces.

c 
A hexagonal pyramid has a **hexagonal** base which has **6** sides. It has **6** triangular faces.

d 
A rectangular pyramid has a **rectangular** base which has **4** sides. It has **4** triangular faces.

3D space – pyramids

You will need: scissors

C copy

What to do:

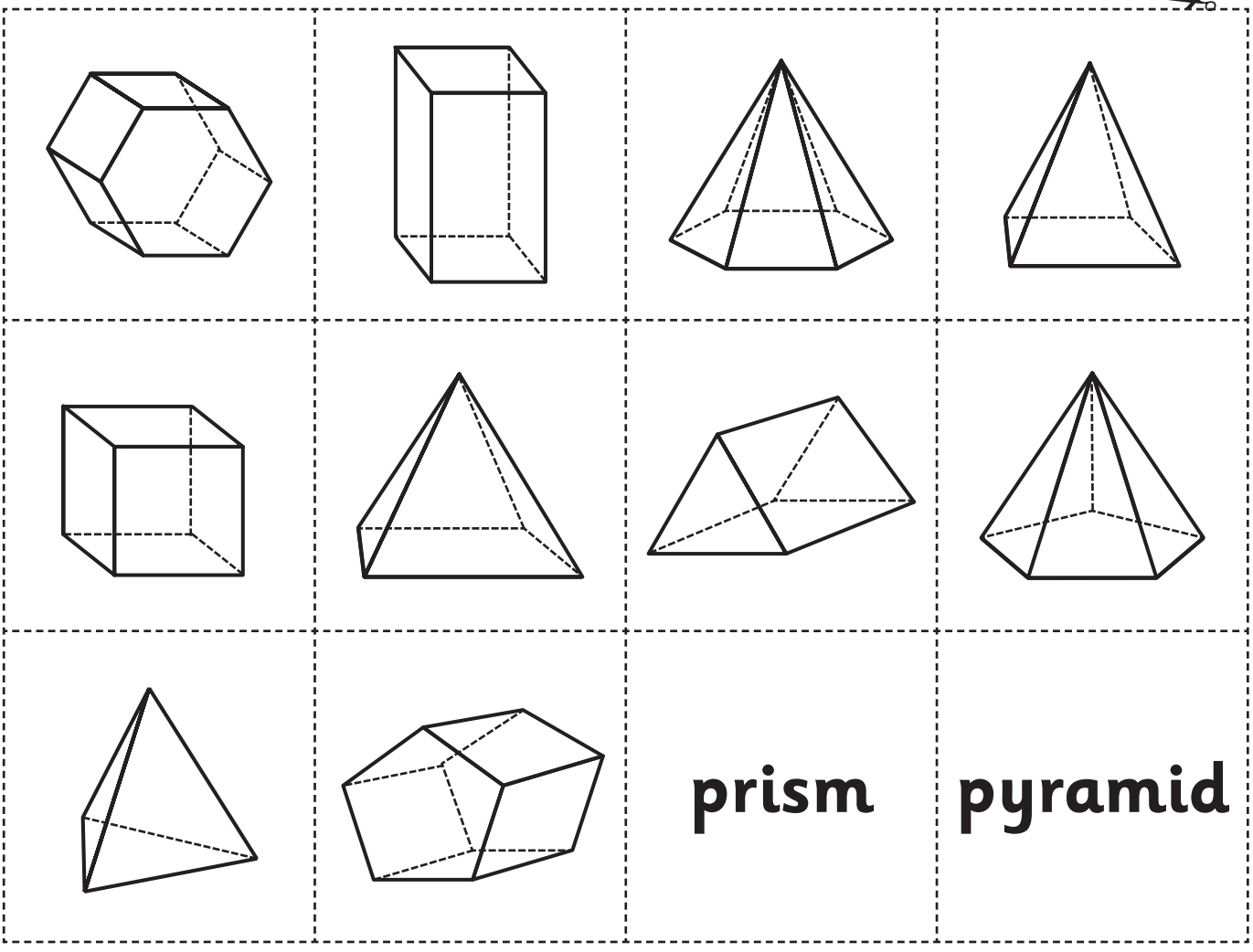
Cut out the solid cards and put them in a pile, face down. Cut out the labels and put them side by side, face up.

Turn over the solid cards one at a time and put them under the right label. You can play this by yourself or you can race against other people. Get somebody to check. How did you go?

Now, can you do it even faster?

What to do next:

Combine your solid cards with those of a partner and play Snap!

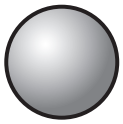


3D space – spheres, cylinders and cones

This is a ...

cylinder

cone



sphere

1 What is the **same** about these 3 solids?

They all have curved faces.

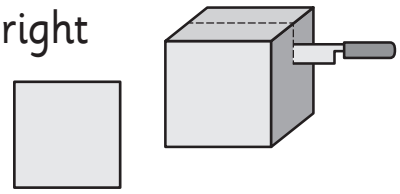
2 What is the **different** about these 3 solids?

Answers will vary and may include:

- **the cone has a point**
- **the cylinder has 3 faces, the cone has 2 faces and the sphere has 1 face**
- **the sphere has no edges**

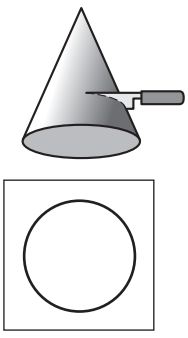
A **cross-section** is what you see when you slice right through something.

The cross-section of a cube would look like this.

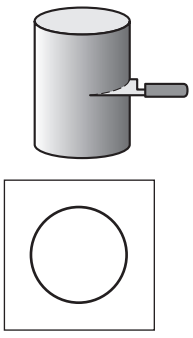


3 Draw the shape you would see if you cut these cross-sections.

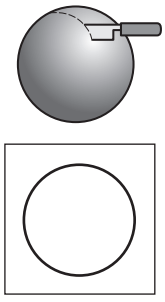
a



b



c



Do your answers surprise you?

Answers will vary.

3D space – explore

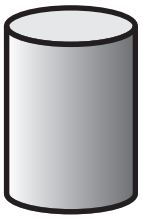
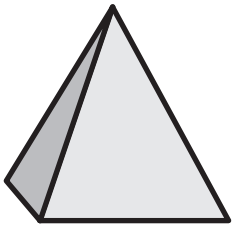
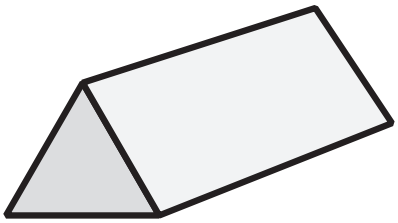
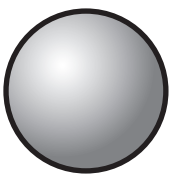
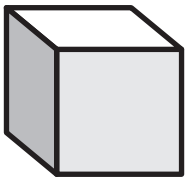
You will need: scissors glue stick

C copy

What to do:

Cut out the descriptions and the solids and match them. You can use real solids to help you make your decisions. When you are sure you are right, stick them in your maths book.

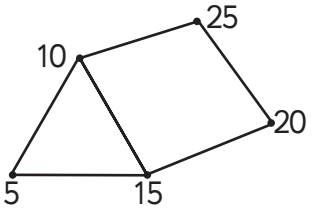
Label each solid. You score 5 points for each solid that is correctly matched and named.

I have 6 faces. They are all rectangles. I am a kind of prism.	I am a prism. My 2 end faces are triangles. My other faces are rectangles.	I am a prism. I have 6 square faces.
I have 1 square base. I have 4 triangular faces that meet in an apex.	I can roll. I have 1 curved surface.	I can roll. 2 of my faces are circles. Cans are my shape.
		
		

3D space – draw and build

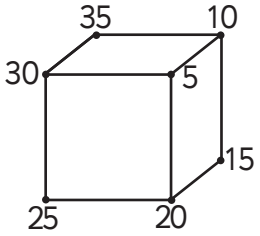
1 Count by 5s to join the dots and finish these 3D objects. Label them.

a



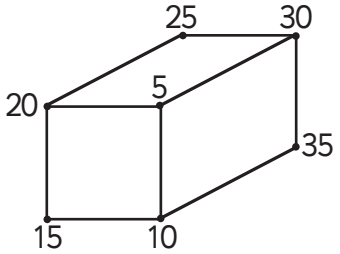
triangular prism

b



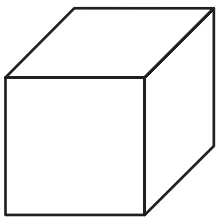
cube

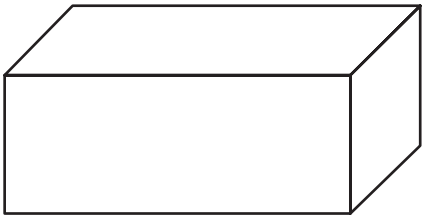
c



rectangular prism

2 Draw these 3D objects on the dot paper. It may take a few attempts to get them right so just keep having a go! What other shapes can you draw?





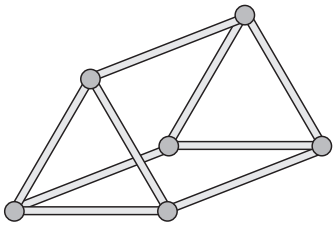
Teacher check.

3D space – draw and build

You will need: a partner, straws, plasticene, scissors

What to do:

This is a model of a triangular prism.

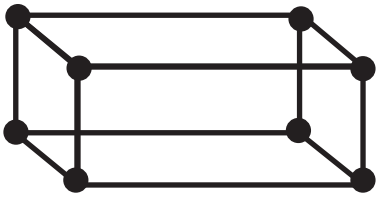


It uses 9 straws and 6 balls of plasticene.

Now use 12 straws and 8 balls of plasticene. Which **prism** can you make?

You can cut the straws if you want but the final product must only have 12 edges.

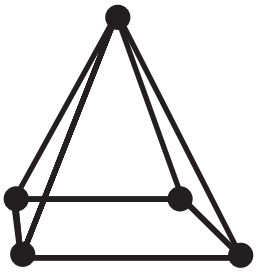
Draw your model below. Label it.



Rectangular prism

What to do next:

What kind of **pyramid** can you make using 8 straws and 5 balls of plasticine? Record your answer below.



Square pyramid

3D space – draw and build

We can look at this juice box from different view points.

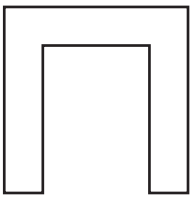
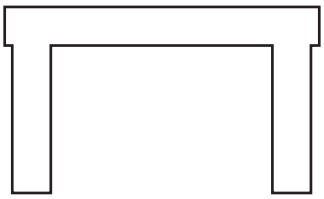
We see it differently each time.

front


top


side

1 Look at your desk from these view points. Draw what you see.

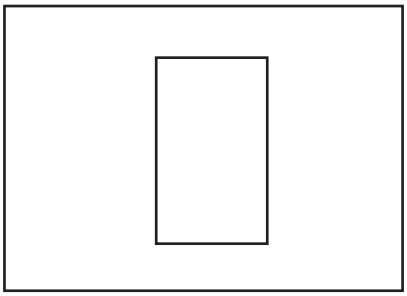
top view	**side view**	**front view**
		

2 Choose something else to look at from different view points. Draw what you see.

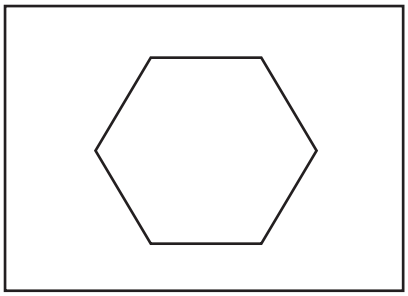
top view	**side view**	**front view**
	Teacher check.	

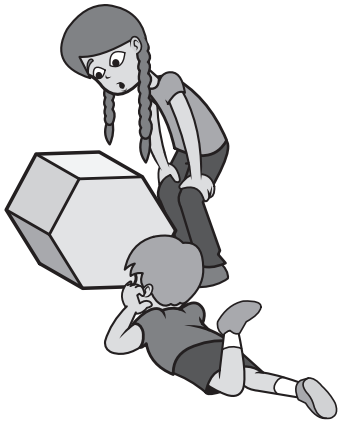
3 Draw:

a what the girl can see.



b what the boy can see.





3D space – draw and build

You will need:  partners  solids

What to do:

a Choose a solid. Draw the top view, side view and front view.

top	side	front
	Teacher check.	

b Now turn the solid upside down or lay it on its side. Draw the top view, side view and front view.

top	side	front
	Teacher check.	

c Did your drawings change?

Teacher check.

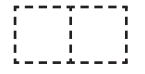
What to do next:

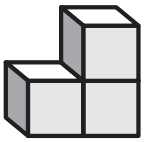
Find some partners to play 'I spy' with. Set up a group of solids on a table top. Say things like, 'I spy with my little eye, a solid whose top view is a square'.

3D space – draw and build

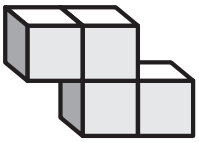
1 Build these models with cubes. Draw the top view.

a

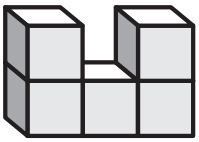




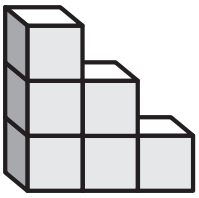
b



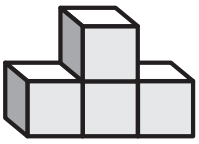
c



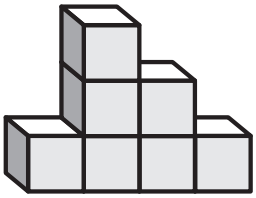
d



e



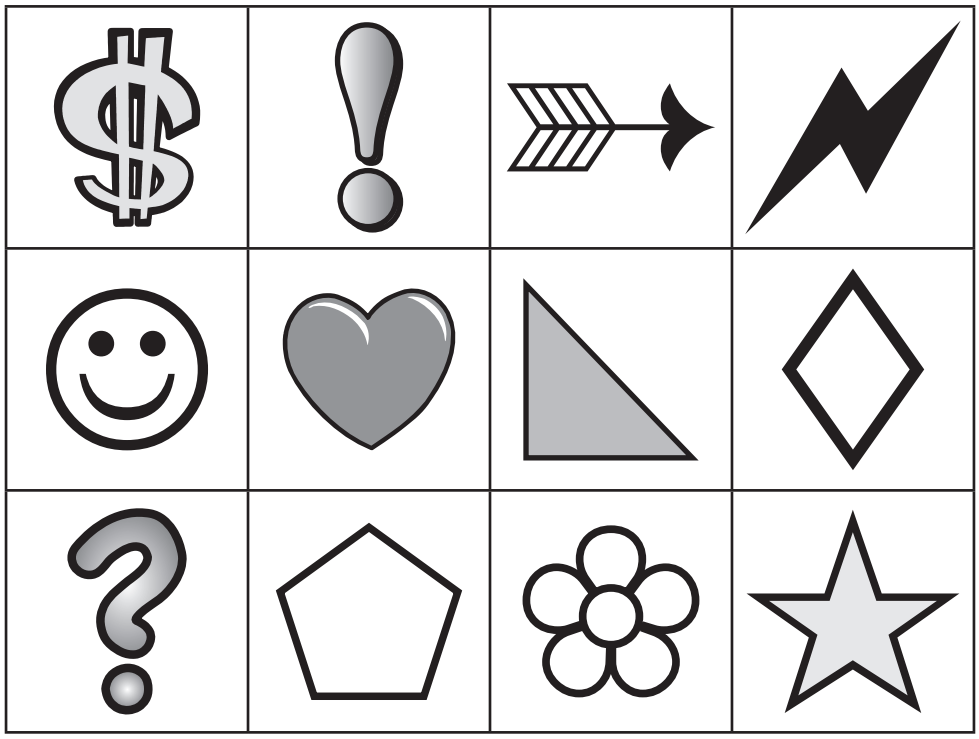
f



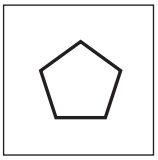
2 Build 3 of your own models. Draw the top view.

Teacher check.

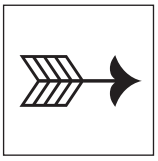
Position – describing position

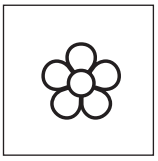


1 Look at the grid. Draw the figure that is:

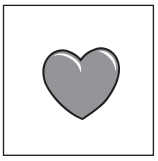
a next to  

b under  

c above  

d between  and  

e below  

f next to  

2 If you are the  where would you say the:

a  is? It is **above** me.

b  is? It is **next to** me.

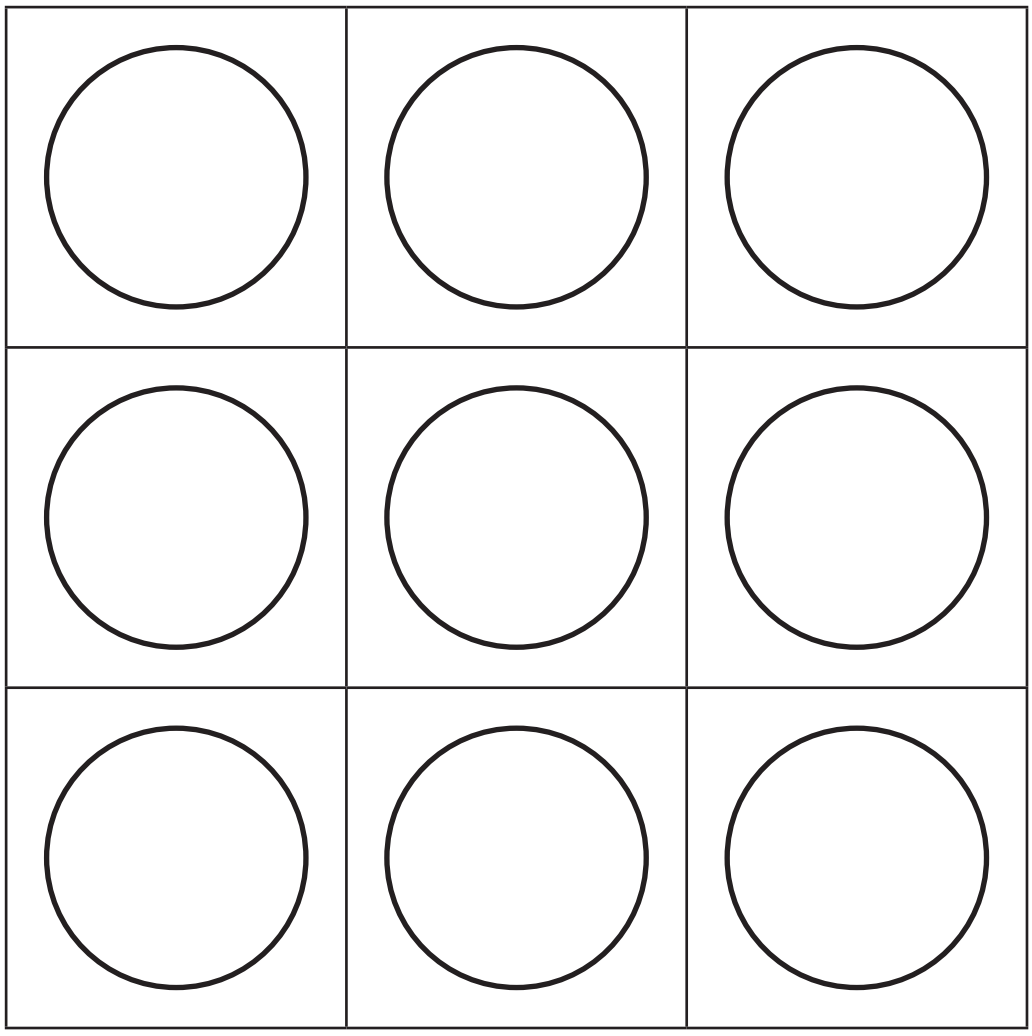
c  is? It is **below** me.

Position – describing position

You will need:  coloured pencils  counters

What to do:

Use the clues to colour the circles. You may want to experiment with coloured counters before you colour.

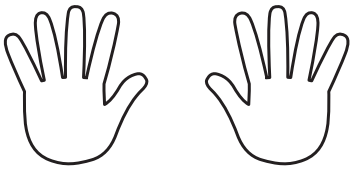


- orange is between red and blue
- green is below red
- black is to the left of both yellow and green

Answers will vary.

Position – describing position

Left and **right** are terms we often use when we are talking about position.



1 Colour:

a the **left** hand blue

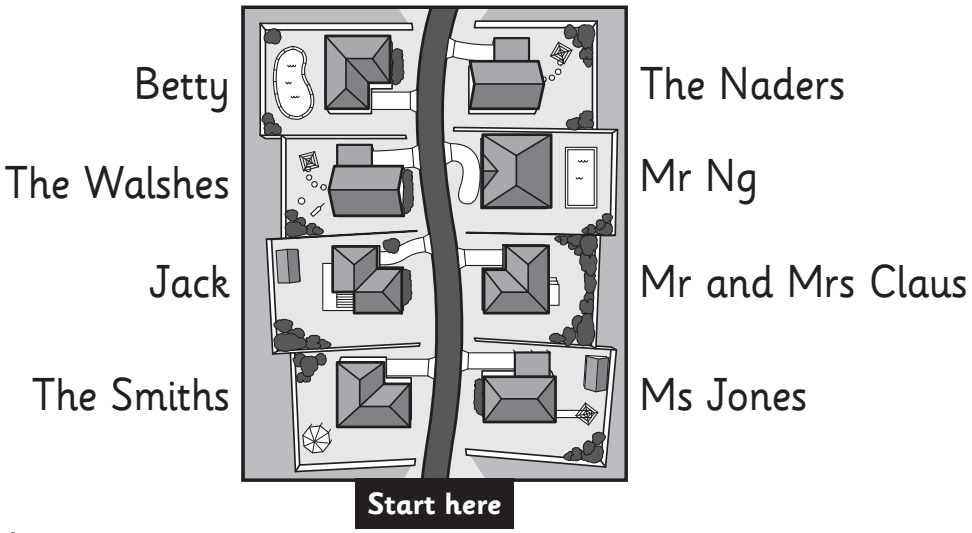
b the **right** hand green

c the **left** shoe yellow

d the **right** shoe orange

e the **right** flower pink

f the **left** flower purple



2 Who lives at:

a the 2nd house on the right? **Mr and Mrs Claus**

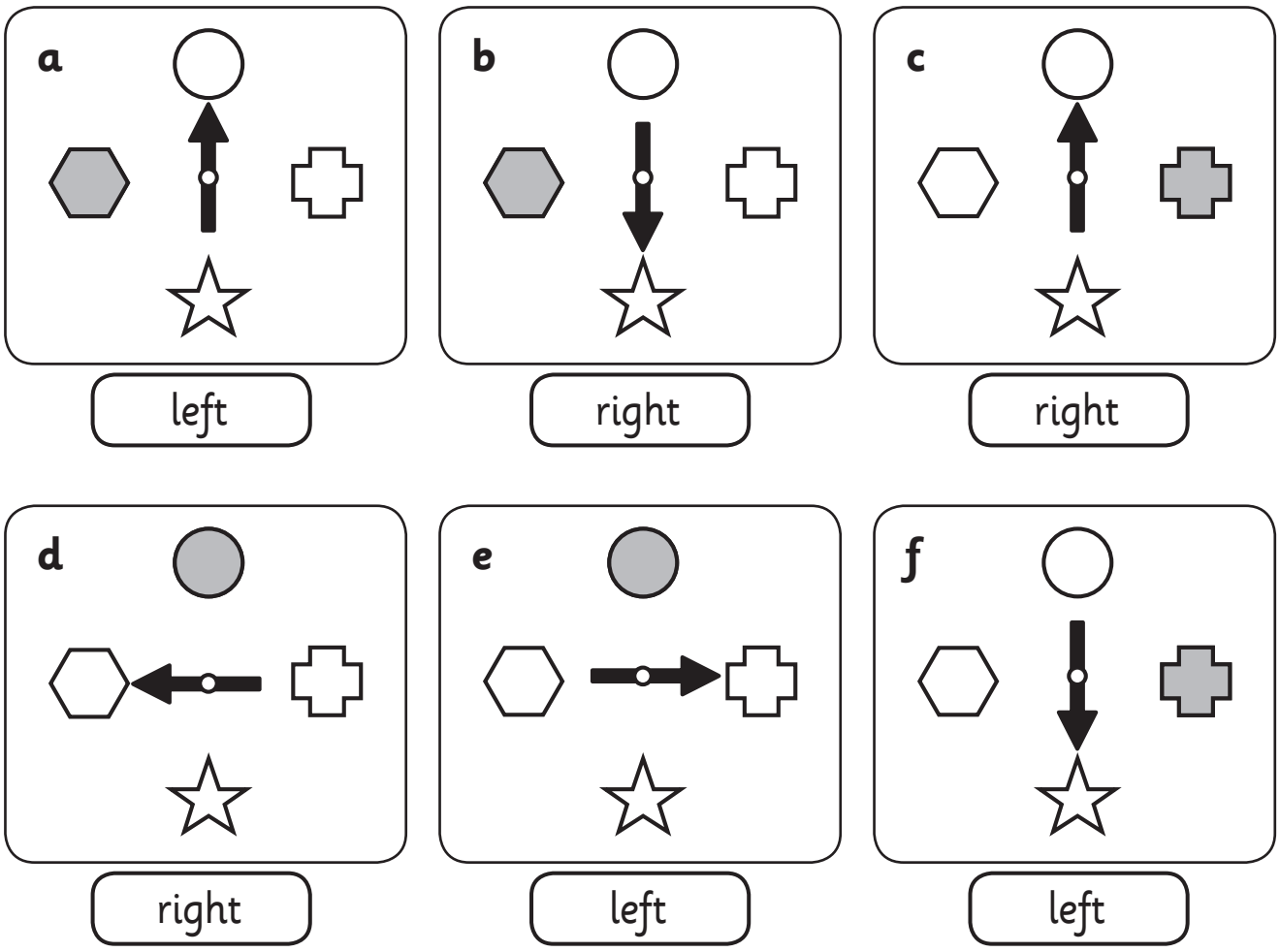
b the 3rd house on the left? **The Walshes**

c the 1st house on the left? **The Smiths**

d the 4th house on the right? **The Naders**

Position – describing position

1 You are facing the way the arrow points. Colour the shape the spinner would point to if it turned:



2 To get from your classroom to the front office, how many left and right turns must you make? Close your eyes and picture the path. Record the turns you make in your head. Now test it out.

Teacher check.

3 Choose another start and end point and test it out. Record your turns and where you went.

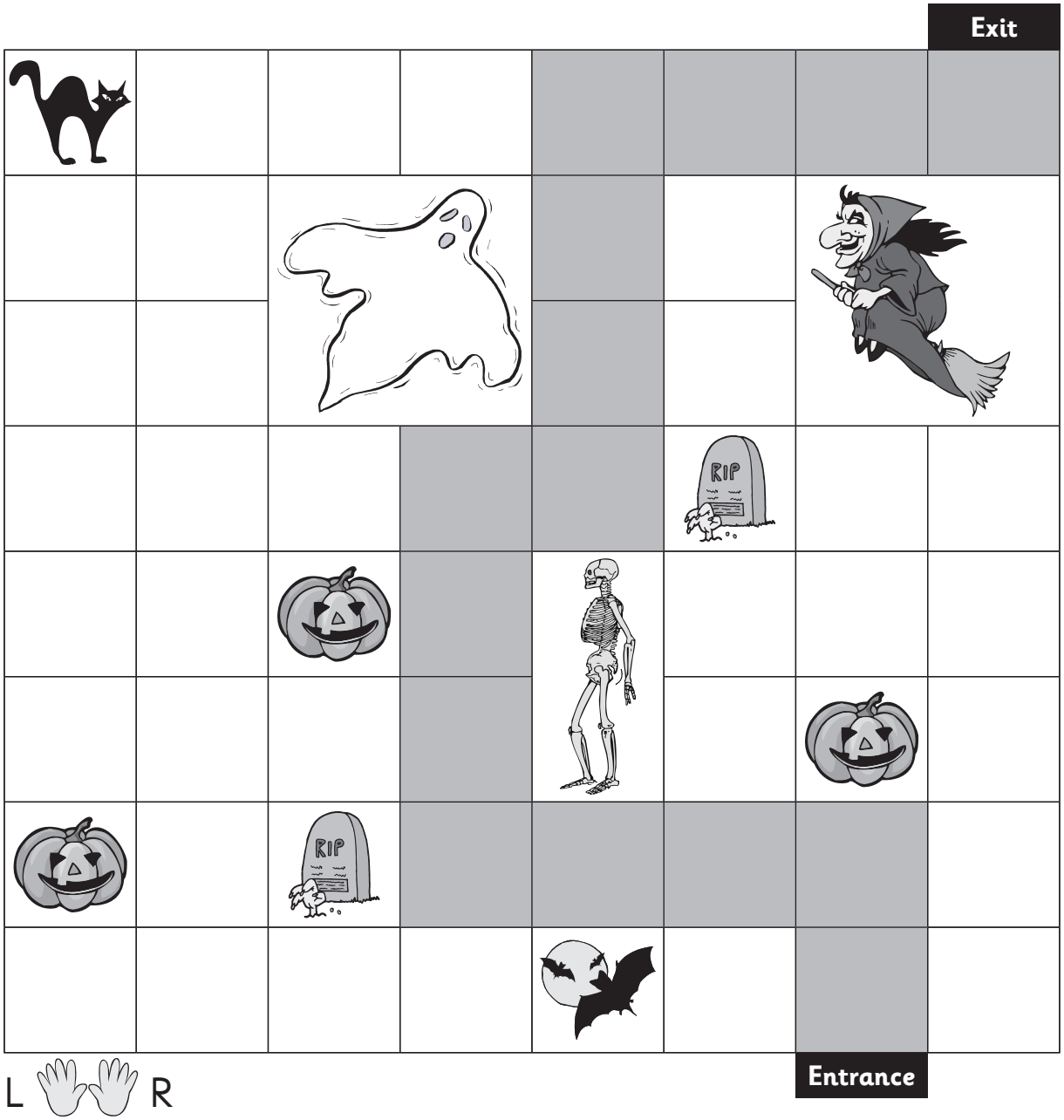
Teacher check.

Position – paths and directions

1 Wally's class turn their classroom into a Haunted House for the school fete.

a Colour the path Wally takes to get through the house without bumping into anything scary.

Up 2	Left 3	Up 3	Right 1	Up 3	Right 3



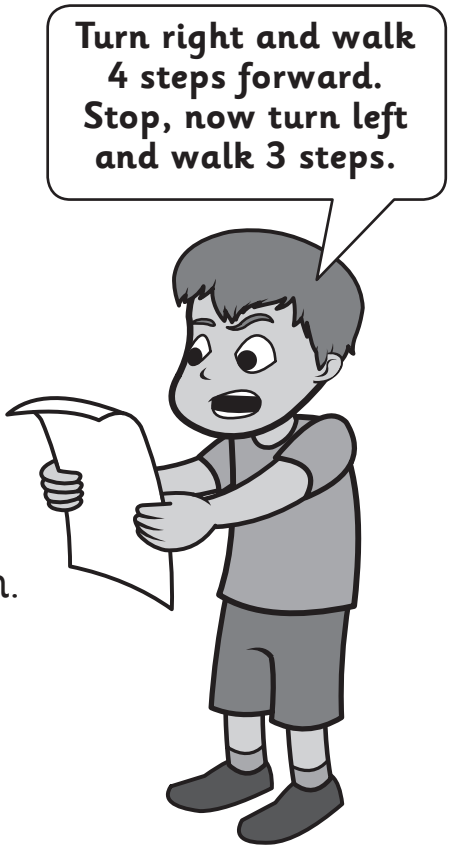
b Find another path that Wally could take. Record it here.

Teacher check.

Position – paths and directions

You will need: a partner

What to do:



You are going to describe a path to your partner using terms such as **left**, **right** and **forward**.

Plan your path round the classroom or school. Once you are happy with it, write it below. Also write where your partner should end up on a secret scrap of paper.

Read your directions one by one to your partner or give them to him or her so they can read them.

When they have finished, check that they are where they are supposed to be. If not, walk the path again together and work out where things went wrong. Fix any incorrect directions.

Teacher check.

Position – mapping

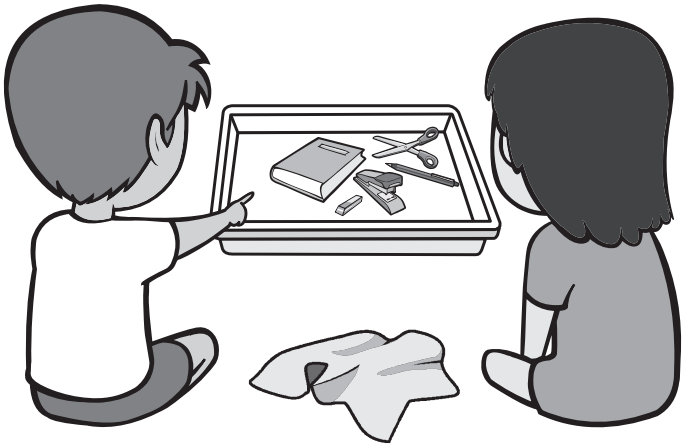
You will need: a partner, tote tray, tea towel, classroom objects

What to do:

Decide who will go first. Choose 5 classroom objects to position on the tray. Cover the tray with the cloth. Uncover the tray for the count of 10 then re-cover.

Your partner then has to draw or write the objects in the correct position on one of the trays below.

Swap roles. Play 3 times each. If 5 objects are too easy for you, feel free to add a few more!



Tray 1

Teacher check.

Tray 2

Tray 3

Position – mapping

What to do:

Map your classroom using the grid below to help you. Make sure you include the position of the doors, windows and your teacher's desk. Sketch everything in lightly.

Teacher check.

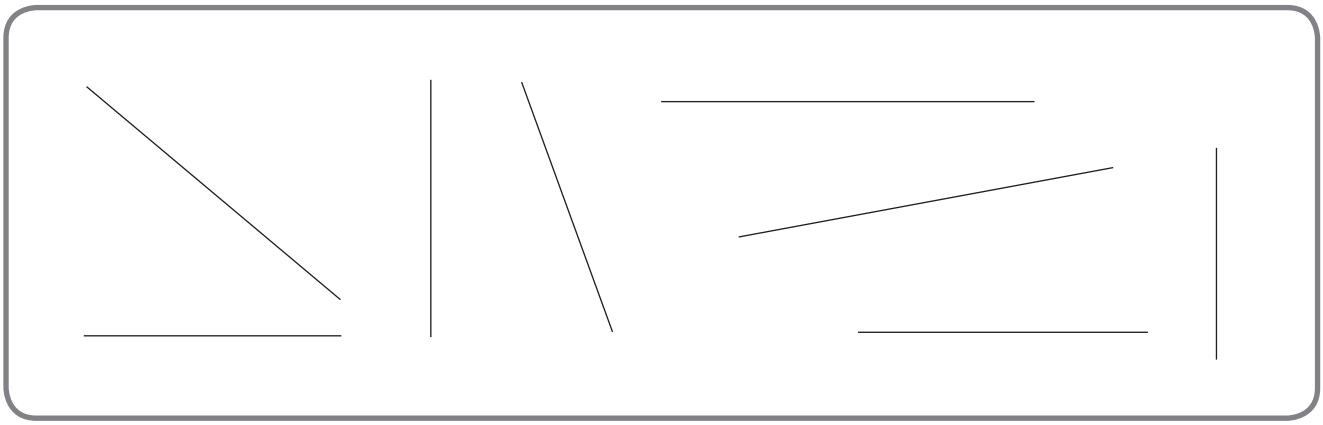
What to do:

Compare your map with someone else's. Do you agree on the positioning of objects? Make any changes you need to. Once you are happy with your map, colour and label the objects.

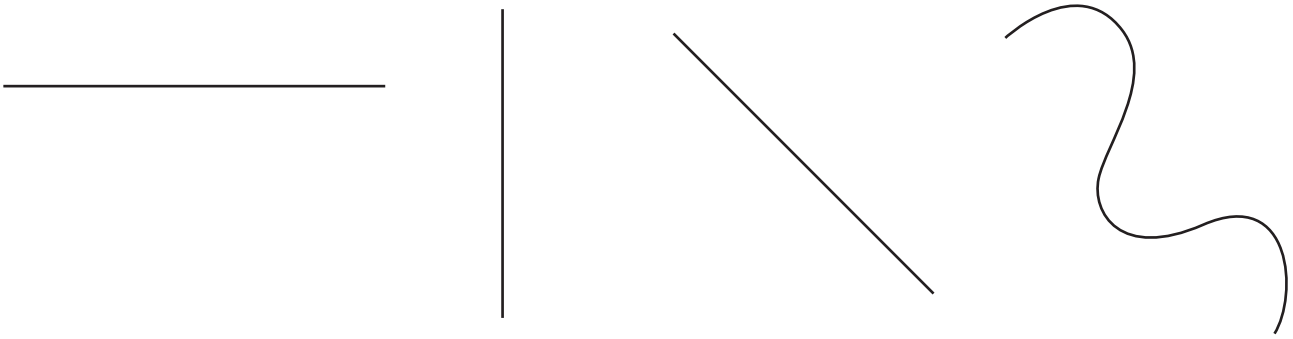
2D Space

Name _____

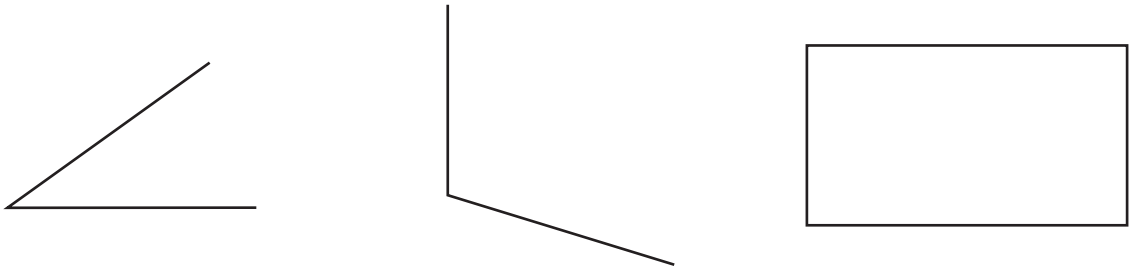
1 Trace the **vertical** lines in red. Trace the **horizontal** lines in blue. Trace the **oblique** lines in green.



2 Draw lines or curves parallel to each of these.



3 Loop the angles.

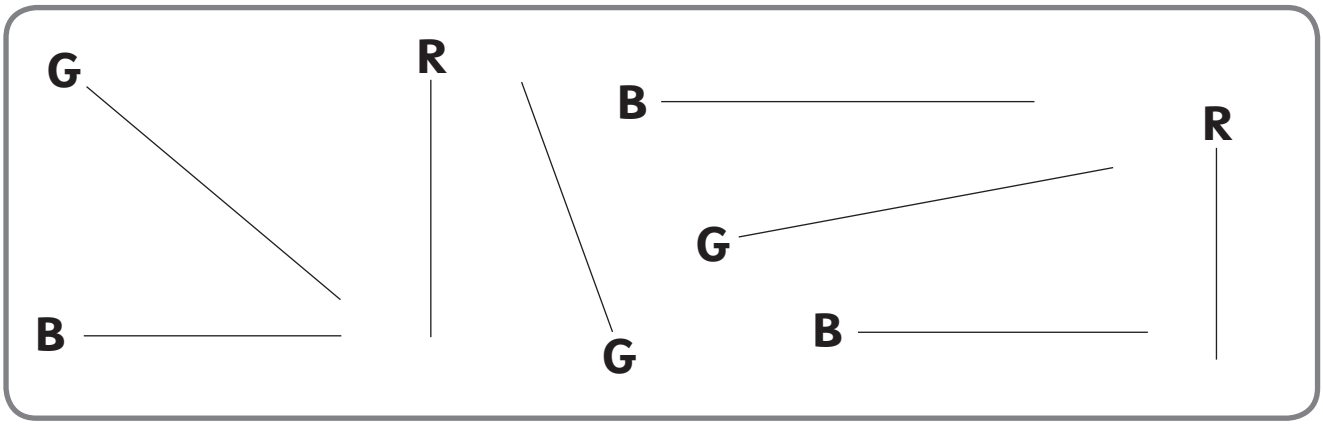


Skills and understandings	Not yet	Kind of	Got it
• Identifies vertical, horizontal and oblique lines			
• Identifies and creates parallel lines			
• Identifies angles			

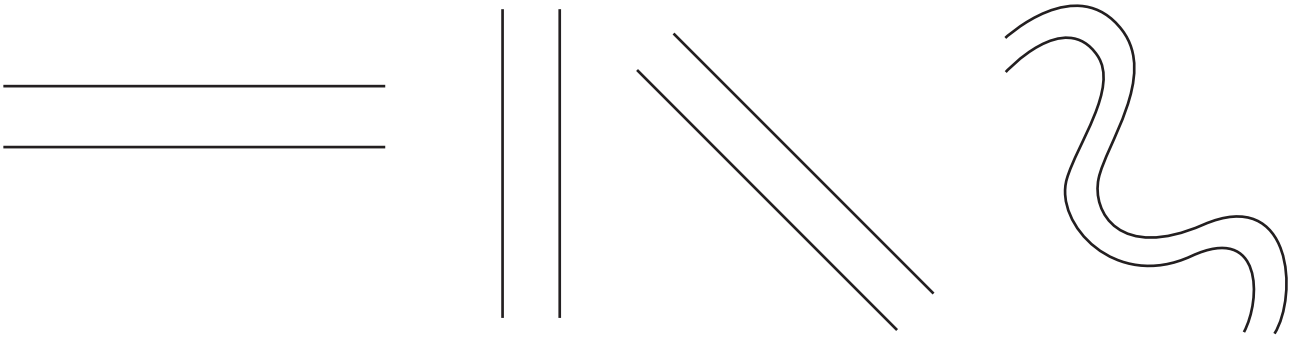
2D Space

Name _____

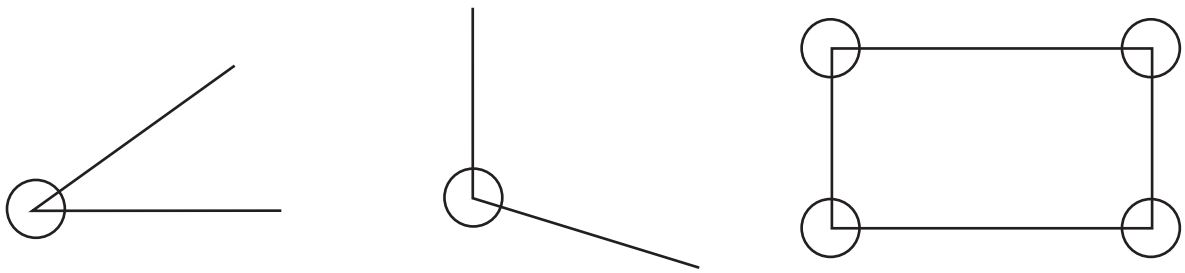
1 Trace the **vertical** lines in red. Trace the **horizontal** lines in blue. Trace the **oblique** lines in green.



2 Draw lines or curves parallel to each of these.



3 Loop the angles.

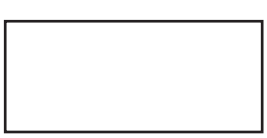
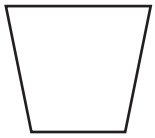
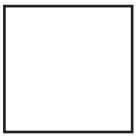
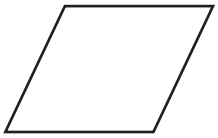


Skills and understandings	Not yet	Kind of	Got it
• Identifies vertical, horizontal and oblique lines			
• Identifies and creates parallel lines			
• Identifies angles			

2D Space

Name _____

1 Draw a line to match each 4-sided shape with its label.

square | rhombus | rectangle | trapezium

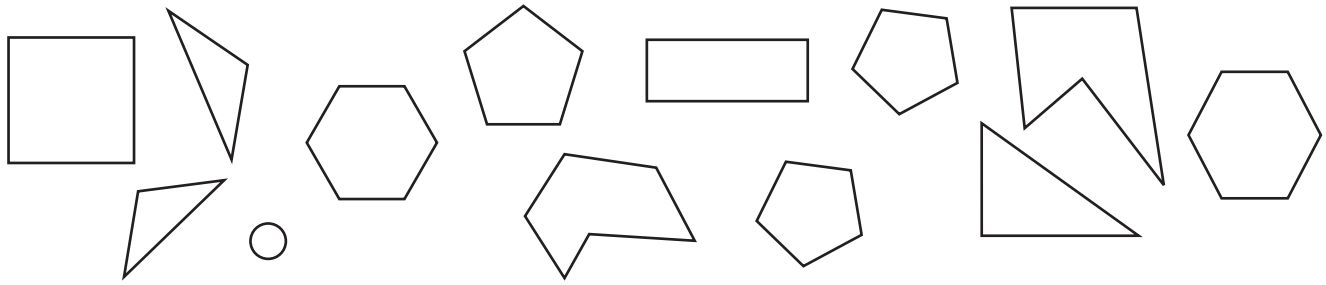
2 How are squares and rectangles **the same**?
How are they **different**?

same	**different**

3 What is a triangle? Draw it and explain.

Name _____

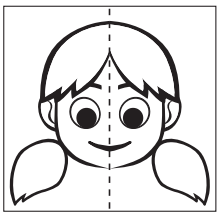
4 Colour the pentagons red. Colour the hexagons green.

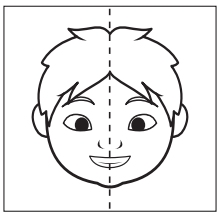


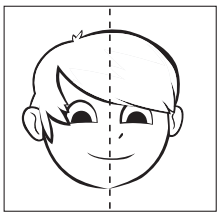
5 How many sides and corners?

	Shape	Sides	Corners
a	pentagon		
b	hexagon		
c	rhombus		
d	trapezium		

6 Loop the symmetrical faces.





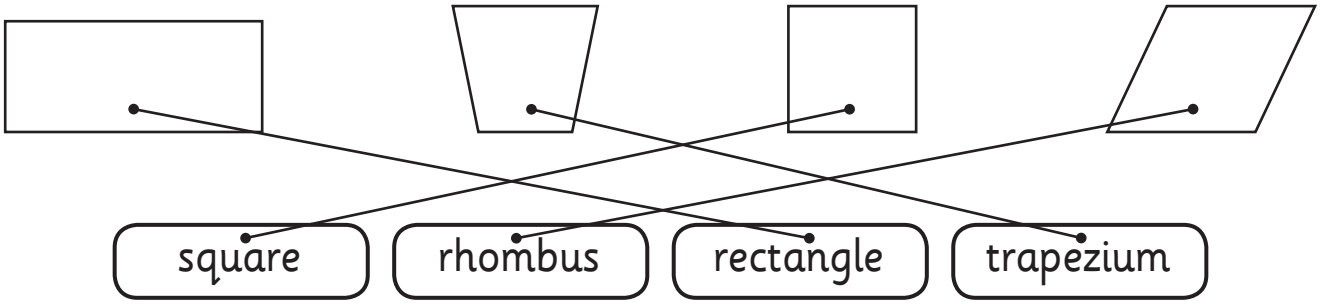


Skills and understandings	Not yet	Kind of	Got it
• Identifies squares, rectangles, triangles, pentagons, hexagons, rhombuses and trapeziums in different orientations			
• Describes properties of shapes using everyday language			
• Identifies sides and corners of 2D shapes			
• Identifies line symmetry			

2D Space

Name _____

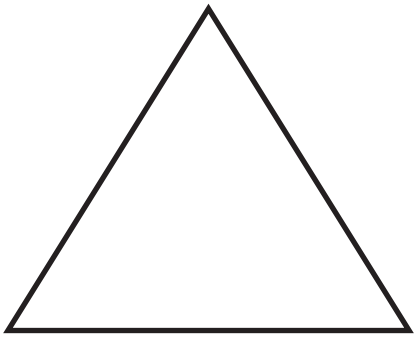
1 Draw a line to match each 4-sided shape with its label.



2 How are squares and rectangles **the same**?
How are they **different**?

same	**different**
Answers will vary.	**Answers will vary.**

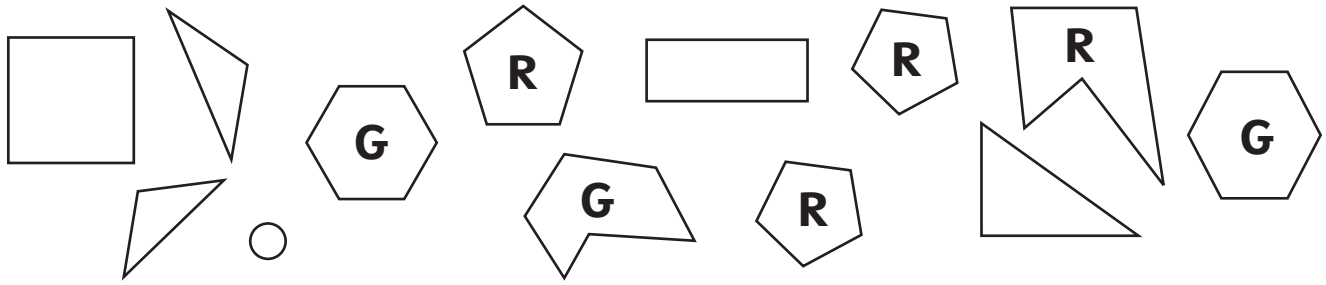
3 What is a triangle? Draw it and explain.



A shape with 3 sides and 3 angles.

Name _____

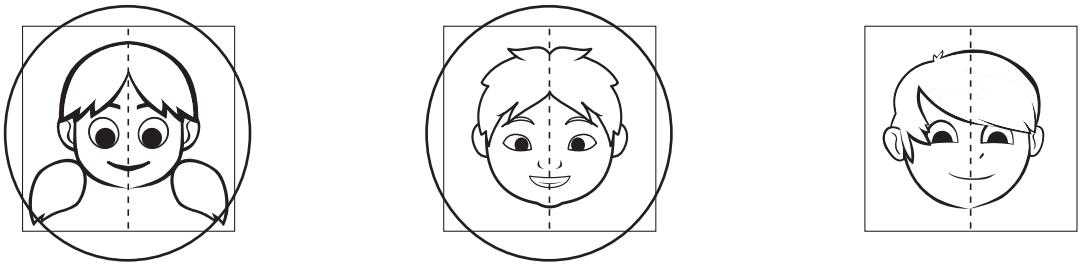
4 Colour the pentagons red. Colour the hexagons green.



5 How many sides and corners?

	Shape	Sides	Corners
a	pentagon	**5**	**5**
b	hexagon	**6**	**6**
c	rhombus	**4**	**4**
d	trapezium	**4**	**4**

6 Loop the symmetrical faces.

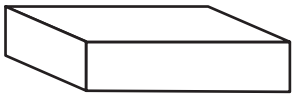


Skills and understandings	Not yet	Kind of	Got it
• Identifies squares, rectangles, triangles, pentagons, hexagons, rhombuses and trapeziums in different orientations			
• Describes properties of shapes using everyday language			
• Identifies sides and corners of 2D shapes			
• Identifies line symmetry			

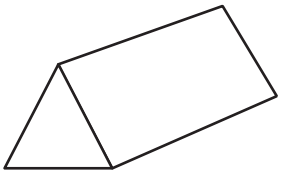
3D Space

Name _____

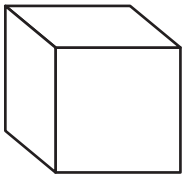
1 **a** Trace the **edges**.



b Loop the **corners**.



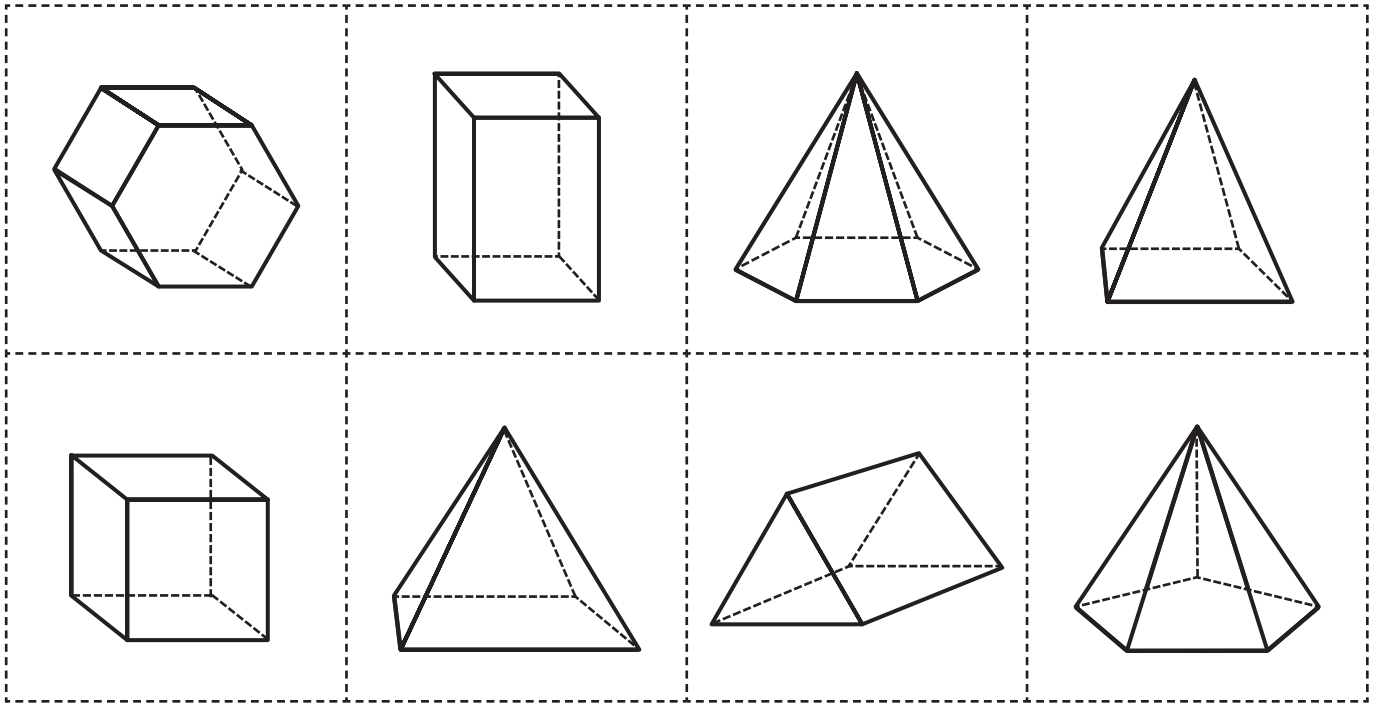
c Colour the ***faces***.



2 Find a  . How many ...

edges? ☐ corners? ☐ faces? ☐

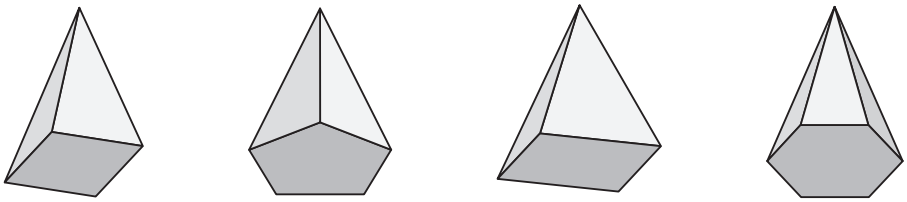
3 Colour the pyramids red. Colour the prisms green.



4 How are pyramids and prisms **different** from each other?

Name _____

5 Draw lines to match the pyramids with their names.



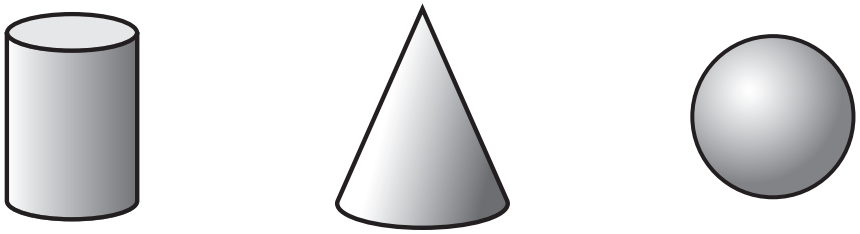
hexagonal pyramid

square pyramid

pentagonal pyramid

rectangular pyramid

6 Draw lines to match the solids with their names.



sphere

cylinder

cone

7 Colour the labels to show which solids:

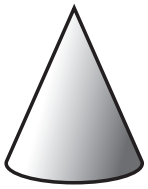
a

roll

slide

stack

b

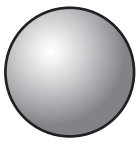


roll

slide

stack

c



roll

slide

stack

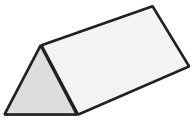
d

roll

slide

stack

e

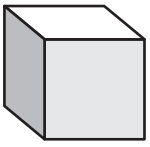


roll

slide

stack

f



roll

slide

stack

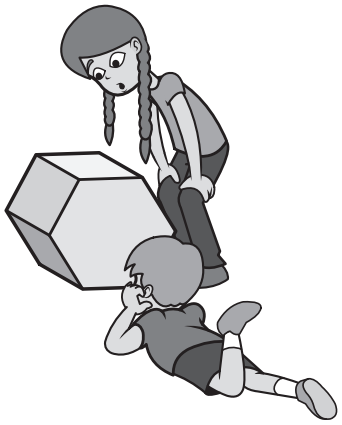
3D Space

Name _____

8 Draw:

a what the girl can see.

b what the boy can see.



9 

Draw:

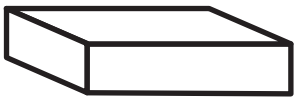
top view	side view	front view

Skills and understandings	Not yet	Kind of	Got it
• Identifies faces, edges and corners of solids			
• Identifies and compares pyramids and prisms			
• Names pyramids according to bases			
• Identifies spheres, cones and cylinders			
• Recognises which solids stack, roll and/or slide			
• Recognises that 3D objects look different from different view points			

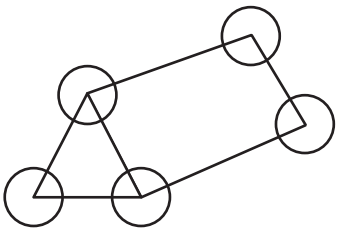
3D Space

Name _____

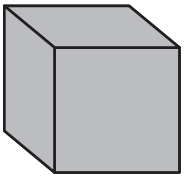
1 **a** Trace the **edges**.



b Loop the **corners**.



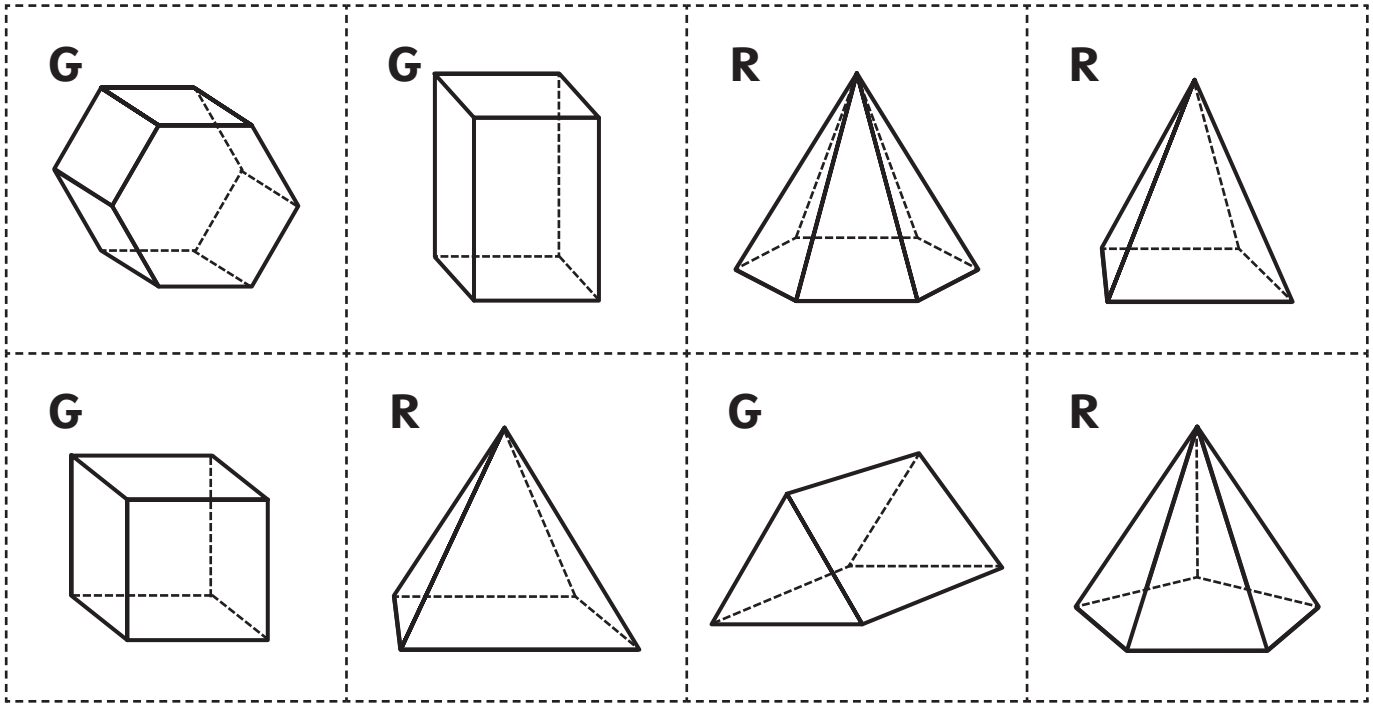
c Colour the ***faces***.



2 Find a  . How many ...

edges? **12** corners? **8** faces? **6**

3 Colour the pyramids red. Colour the prisms green.

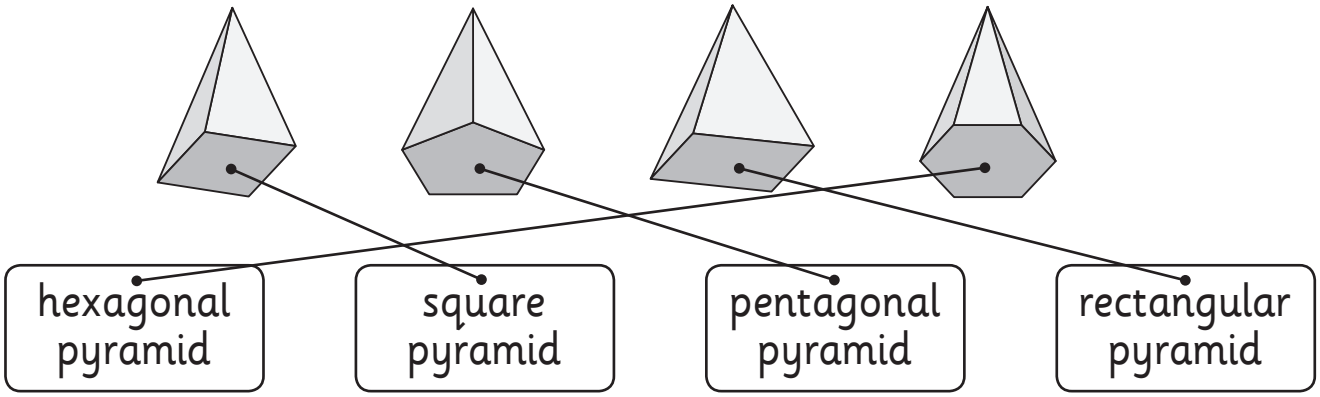


4 How are pyramids and prisms **different** from each other?

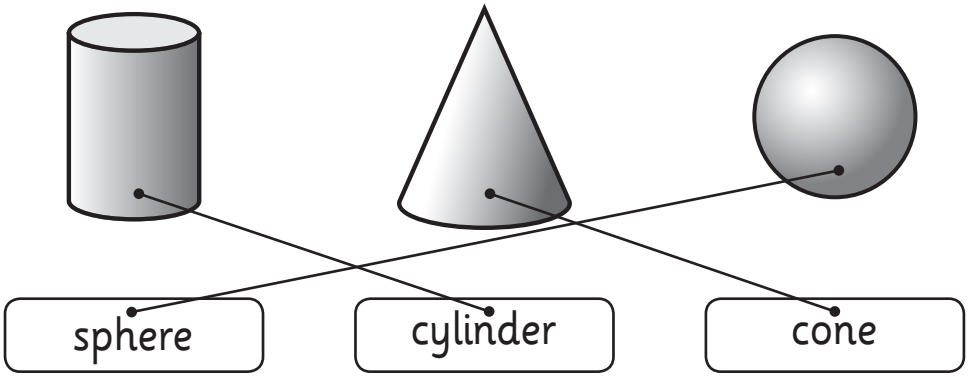
- **a pyramid's sides come up to a point**
- **a prism has 2 end faces that are the same and all other faces are rectangles**
- **a pyramid's sides are triangular, except for the base**

Name _____

5 Draw lines to match the pyramids with their names.



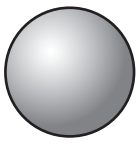
6 Draw lines to match the solids with their names.



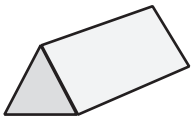
7 Colour the labels to show which solids:

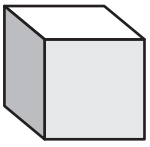
a 
roll
slide
stack

b 
roll
slide
stack

c 
roll
slide
stack

d 
roll
slide
stack

e 
roll
slide
stack

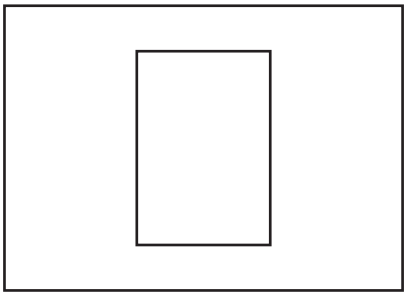
f 
roll
slide
stack

3D Space

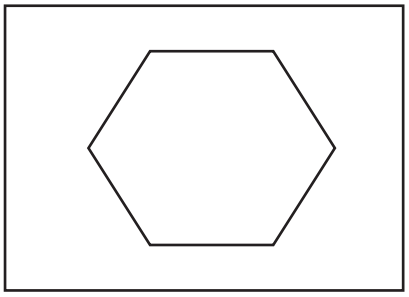
Name _____

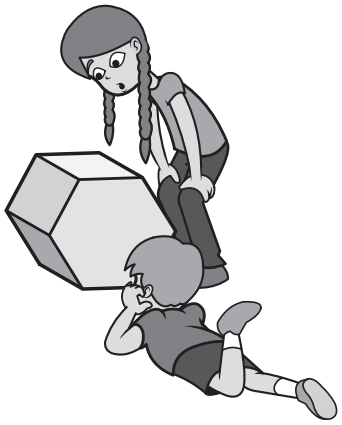
8 Draw:

a what the girl can see.



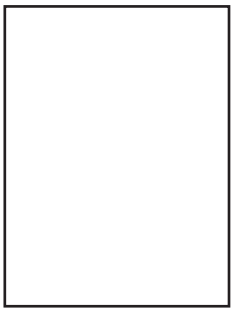
b what the boy can see.





9 

Draw:

top view	side view	front view
		

Skills and understandings	Not yet	Kind of	Got it
• Identifies faces, edges and corners of solids			
• Identifies and compares pyramids and prisms			
• Names pyramids according to bases			
• Identifies spheres, cones and cylinders			
• Recognises which solids stack, roll and/or slide			
• Recognises that 3D objects look different from different view points			

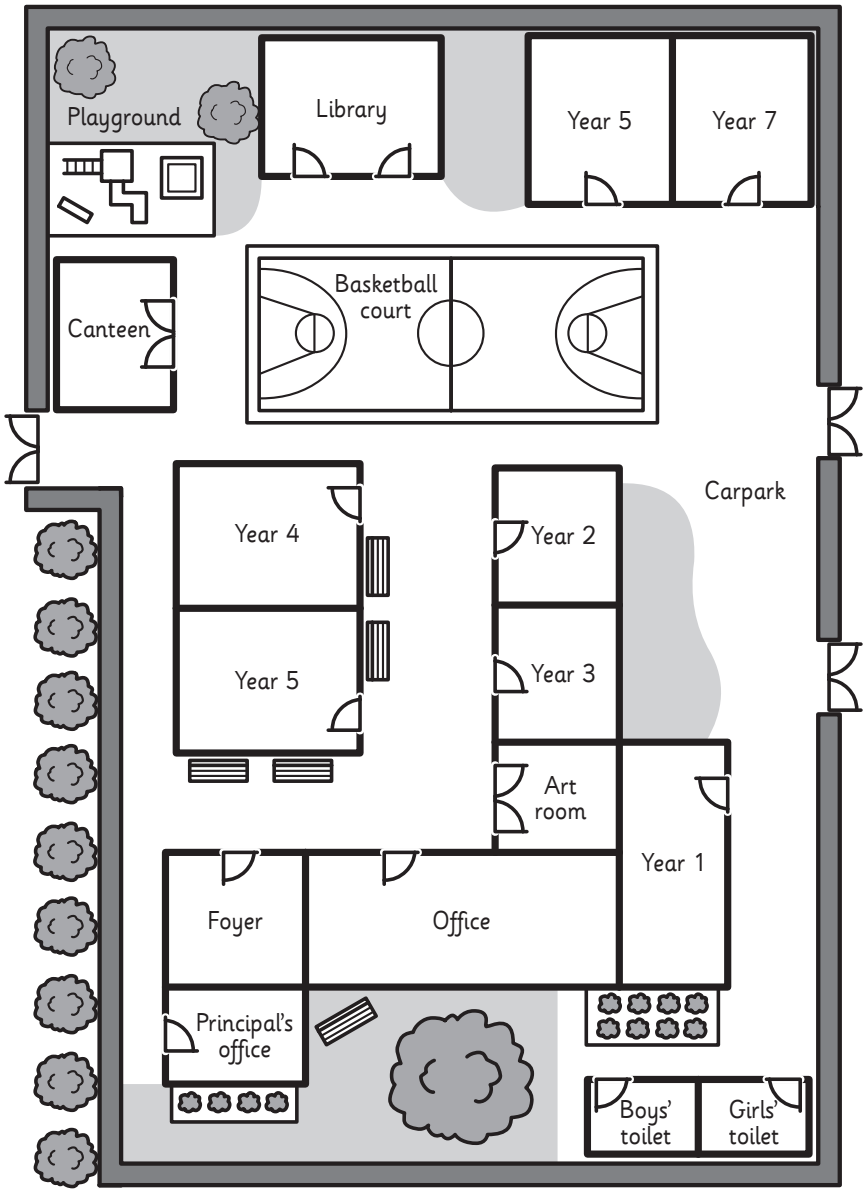
Position

Name _____

1 Look at the map below.

a Write a set of directions to get from the library to the office.

b Draw the path you have chosen on the map.



Position

Name _____

2 Draw:

a a circle in the **centre** of the box

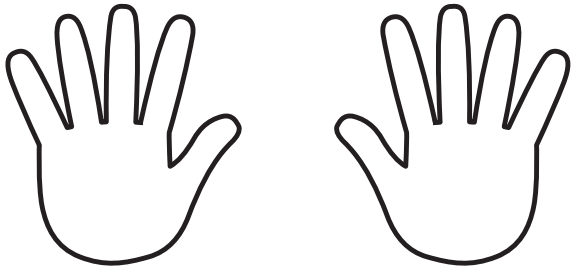
b a square **above** the circle

c a triangle **below** the circle

d a rectangle **next to** the circle

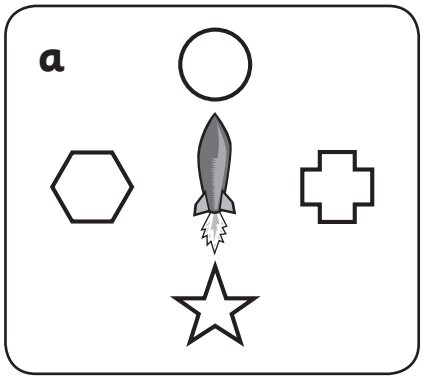
e a star in the **top left hand** corner

3 Colour the **left** hand **blue**.
Colour the **right** hand **red**.



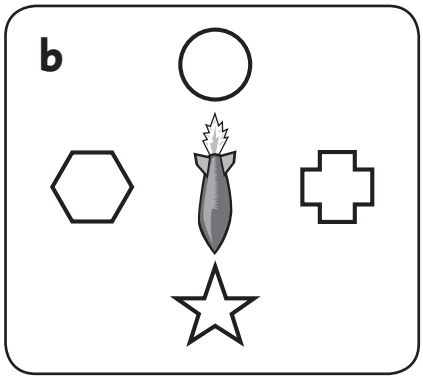
4 Imagine you are flying a rocket. For each picture, colour the shape you would head to if you turned:

a



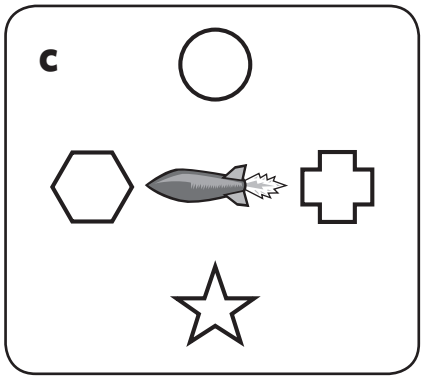
left

b



right

c



right

Skills and understandings	Not yet	Kind of	Got it
• Recognises and uses everyday language of position			
• Reads simple maps and draws routes			
• Identifies left and right and makes correct turns			

Position

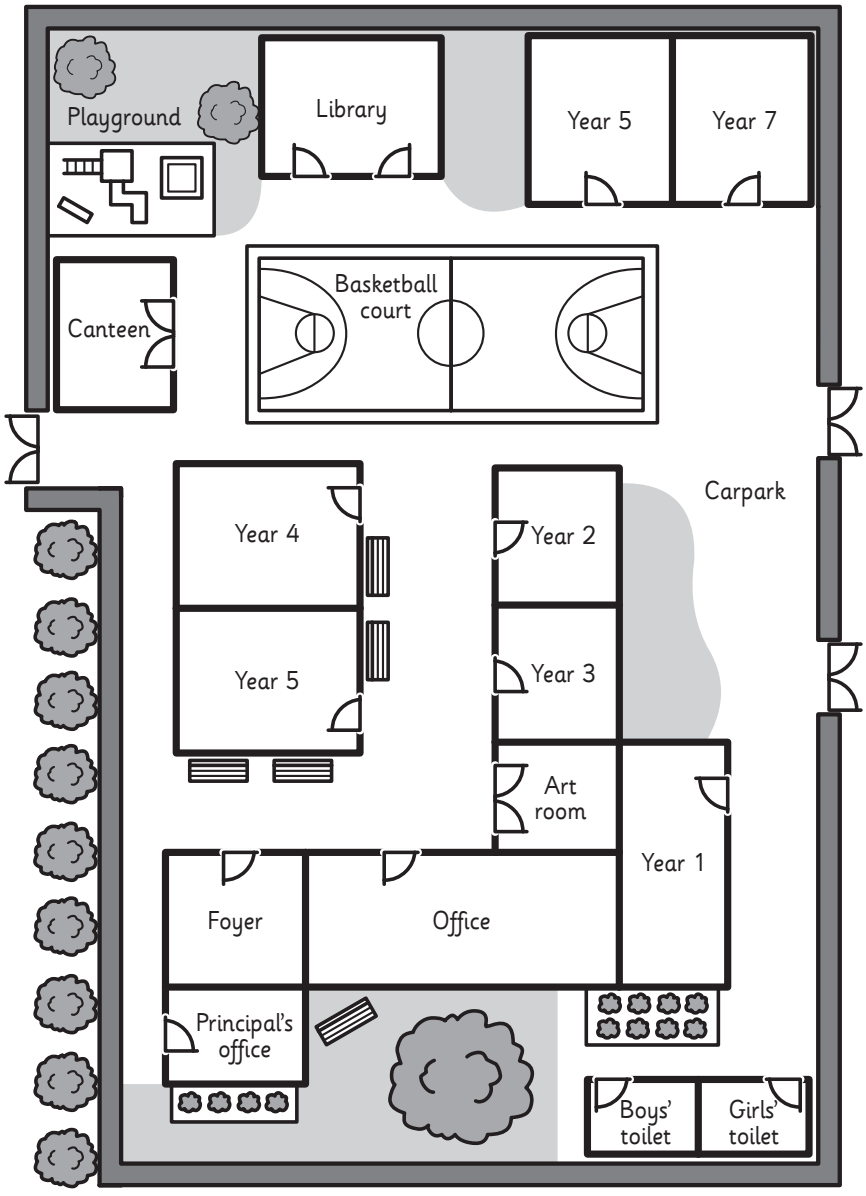
Name _____

1 Look at the map below.

a Write a set of directions to get from the library to the office.

Teacher check.

b Draw the route you have chosen on the map.



Position

Name _____

2 Draw:

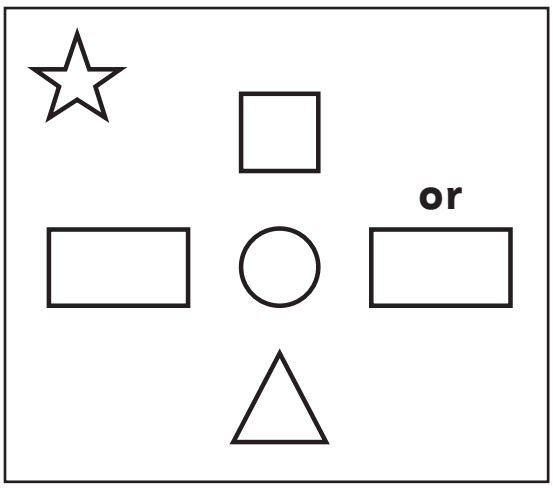
a a circle in the **centre** of the box

b a square **above** the circle

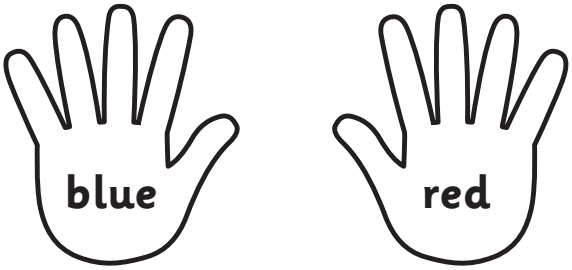
c a triangle **below** the circle

d a rectangle **next to** the circle

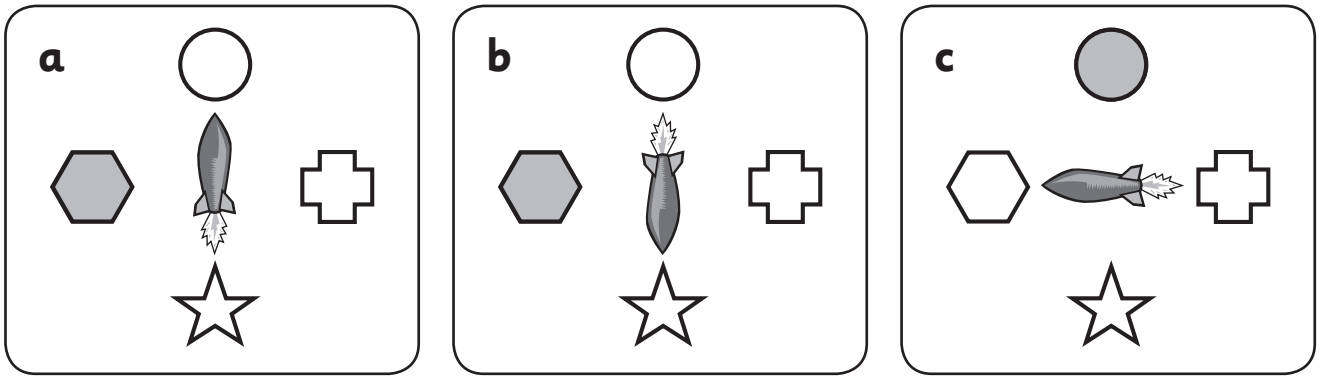
e a star in the **top left hand** corner



3 Colour the **left** hand **blue**.
Colour the **right** hand **red**.



4 Imagine you are flying a rocket. For each picture, colour the shape you would head to if you turned:



Skills and understandings	Not yet	Kind of	Got it
• Recognises and uses everyday language of position			
• Reads simple maps and draws routes			
• Identifies left and right and makes correct turns			

Series C – Space and Shape

Region	Outcomes
NSW	**SGS.1** Sorts, describes and represents three-dimensional objects including cones, cubes, cylinders, spheres and prisms, and recognises them in pictures and the environment
SA	**1.12** Uses key spatial features to describe and represent 2D and 3D shapes from personal and community activities. Examples of evidence include that the child: • uses spatial features such as curved, straight and flat boundaries (e.g. surfaces, edges, sides); number and relative size of corners; and orientation and line symmetry to identify, sort, compare and describe a wide variety of familiar objects, and relate shape to function • uses spatial features to identify, sort, compare and describe common geometric figures such as polygons (e.g. triangles, quadrilaterals, pentagons), circles and ellipses; and common geometric solids such as cubes, prisms, cones and spheres relates spatial features of 2D and 3D shapes to the function of everyday objects, and uses mathematical terminology to communicate this to peers • represents a wide variety of figures and solids, by using drawings and sketches and drawing software, and by constructing models made from consumable materials. They pay attention to key spatial features. **1.13** Uses simple transformations to orientate and move familiar objects and themselves when they are constructing, arranging and locating. Examples of evidence include that the child: • identifies and describes situations from their play, personal and mathematical activity where flips, slides and rotations have changed their orientation or position in space, as well as that of 2D and 3D shapes • communicates, represents and compares situations where they have identified and/or used simple transformations to change the orientation and position of shapes and familiar objects (including themselves). They use verbal description, drawings, tracings, photographs or prints • uses simple transformations to predict position and orientation when making personal and collective plans, constructing, or locating and producing spatial arrangements and patterns **1.14** Uses everyday and positional language and makes informal maps to represent their location and familiar places. Examples of evidence include that the child: • uses positional language (e.g. next to, to the right of, between) and reference points or landmarks to describe locations, pathways and arrangements • produces sketches and informal 'bird's-eye view' maps to represent familiar locations and pathways between locations, paying attention to relative position and orientation. They also use sketches and maps produced by peers • produces sketches and informal plans to represent arrangements of figures and solids, paying attention to relative position, shape and order. They also use sketches and plans produced by peers to arrange a collection of solids • represents locations, pathways and arrangements using constructions and models. They use sketches, informal maps and plans produced with pencil and paper or with drawing software • uses sketches, informal maps and plans to organise personal and collective activities

Series C – Space and Shape

Region	Outcomes
QLD	**Level 1** **Topic – Shape and line** **S 1.1** Students identify everyday shapes and objects using geometric names and make and describe simple representations of them **Topic – Location, direction and movement** **S 1.2** Students follow and give simple directions to move through familiar environments and locate and place objects in those environments
ACT	**17.EC.2** Direct comparison and measurement of shapes and objects **17.EC.4** Identify, distinguish and name the attributes of shapes and objects **17.EC.5** Directly compare shapes and objects through physical manipulation,
NT	**S KGP 3.1 3D objects and 2D shapes** • identify some common 2D shapes; demonstrate understanding of the relationship between the shape of objects and their function **S KGP 3.2 Lines and angles** • identify, describe and draw lines and pairs of lines, in different orientations **S KGP 3.3 Transformations** • transform a variety of objects and shapes and demonstrate an awareness of relationship between shape and function **S KGP 3.4 Location** • give and follow directions in familiar environments
TAS	**Stage 5** **Space and shape** • describe simple properties of regular shapes e.g. count number of sides, recognise straight/curved • name common 3D shapes e.g. cube, cylinder • represent familiar environments as informal 'maps' with key features labelled e.g. represent the classroom and label the door and the book corner
VIC	**VELS Level 2** • students recognise lines, surfaces and planes, corners and boundaries; familiar two-dimensional shapes including rectangles, rhombuses and hexagons, and three-dimensional shapes and objects including pyramids, cones, and cylinders • they arrange a collection of geometric shapes, such as a set of attribute blocks, into subsets according to simple criteria, and recognise when one set of shapes is a subset of another set of shapes • they recognise and describe symmetry, asymmetry, and congruence in these shapes and objects • they accurately draw simple two-dimensional shapes by hand and construct, copy and combine these shapes using drawing tools and geometry software • they apply simple transformations to shapes (flips, turns, slides and enlargements) and depict both the original and transformed shape together • they specify location as a relative position, including left and right, and interpret simple networks, diagrams and maps involving a small number of points, objects or locations

Series C – Space and Shape

Region	Outcomes
WA	**Represent spatial ideas** The focus is on: • exploration of the local environment and the objects in it • language to develop initial ideas of location, shape and transformation • changes to shape, size or position of objects • planning, making and drawing shapes and objects, including component parts of objects • features of 2D regular and irregular shapes **Represent location** • the language of position, direction and orientation (e.g. between, under, behind, in front of, below, on, near, right, left, a long way from, close to) • position, direction and orientation of things can be acted out in order to answer questions about a story (e.g. acting out under, over, around and through for the song Going on a Bear Hunt) • how to draw informal maps placing important things from their environment in order as they appear (e.g. design an obstacle course as a group activity) • paths exist within the environment (e.g. the path of a ball thrown, train tracks, foot paths, roads) **Represent shape** • shapes exist within the environment (e.g. circles in onion rings, hexagons in beehives, triangles in 'give way' signs) • how to make and arrange things using a variety of materials (e.g. box and block construction) • objects can be made of component parts that work differently together (e.g. they may stack, fit together, balance, tip over or roll) • how to draw a variety of 2D regular and irregular shapes to represent objects in stories and their environment • features of 3D objects (e.g. describing objects in a 'feely bag') • the connection between shape and function (e.g. why wheels are round and not square) • 3D objects contain 2D shapes within them • the features of 2D shapes (e.g. a triangle has three sides) • how to create recognisable copies of arrangements of shapes • the component parts of a shape or object relate both to each other and to the whole **Represent transformations** • patterns can be copied or repeated (e.g. making a butterfly blob painting, using potato stamps to make a repeating pattern) • how to construct repetitive patterns using multiple copies of shapes • shapes can be found within other shapes and can fit together to form new shapes (e.g. after doing puzzles, making a shape puzzle for a partner) • strategies to fit shapes into a given space (e.g. visualising different orientations or using trial-and-error to fit a piece of a jigsaw in a puzzle) • patterns can be made by movements such as reflecting, translating and rotating (e.g. flip, slide and turn) • language to describe movements in a pattern (e.g. turned, sideways, up, down, flipped) • language to describe movement (e.g. back, forward, around, past, turn, up, down) • how to produce symmetrical pictures and shapes (e.g. drawing freehand, folding, cutting or tracing) and language to describe these pictures

Series C – Space and Shape

Draft National Curriculum	**M1MG1** Recognise, visualise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features such as number of corners or faces or length of sides **M2MG6** Predict and draw the effect of 1-step sliding, flipping and turning of familiar shapes and objects including using digital technology and identify half and quarter turns from any starting point **M2MG7** Interpret simple maps of familiar locations such as the classroom to identify the relative position of key features