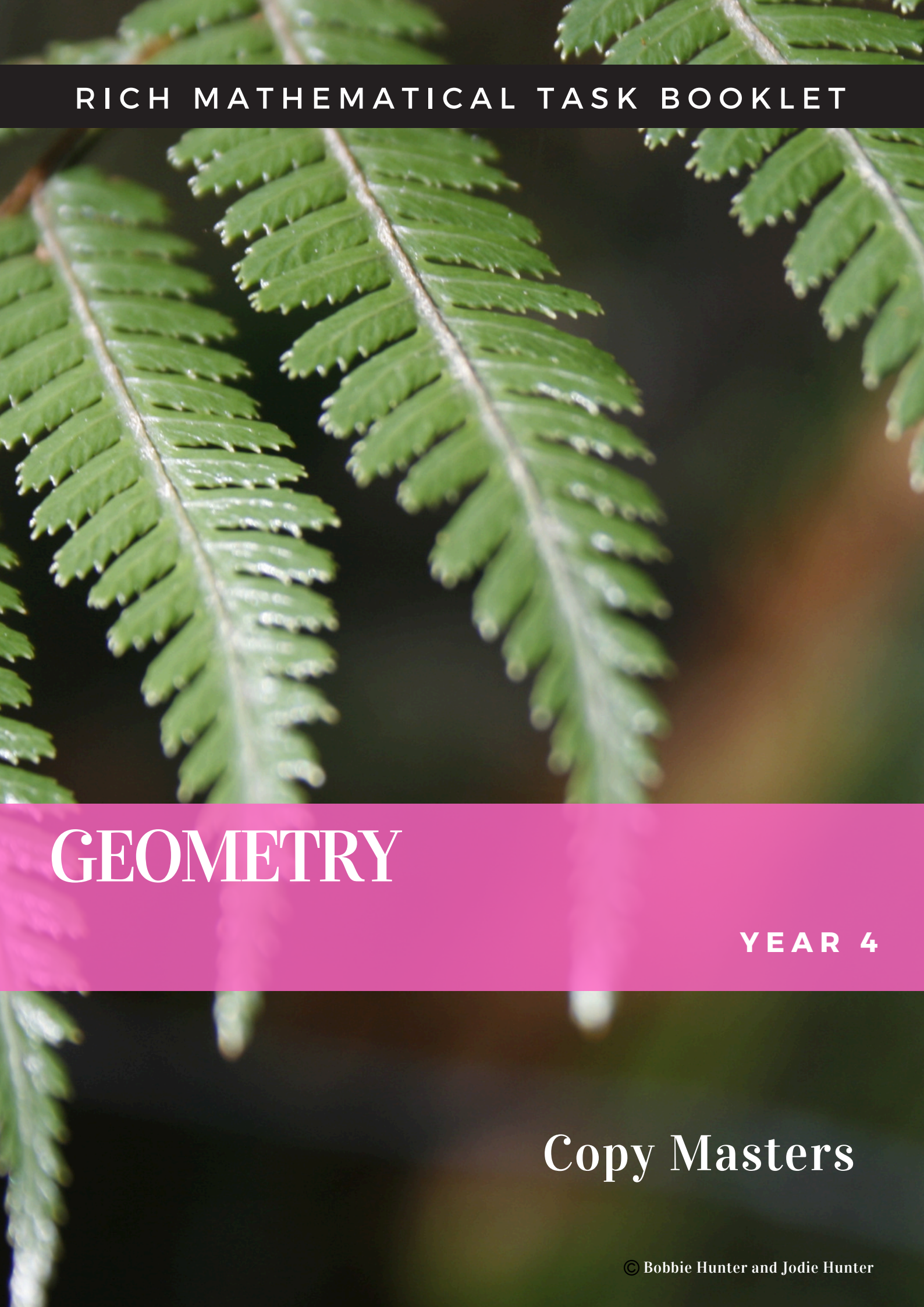


RICH MATHEMATICAL TASK BOOKLET

GEOMETRY

YEAR 4

Copy Masters

Year 4 - Geometry

Task 1

Sort these shapes into different groups.

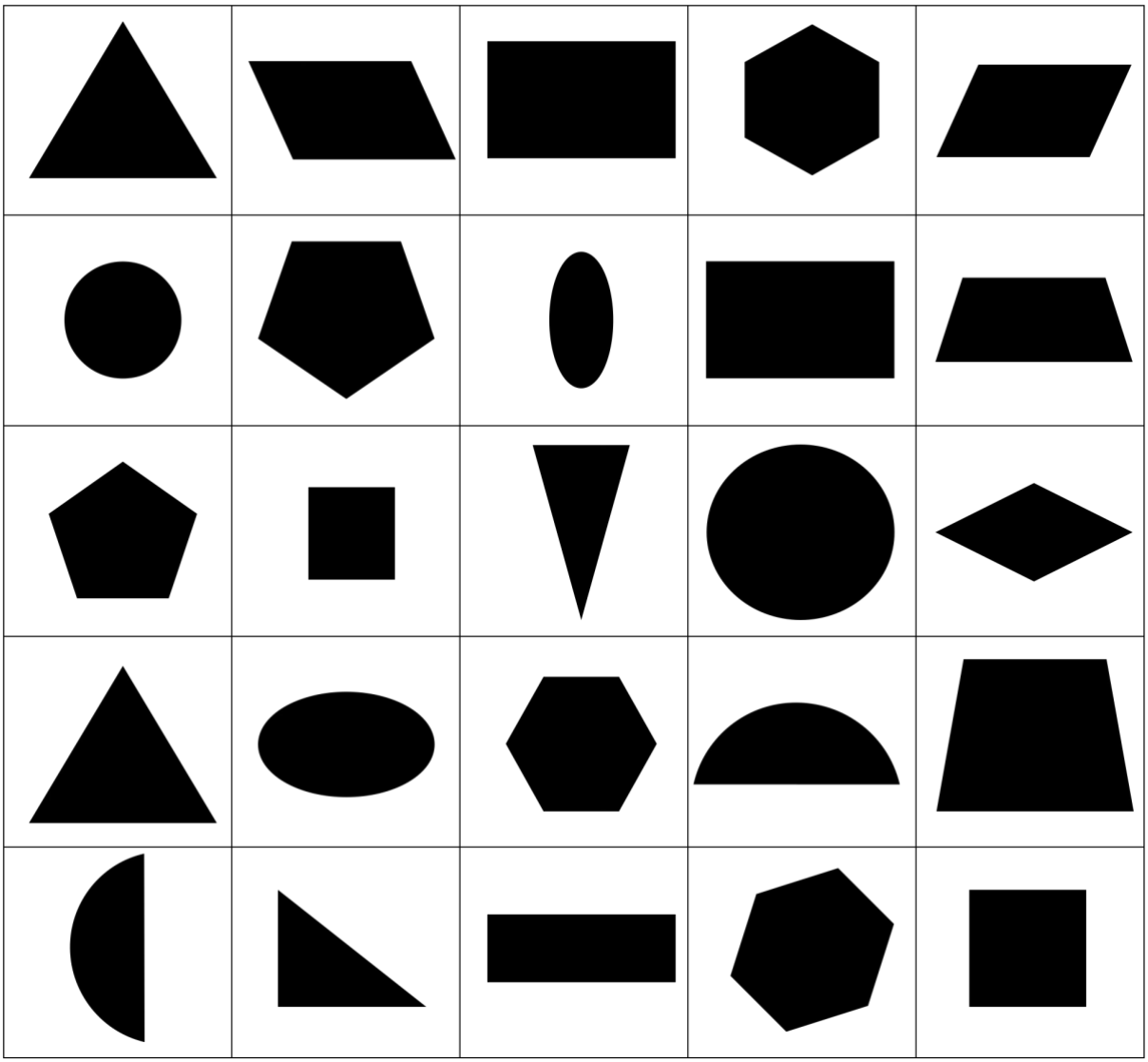
Describe what you notice about them.

How are the shapes in the group the same?

How are the shapes in the group different?

Year 4 - Geometry

Task 1 Resource



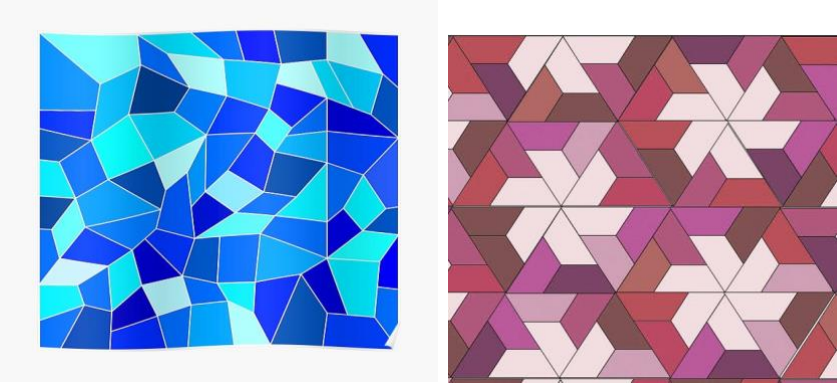
Task 1 (independent)

Sort the shapes into different groups.

Name the shapes.

Task 2

Georgia is looking at the geometric patterns on some wrapping paper her mother is using.



What is the same about the shapes on the wrapping paper?

What is different about the shapes on the wrapping paper?

Georgia notices that the wrapping paper only has quadrilaterals on it but these have different names.

Why does Georgia think that they are all quadrilaterals?

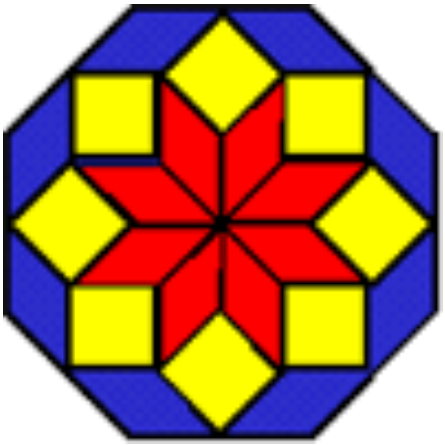
What types of quadrilaterals can you see?

How are they the same?

How are they different from other quadrilaterals?

Task 2 (independent)

Zahra is looking closely at the clever geometric patterns in the tile at the mosque she goes to with her family.



Zahra tells her mother that the artist who designed the tile used only quadrilaterals. Her mother says that she can see squares, rectangles, rhombus but they are all quadrilaterals.

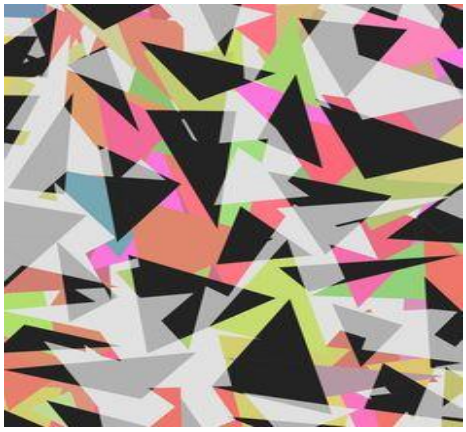
1. Explain why her mother said that. Make sure that you write everything you know about quadrilaterals.
2. Can you find the different sorts of quadrilaterals her mother named? Write how they are the same. Write how they are different.

Draw pictures of the quadrilaterals she did not see. Write how they are the same. Write how they are different.

Task 3

Designers who make patterns for material sometimes use different geometric shapes.

In these different samples of material, the designers have used different types of triangles.



Identify the different triangles they have used in their designs.

Discuss the attributes of each triangle you identify.

What attributes are the same?

What attributes are different?

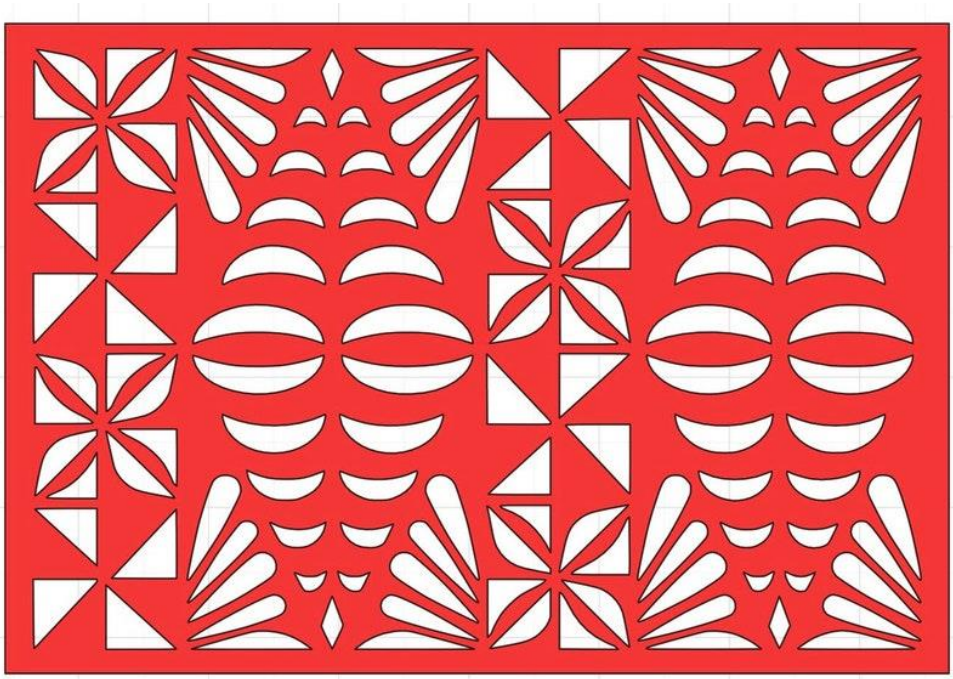
Have some triangles only got one attribute the same?

Have some triangles got more than one attribute the same?

Task 3 (independent)

The design of pattern on this Polynesian material uses three sided shapes.

Are they all triangles? Why or why not?



What makes a triangle a triangle?

Write down everything else you know about the other shapes on this material.

Task 4

Make up a chart to describe each of these 3D shapes.

Record on your chart:

1)the name of the solid and a 3D drawing of it

2)the number of faces it has

3)the number of edges it has

4)the number of corners it has.

5)the 2D shapes that make the 3D shape.

Year 4 - Geometry

Task 4 -Table if needed.

Name	Drawing	Faces	Edges	Corners	2D shapes to make 3D shape

Task 4 (independent)

Anshuma is looking at this beautiful piece of siapo.

She notices that the artists have used congruent triangles to make the pattern.

Can you explain why she says they are congruent triangles?

Record your thinking.

Task 5

When the box makers were designing these cuboids, they drew a 2D representation of their net.

Look carefully at one of the cuboids and imagine what it would look like flattened out as a net.

Talk to your buddy about how many faces it will have and how many will be congruent.

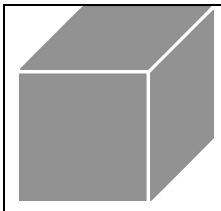
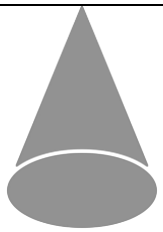
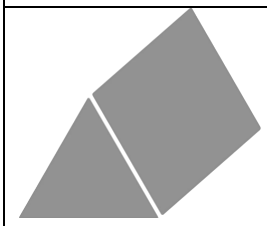
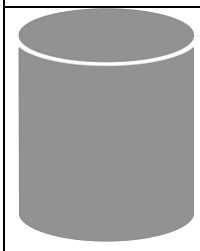
Draw what you think it will look like as a net. When you fold the net up it needs to make a 3D cuboid and so you need to draw all the faces.

Year 4 - Geometry

Task 5 (independent)

Look at the 3D shapes.

Draw the 2D shapes can you see in these shapes?

Year 4 - Geometry

Task 6

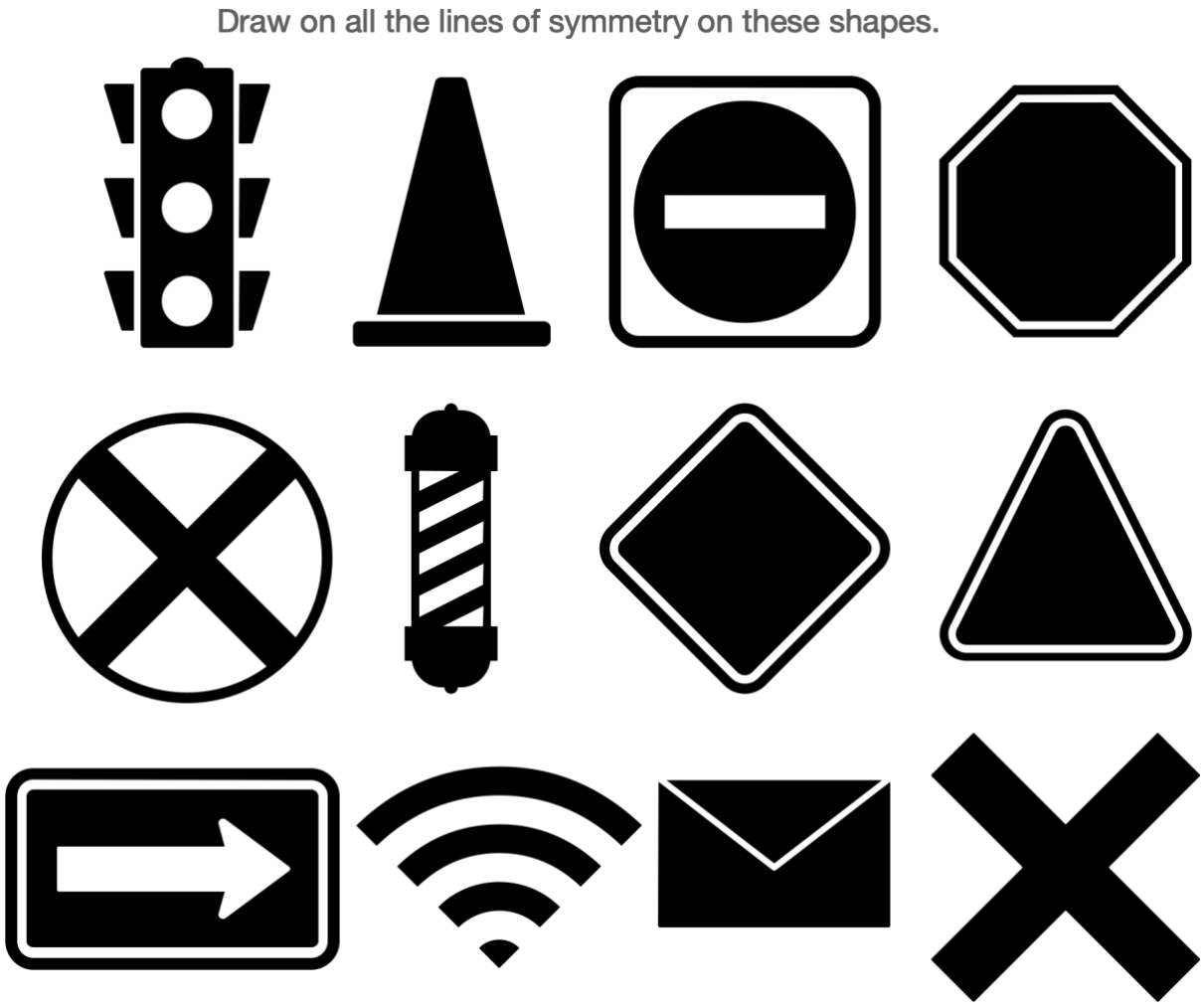
These pictures come from different parts of the world, but they all have elements in common. What are these? In your group discuss and explore the mirror symmetry of each picture. Before you find the mirror symmetry of the shape talk about what you predict the picture will look like in a mirror. How many lines of symmetry does each object or pattern in the picture have?

Be ready to explain and justify where their lines of symmetry are.

Think about which shapes in the pictures reverse, and which ones invert, and which ones stay the same? Be ready to explain why.

Task 6 (independent)

Some of the shapes on the sheet have one mirror line or line of symmetry. Draw in all the lines of symmetry you can see and then compare and discuss them with a buddy.



Task 7

Design a set of instructions to move your robots from one place to another using slides?

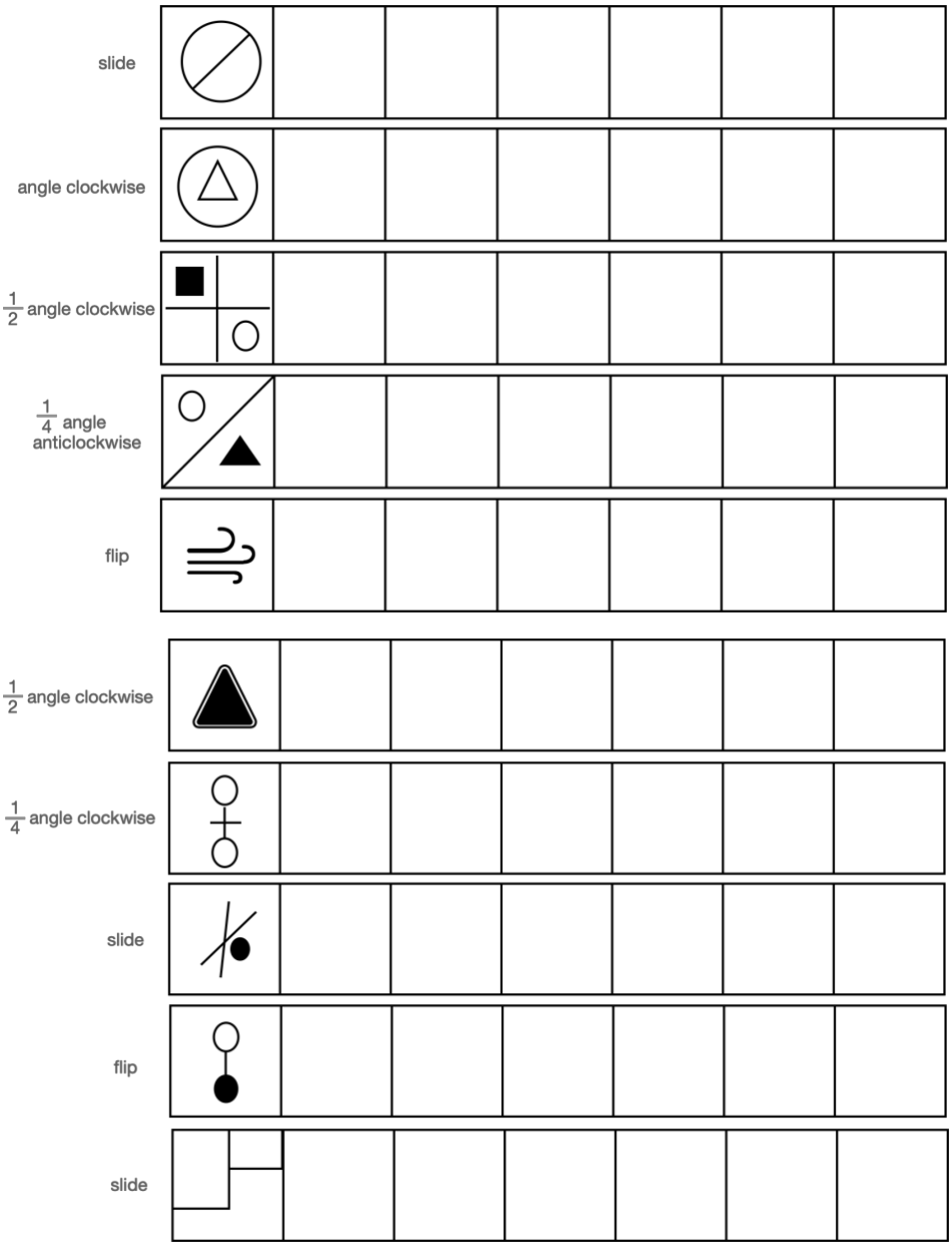
In your group write the set of instructions. Plan where your starting point is and where your end point is. Make sure that you show on your grid paper the route the robots will take.

Test your instructions in your group and make sure that they work for everyone. Be ready to describe what factors you had to consider to make the instructions consistent for everyone.

Task 7 (independent)

Year 4 - Geometry

Make your own designs by following the instructions on the sheet. After you have completed them can you start 3 more for a buddy to complete.



Task 8

Kristina is watching a marching team working out a drill for a competition.

She notices that they try marching in a square so that they end up in the direction that they started.

Forward march 20 steps, right turn.

Forward march 20 steps, right turn.

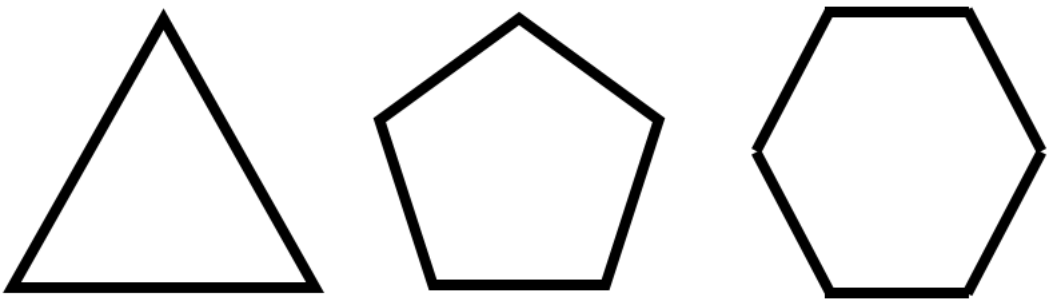
And so on…

Finish the instructions and draw the diagram of what the drill looks like and the turns they make as angles.

Kristina thinks this is boring because every team seems to march in squares, so she starts trying out other shapes.

Here are some marching drills of different shapes she could use. Write the instructions for the steps and the turn angles.

Be ready to explain how you worked out the angles.



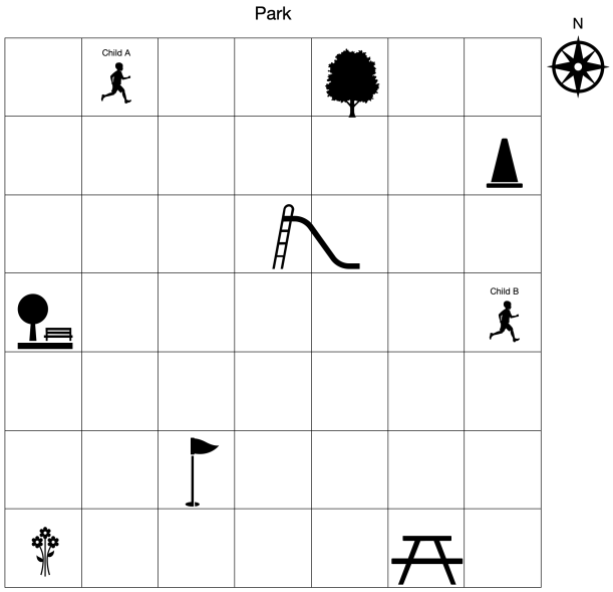
Task 8 (independent)

Select 5 different pattern blocks. Draw these on paper and then write the drill instructions for a marching team to use so that they all end up facing in the direction that they started.

Year 4 - Geometry

Task 9

This is a picture of some children in the park. The arrow at the top points North.



1. In which direction will Child A move to get to the tree? North, South, East or West?
2. In which direction will Child B get to the tree and chair?
3. In which two directions must Child A move to get to the slide?
4. In which two directions must Child B move to get to the park bench?
5. In which two directions will Child A go to get to the flowers?
6. In which two directions will Child B go to get to the flag?
7. What are the two different sets of directions Child A could go to get to the park bench?
8. What are two of the different sets of directions Child B could go to get to the flowers?

Task 9 (independent)

Draw a grid map of a park that you know. Put on it various markers of points of interest. Don't forget to include an arrow pointing North. Put yourself and 3 other children in different places in the park.

Write a set of 8 questions for other people to answer about the paths they need to take to get to the different points of interest.

Task 10

On grid paper draw a map of an area you know well. Make sure that you put numbers down the side of your grid and use alphabet letters across the top.

Mark on your map key points of interest. To the side of your map put a key (or legend) using simple symbols, signs, and colours to give others information about your map in a small space. Don't forget to put in where the compass directions are.

Write a set of 10 statements about your map using the grid references, and compass points or angles and turns to indicate paths someone would take to go from one point of interest to another.

Task 10 (independent)

Explore as many different types of maps as you can. With a buddy talk about their legend and scale.

Make a list of all the different symbols in the different legends and the different scales.

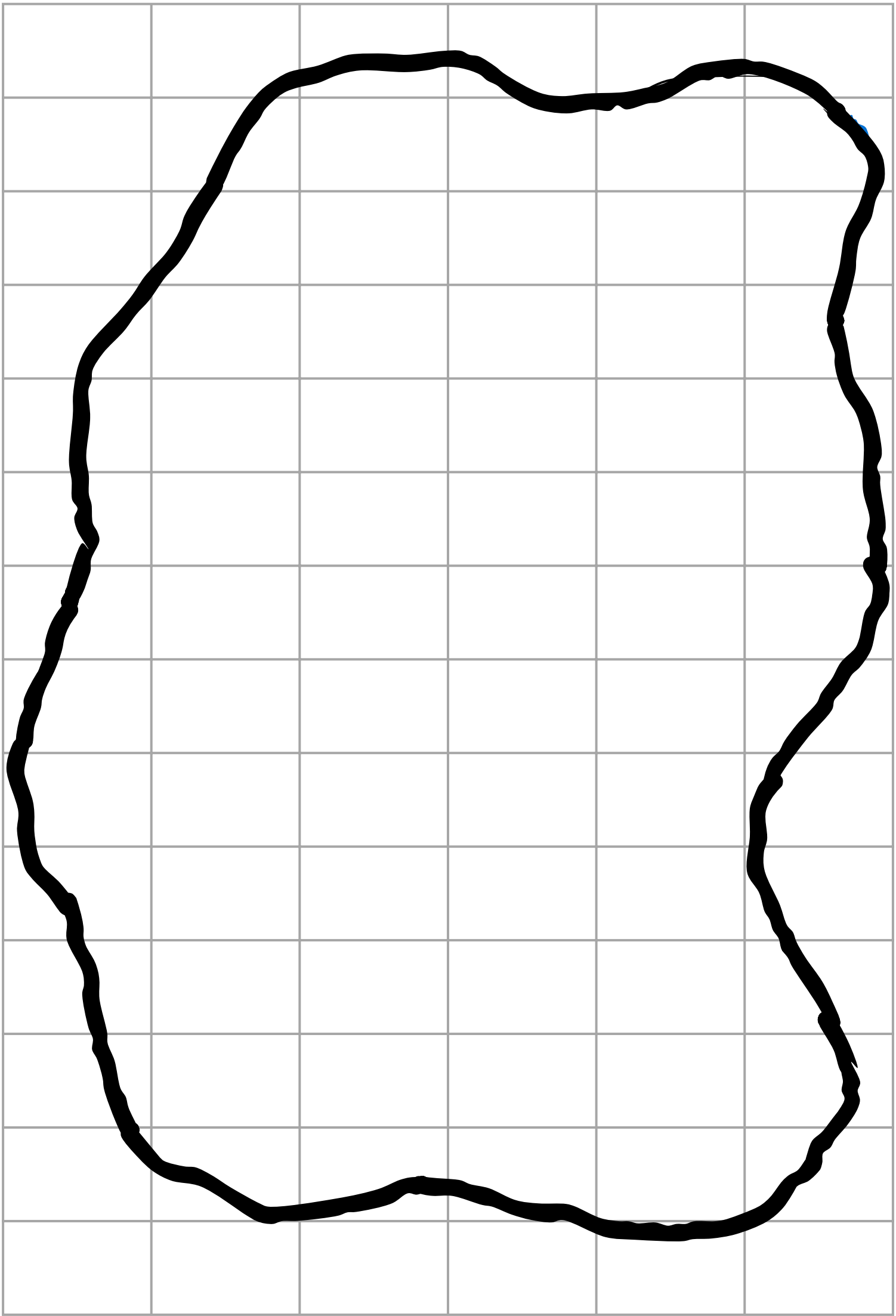
Task 11

Draw your own treasure map on Ship-Wreck Island.

You need to use a grid with the sides numbered and the top lettered, decide on a scale and have a legend.

Mark where the shipwreck happened on your map.

Provide 10 clues to find the buried treasure using your scale, legend and the grid labels.



Task 11 – Independent

Draw your own Island on the grid.

Design a treasure map.

Include five instructions to find the hidden treasure.

Task 12

It's time to plan a treasure hunt. With your group, hide three items somewhere in the playground.

Choose a starting point. Write precise instructions for others to follow. You can use a meter-ruler to help you.

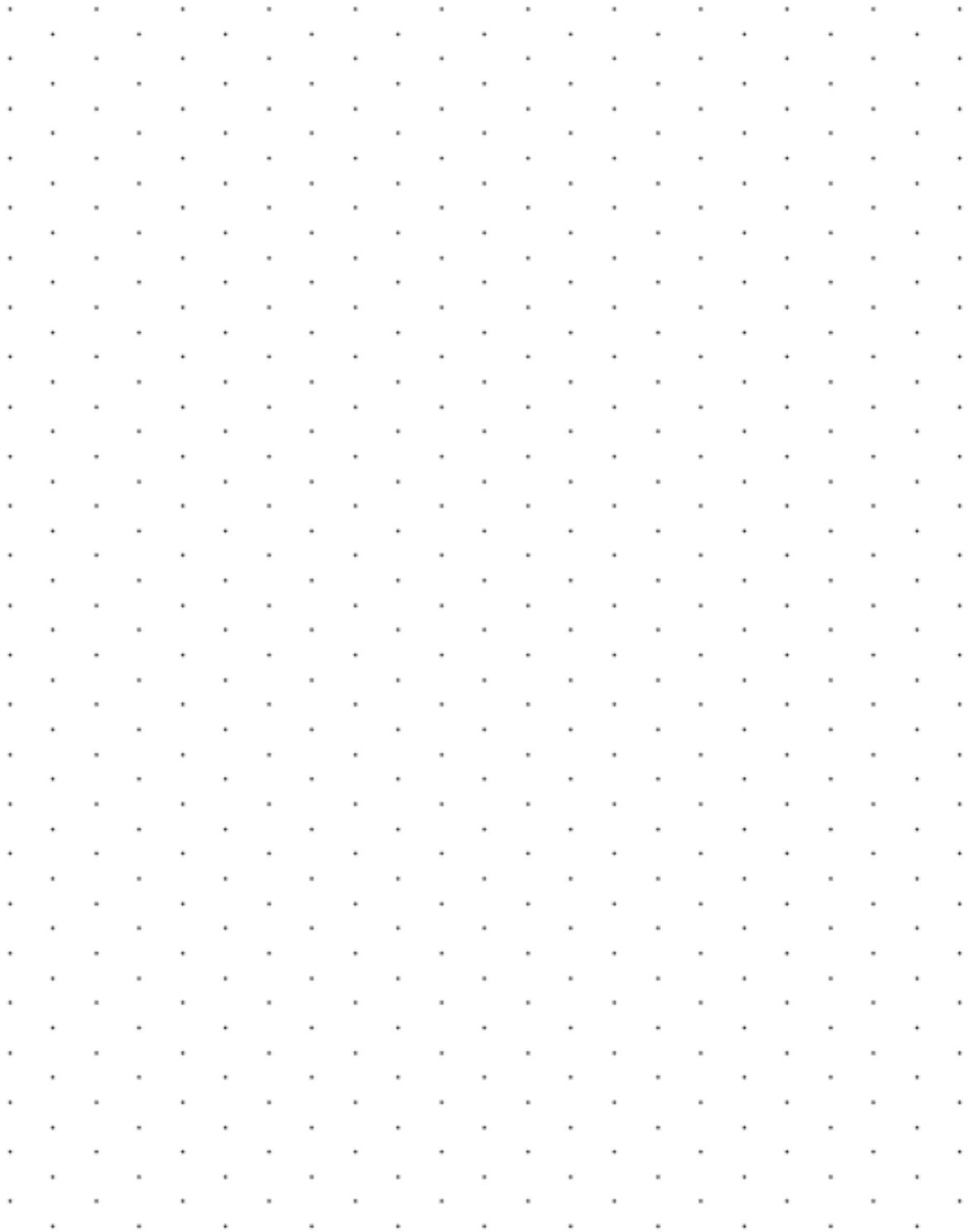
When your directions are ready, ask another group to test them. Will they find your hidden treasure?

Year 4 - Geometry

Dotty Paper

Year 4 - Geometry

Isometric Dotty Paper



Year 4 - Geometry

Squared Paper