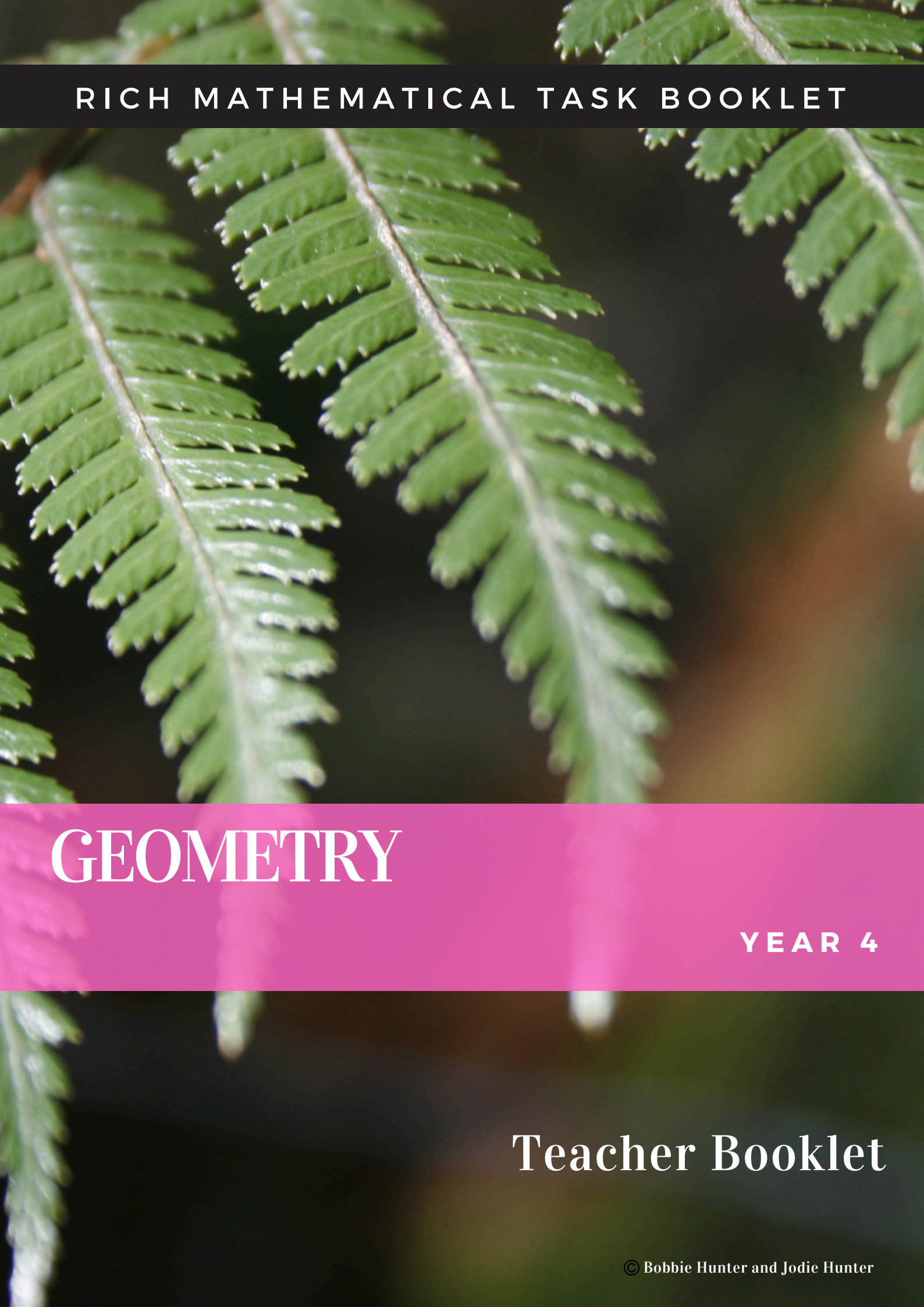


RICH MATHEMATICAL TASK BOOKLET

GEOMETRY

YEAR 4

Teacher Booklet

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?

Teacher Notes

Have available for each pair of students a variety of triangle, quadrilateral, and hexagon shapes. These can be either as 2D wooden blocks or card representations (See Copy Masters booklet).

Facilitate the students to notice that shapes can have a different number of sides and that their shapes have either 3, 4 or 6 sides. They also have different sized corners (angles) and that these can be sharp or blunt angles.

Have the students sort and re-sort until they are sorting the shapes by number of sides. Introduce the correct terms of triangle, quadrilateral and hexagon as 3-sided, 4-sided and 6-sided shapes.

Monitor for students using vocabulary which is everyday language and revoice using the language of geometry.

For the independent task, have available paper copies of rectangles made from two squares for students to re-represent from memory and short sticks of the same length.

Shareback

Select students to share who are able to explain and justify their groupings of the shapes and identify similarities and differences in relationships across the shapes.

Connect

Explain the similarities and differences between triangles, quadrilaterals and hexagons?

Big Ideas

Two-and-three dimensional objects with or without curved surfaces can be described, classified, and analysed by their attributes.
Shapes have sides that are parallel, perpendicular, or neither.

Shapes have line symmetry, rotational symmetry, or neither.
Shapes are similar, congruent, or neither.

Curriculum Links

identify, classify, and describe the attributes of polygons (including triangles and quadrilaterals) using properties of shapes, including line and rotational symmetry

Suggested Learning Outcomes

Identify and sort objects in a variety of ways.

Group and classify similar shapes together and explain and justify why they are similar using every day and geometrical language.

Mathematical Language

polygon, quadrilaterial, square, rectangle, classification,

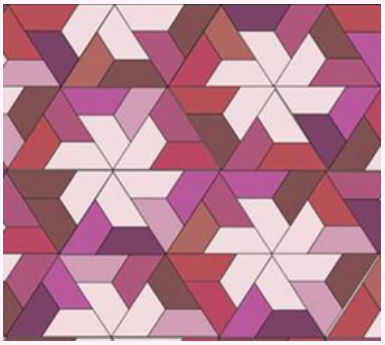
Independent Tasks

Sort the shapes into different groups.
Name the shapes.

Anticipations

Solutions, Misconceptions

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?

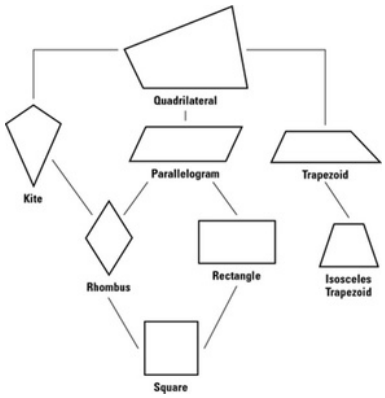
Georgia notices that the wrapping paper only has quadrilaterals on it but these have different names.

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?

Teacher Notes

During the launch, ask the students to write down everything they know about squares. Discuss and explore their responses.



Have available a chart of the 8 types of quadrilaterals for students to use as required. Also have the pictures of the wrapping paper available for students to annotate as needed (See Copy Masters booklet).

Facilitate the students to notice the relationships between the different types of quadrilaterals in terms of their differences and similarities.

Monitor for students using everyday vocabulary and revoice using the language of geometry.

Shareback

Select students to share who can identify the attributes of quadrilaterals and explain the relationships between the different types.

Big Ideas

Two-and-three dimensional objects with or without curved surfaces can be described, classified, and analysed by their attributes.
Shapes have sides that are parallel, perpendicular, or neither.

Curriculum Links

Identify, classify, and describe the attributes of polygons (including triangles and quadrilaterals) using properties of shapes, including line and rotational symmetry

Connect

Orient the students to discuss rotational symmetry.
Where can you identify rotational symmetry in the wrapping paper?
Define rotational symmetry? What do you notice happens to the shapes as they rotate?

Suggested Learning Outcomes

Recognise shapes in the environment.

Group and classify similar shapes together and explain and justify why they are similar using non-geometrical and geometrical language.

Independent Tasks

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.

Mathematical Language

quadrilateral, comparison, identification, square, rectangle, kite, parallelogram, trapezoid, rhombus.

Anticipations

Solutions, Misconceptions

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?

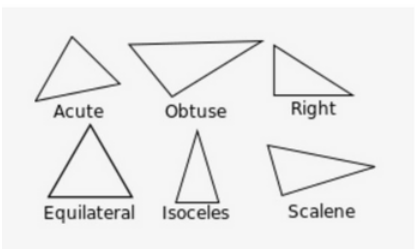
Have some triangles got more than one attribute the same?

Teacher Notes

During the launch, use triangles and quadrilaterals to make a train. Students in turn select a 2D shape and add a carriage which has one attribute in common with the one in front.

Have sets of different triangles available for the students to sort and group (See Copy Masters booklet).

Facilitate the students to notice that there are 6 main types of triangles. These include the following:



Each triangle has a distinct shape and properties.

For the independent task, students will need the picture below, or a similar picture.

Big Ideas

Two-and-three dimensional objects with or without curved surfaces can be described, classified, and analysed by their attributes.
Shapes have sides that are parallel, perpendicular, or neither.

Shapes have line symmetry, rotational symmetry, or neither.
Shapes are similar, congruent, or neither.

Curriculum Links

Identify, classify, and describe the attributes of polygons (including triangles and quadrilaterals) using properties of shapes, including line and rotational symmetry.

Compare angles in 2D shapes, classifying them as equal to, smaller than, or larger than a right angle

Shareback

Select students to share who can explain and justify the attributes of the different triangles and can identify and describe the relationships across them.

Connect

Use a cardboard corner to explore whether the angles in the different triangles are bigger or smaller than a corner angle (90 degrees).

What can you say about how bigger or smaller angles change the triangle?

Suggested Learning Outcomes

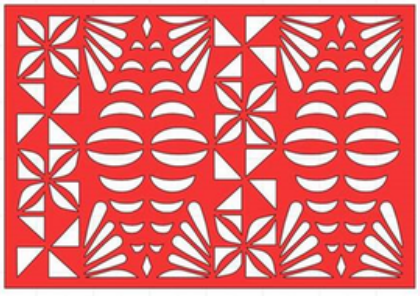
Identify different triangles and explain their attributes.

Explain the angles in different triangles.

Independent Tasks

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.

Mathematical Language

triangles, acute, obtuse, right, equilateral, isoceles, scalene, angle, greater, smaller, obtuse, right angle, square corner.

Anticipations

Solutions, Misconceptions

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

Teacher Notes

During the launch, have students choose a 2D shape and describe its attributes.

Have solid 3D shapes including some common objects found in the home (cans, balls, boxes etc.)

Facilitate the students to notice and describe the relationships between the 3D shapes.

For the independent task, the students will need a copy of the siapo below (See Copy Masters booklet).

Shareback

Select students to share who have identified the attributes of the 3D shapes.

Connect

Draw the 3D solid I am describing:
It has 6 faces, 12 edges and 8 corners.
It has 2 flat faces, 1 curved face, 2 curved edges.

Suggested Learning Outcomes

Recognise shapes in their environment.

Identify and sort objects in a variety of ways.

Use geometrical language to describe three-dimensional shapes according to their attributes.

Big Ideas

Two-and-three dimensional objects with or without curved surfaces can be described, classified, and analysed by their attributes.
Shapes have sides that are parallel, perpendicular, or neither.

Curriculum Links

Identify the 2D shapes that compose 3D shapes (e.g., a triangular prism is made from two triangles and three rectangles)

Independent Tasks

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.

Mathematical Language

3-dimensional, everyday objects, cube, cylinder, cone, pyramid,

Anticipations

Solutions, Misconceptions

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.

Teacher Notes

Have available a wide range of cuboid shaped boxes collected from home.

Tell the students not to draw the flaps just the faces. This activity will need to be repeated so that they have the opportunity to get closer and closer to drawing the net. As they complete an iteration have them open the box and compare their net with the net of the box.

Facilitate the students to notice that despite the different dimensions of the boxes they all have six rectangular faces, and the opposite faces are congruent (the same). Note also that all corners are square (right angles).

Notice the students who are able to draw six faces and approximate a net for a cuboid. These students will often be different from those who are able to compute. Also notice the students who use gesturing for the number of faces needed.

For the independent task, have available cardboard boxes for the students to use to draw nets from.

Shareback

Select students to share who are able to explain and justify the attributes of a cuboids and can approximate these as a net.

Connect

Predict which of these nets will fold and make a cuboid. What attributes are important to make a net for a box shaped like a cuboid?

Big Ideas

Two-and-three dimensional objects with or without curved surfaces can be described, classified, and analysed by their attributes.

Curriculum Links

Identify the 2D shapes that compose 3D shapes (e.g., a triangular prism is made from two triangles and three rectangles)

Suggested Learning Outcomes

Create two-dimensional drawings of three-dimensional models.

Recognise the 2D shapes within 3D shapes.

Independent Tasks

Look at the 3D shapes.
What 2D shapes can you see in these shapes?
(see Copymasters).

Mathematical Language

cube, sides, square, 3D, 2D, net, model,

Anticipations

Solutions, Misconceptions

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.

Teacher Notes

Have available a collection of photos of patterns which have different numbers of lines of symmetry.

Facilitate the students to notice that when two halves of a shape are the same, they are congruent. They are also reversed because one side has to be flipped over. Have the students describe how one half is a reflection of the other when using a mirror and that it is termed mirror symmetry, and the mirror line is the line of symmetry.

Notice students who recognise that reflection is flipping an object across a line without changing its shape or size.

Shapes that stay the same in one or both directions are symmetrical.

In the connect have students explore patterns with different numbers of lines of symmetry.

Shareback

Select students to share who are able to identify and explain how one half of a shape is a reflection of the other, and the different lines of symmetry.

Connect

Can you draw a pattern which has 1 line of symmetry, 2 lines of symmetry, 3 lines of symmetry, multiple lines of symmetry?

What do you notice?

Big Ideas

A transformation is a way of moving a shape, and a shape that remains unchanged under a transformation is said to have symmetry.

Transformations provide a significant way to think about the ways properties change or do not change when a shape is moved on a plane.

Line symmetry is a component of the transformation called a reflection.
Shapes can be described in terms of their location in a plane or space.

Curriculum Links

Visualise, predict, and identify which shape is a reflection, rotation, or translation of a given 2D shape

Identify, classify, and describe the attributes of polygons (including triangles and quadrilaterals) using properties of shapes, including line and rotational symmetry

Suggested Learning Outcomes

Describe a symmetrical shape including lines of symmetry.

Explain transformation as a way of moving a shape.

Describe how a shape that stays the same under transformation has symmetry.

Independent Tasks

1.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.

Mathematical Language

Reflection, mirror line, mirror symmetry, reflectional symmetry, line of symmetry, flipping, congruent, translation, sliding, rotation, turning, revolution, transformation, forward, backwards, right, left, front, back, clockwise, anticlockwise, full turn, half turn, quarter turn, 4-turn symmetry, congruence, path, angle, perspectives, bird's eye view, reverse, invert.

Anticipations

Solutions, Misconceptions

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.

Teacher Notes

During the launch, revise the use of commands including front, back, left, and right, clockwise and anticlockwise, half turn, quarter turns, three quarter turns, forward and backwards.

Have students develop ways to represent a set of slides on paper for a robot matched with the accurate representation on a rectangular grid. They may use numbers and letters to identify grid points.

Monitor for students who recognise that moving in one direction is called sliding (translation) and turning is called rotation. Reinforce the use of all correct terms.

Notice students who are able to draw an arrow that represents a slide of the appropriate (same and consistent) length.

Note that front and forward are usually represented as a vertical direction when recorded on a sheet and arrows can be bent to indicate clockwise and anticlockwise.

Shareback

Select students to share who are able to write and draw an accurate representation of their path including have consistent distance between each point and have used a variety of different instructions.

Big Ideas

A transformation is a way of moving a shape, and a shape that remains unchanged under a transformation is said to have symmetry.

Transformations provide a significant way to think about the ways properties change or do not change when a shape is moved on a plane.

Curriculum Links

·visualise, predict, and identify which shape is a reflection, rotation, or translation of a given 2D shape

·identify, classify, and describe the attributes of polygons (including triangles and quadrilaterals) using properties of shapes, including line and rotational symmetry

Connect

Your challenge is to draw the path and write the matching set of instruction for slides where the start and finish place is the same. What did you notice.

Suggested Learning Outcomes

Explain transformation as a way of moving a shape

Identify how turning around a point is a rotation.

Recognise that turns around a point can be described and recorded as a quarter, half, full turn or rotation or an angle.

Independent Tasks

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.

Mathematical Language

Reflection, mirror line, mirror symmetry, reflectional symmetry, line of symmetry, flipping, congruent, translation, sliding, rotation, turning, revolution, transformation, forward, backwards, right, left, front, back, clockwise, anticlockwise, full turn, half turn, quarter turn, 4-turn symmetry, congruence, path, angle, perspectives, bird's eye view, reverse, invert.

Anticipations

Solutions, Misconceptions

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.

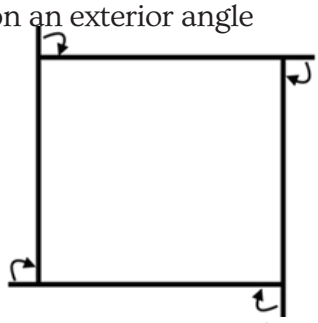
Be ready to explain how you worked out the angles.

Teacher Notes

In the launch revisit angles as the interior region of two lines meeting at a point with the interior inside. Include discussing how you can extend the lines on the outside and that these are also angles.

Students may need to physically move to sense-make the shape.

Notice students who realise that you are turning on an exterior angle because the line extends, use arrows to indicate:



Use cardboard square angles to measure the angles needed for instructions for the different shapes.

Facilitate students to understand that both turns and angles consist of two lines meeting at a point. Corners are fixed and usually less than a straight line but turns involve movement and can be larger.

Big Ideas

A transformation is a way of moving a shape, and a shape that remains unchanged under a transformation is said to have symmetry.

Transformations provide a significant way to think about the ways properties change or do not change when a shape is moved on a plane.

Curriculum Links

Visualise, predict, and identify which shape is a reflection, rotation, or translation of a given 2D shape

Interpret and describe pathways, including those involving half and quarter turns and the distance travelled.

Shareback

Select students to share who are able to explain the turn angles in each shape.

Connect

How would you explain why you must show the turn angle on the exterior of the shape when drawing the diagram?

Suggested Learning Outcomes

Recognise that turns around a point can be described and recorded as a quarter, half, full turn or rotation or an angle.

Explain that angles are linked with slides (translations) to create paths.

Independent Tasks

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.

Mathematical Language

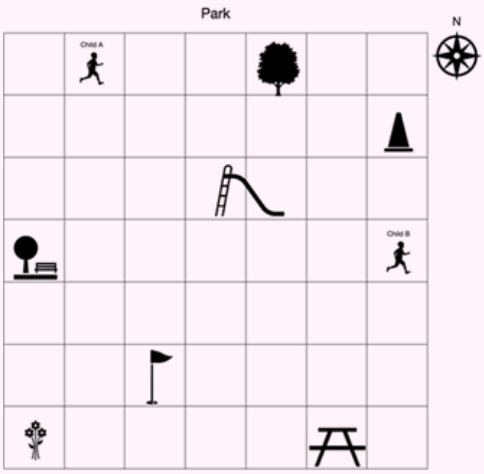
directions, turn, angles, move, translation, path, angle,

Anticipations

Solutions, Misconceptions

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?

Teacher Notes

During the launch introduce the use of compasses. Have students develop benchmarks for where each direction is in relation to parts of their classroom and beyond. Link to the face of a clock and the angles of the hands on the face of the clock.

Have available small hand-held compasses.

Facilitate students to understand that they need to place the compass on the floor before getting a reading and that North is always North.
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.

Big Ideas

Shapes can be described in terms of their location in a plane or space.

Coordinate systems can be used to describe these locations precisely. The coordinate view of shape offers another way to understand certain properties of shapes.

Curriculum Links

Use grid references to identify regions and plot positions on a grid map

Interpret and describe pathways, including those involving half and quarter turns and the distance travelled.

Shareback

Select students to share who can explain and justify the different directions the children need to take to reach the point required.

Connect

Where are the angles on a compass? Can you explain and justify what angle measures they are reasoning using a representation.

Suggested Learning Outcomes

Identify how turning around a point is a rotation.

Recognise that turns around a point can be described and recorded as a quarter, half, full turn or rotation or an angle.
Explain that angles are linked with slides (translations) to create paths.

Independent Tasks

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.

Mathematical Language

north, south, east, west, turn, rotate, directions.

Anticipations

Solutions, Misconceptions

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.

Teacher Notes

Facilitate the students to know that map makers use signs and symbols on maps to enable a lot of information in a small space. This is termed a legend.

Notice students who realise the importance of the use of consistent scaling and signs and symbols.

For the independent task have a variety of maps with different legends and scales available. These could be electronic or physical.

Shareback

Select students to share who are able to explain and justify their legend and their statements using a range of different abbreviated instructions.

Connect

If every square represented a kilometre, how many kilometres would you need to walk from one point of interest to another.
Why is this important information?
How else could each square be measured?
Is it important that every square represents the same distance? Why?

Big Ideas

A transformation is a way of moving a shape, and a shape that remains unchanged under a transformation is said to have symmetry.
Transformations provide a significant way to think about the ways properties change or do not change when a shape is moved on a plane.
Line symmetry is a component of the transformation called a reflection.
Shapes can be described in terms of their location in a plane or space.
Coordinate systems can be used to describe these locations precisely.
The coordinate view of shape offers another way to understand certain properties of shapes.

Curriculum Links

use grid references to identify regions and plot positions on a grid map

interpret and describe pathways, including those involving half and quarter turns and the distance travelled.

Suggested Learning Outcomes

Make statements about a map.

Design a map using references to plan out a pathway.

Independent Tasks

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.
Links to maps:
Northland https://www.topomap.co.nz/NZTopoMap?v=2&ll=-35.17555,173.14659&z=14
Auckland
https://www.topomap.co.nz/NZTopoMap?v=2&ll=-36.977807,174.785357&z=13
Christchurch
https://www.topomap.co.nz/NZTopoMap?v=2&ll=-43.571067,172.831764&z=12
Gisborne
https://www.topomap.co.nz/NZTopoMap?v=2&ll=-38.596248,178.019028&z=11
Taranaki
https://www.topomap.co.nz/NZTopoMap?v=2&ll=-39.571413,174.277968&z=15

Mathematical Language

map, region, compass directions, symbols, sign, pathway, references.

Anticipations

Solutions, Misconceptions

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.

Teacher Notes

Starter: Show the students the engagement image (see copy master).
Ask the students what do you notice?
Orient the students to notice that the second shape has been enlarged by a scale factor of 2. Press for justification.
Show shape 2 (see copy masters) and ask the students if we were to enlarge a shape by a scale factor of 2, how would you describe the new shape?
Repeat this starter on multiple occasions. Note that this is the independent activity.

Facilitate the students to notice the importance of clear instructions.

For the independent task have 2-d shapes available for students to copy.

Shareback

Select students to share who are able to explain and justify their reasoning.

Connect

Write a question for someone else to answer using the map.

What was important about how you wrote your instructions? Why?

Big Ideas

A transformation is a way of moving a shape, and a shape that remains unchanged under a transformation is said to have symmetry.
Transformations provide a significant way to think about the ways properties change or do not change when a shape is moved on a plane.
Line symmetry is a component of the transformation called a reflection.
Shapes can be described in terms of their location in a plane or space.
Coordinate systems can be used to describe these locations precisely.
The coordinate view of shape offers another way to understand certain properties of shapes.

Curriculum Links

·use grid references to identify regions and plot positions on a grid map

·interpret and describe pathways, including those involving half and quarter turns and the distance travelled.

Suggested Learning Outcomes

Give directions using grid references.

Find the location given a grid reference.

Use features of a map to describe movement, including distance and direction using turns and compass directions.

Independent Tasks

Draw your own Island on the grid.
Design a treasure map.
Include five instructions to find the hidden treasure.

Mathematical Language

Reflection, mirror line, mirror symmetry, reflectional symmetry, line of symmetry, flipping, congruent, translation, sliding, rotation, turning, revolution, transformation, forward, backwards, right, left, front, back, clockwise, anticlockwise, full turn, half turn, quarter turn, 4-turn symmetry, congruence, path, angle, perspectives, bird's eye view.

Anticipations

Solutions, Misconceptions

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?

(NB: if compasses are available students can use North, South, East and West).

Teacher Notes

This task could be done whole class.

Provide the students with items to hide in the playground, as well as metre rulers if available and compasses.

Support students through each stage of the task, initially deciding where to hide their objects, and then choosing a starting point. Students may need to use chalk to note where their starting point is.

Encourage the students to test their instructions before sharing with another group.

Notice students who are able to use geometrical language when discussing their instructions.

Shareback

Select students who are able to eplain their instructions. Test out these instructions walking around the school.

Connect

Discuss the importance of precise measurement using the meter-ruler and clear directionality using left and right turns (or compass directions).

If we were to represent our pathway on one A4 paper, how could we represent each meter? Discuss why the use of a scale can help us make maps of larger areas. Using grid paper, students can create a scale and draw the pathway to their treasures

Big Ideas

Shapes can be described in terms of their location in a plane or space.

Coordinate systems can be used to describe these locations precisely. The coordinate view of shape offers another way to understand certain properties of shapes.

Curriculum Links

Use grid references to identify regions and plot positions on a grid map

Interpret and describe pathways, including those involving half and quarter turns and the distance travelled.

Suggested Learning Outcomes

Record directions to an object from a starting point.

Describe directions using distance, turns, and simple compass points.

Follow instructions to find a location

Use features of a map to describe movement, including distance and direction using turns and compass directions.

Independent Tasks

Assessment Tasks -
One: Shape Sorting
Two: Translations
Three: Pathways

Mathematical Language

Map, directions, forward, backwards, right, left, front, back, clockwise, anticlockwise, full turn, half turn, quarter turn, 4-turn symmetry, congruence, path, angle, perspectives, bird's eye view, north, south, east, west, metres.

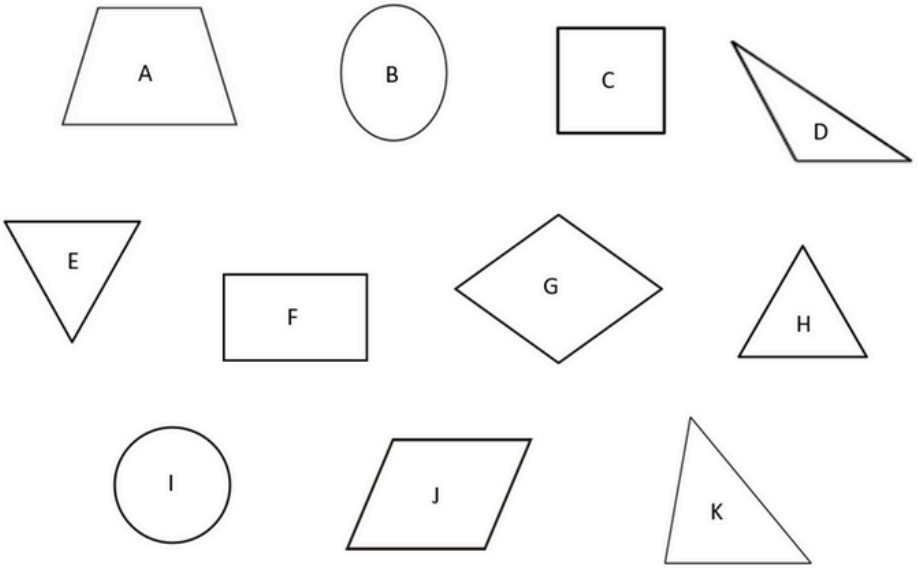
Anticipations

Solutions, Misconceptions

Assessment Task 1 - Shape - Year 4

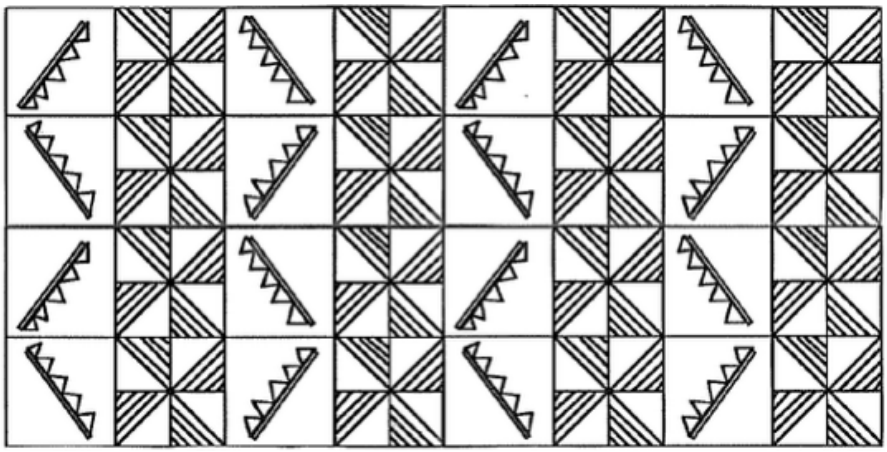
GEOMETRY: SHAPE:

Sort these shapes into groups. Explain why you grouped them together using the language of geometry.



Assessment Task 2 - Position and Orientation - Year 4

GEOMETRY:
Use the language of geometry to describe the picture below. Use words like reflection, rotation, translation, and symmetry. You may draw or label the picture to highlight parts of your description.



Assessment Task 3 - Position and Orientation - Year 4

GEOMETRY:
Write instructions to get from the Entry to the Dinosaur Kingdom. Choose another area to go from the Dinosaur Kingdom and write instructions for that.