

The Flourish Federation—Knowledge Organiser

Brookfield Infant and Junior Schools



Subject Focus: Maths **Year 2 - Term 5** **Geometry (Position and Direction)**

What? (Key Knowledge)

Use mathematical language to describe position, direction and movement, including:

- in a straight line
- as part of turn in terms of right angles ($\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and whole)
- clockwise and anti-clockwise

Order and arrange combinations of objects and shapes into patterns and sequences.

What? (Key Vocabulary)

Vocabulary Comments

Movement

Use language of: top, in between, bottom, below, above, up, down

Direction

Use language of: left, right, forwards, backwards, clockwise and anti-clockwise

Turns

Describe the turn of a shape or object. How much does it turn? Whole, half, quarter or three-quarter turn

Visuals/Diagrams

Children should physically move objects, shapes and themselves before writing any instructional directions.

Ensure to highlight the direction the object is facing to correctly move left or right.

When teaching turns, use a big circle split into quarters (children to stand in the centre and turn) to help the children visually see what a quarter/half/whole turn looks like.

They must now describe the direction of the turn using **clockwise** and **anti-clockwise**.

Turn a figure.

Ask your partner to describe the turn using the language, 'full turn', 'half turn', 'quarter turn', 'three-quarter turn', 'clockwise' and 'anticlockwise'.

Match the turn to the description.



A full turn.

A quarter turn clockwise.

A half turn anticlockwise.



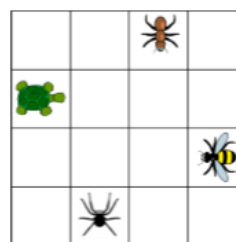
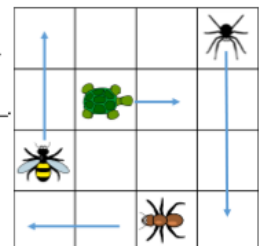
Complete the stem sentences to describe the movements made.

The has moved 1 square _____.

The has moved _____ squares _____.

The _____ has moved 2 squares up.

The _____ has moved _____ squares down.



Record these movements on the grid using arrows.

The moves 1 square right.

The moves 3 squares forward.

The moves 1 square down.

The moves 1 square up.

Describe the turn for each pattern.



Patters and sequences should involve describing the direction of turns.

Draw the route to show these directions.



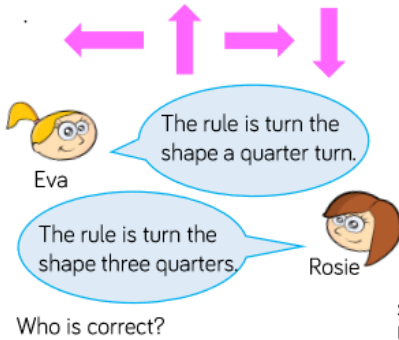
Forward 1 square. Turn left.

Forward 1 square, quarter turn anti-clockwise.

Forward 1 square. Make a quarter turn clockwise.

Forward 1 square. Make a three quarter turn anti-clockwise. Forward 3

Examples of Reasoning



Eva and Rosie could both be correct as no direction is given. Eva may be turning clockwise and Rosie anticlockwise.

Spot the mistake in each pattern. Explain why they are incorrect.



Is Whitney correct?



A quarter turn clockwise is the same as a three-quarter turn anticlockwise.

Convince me.

The 4th shape should be pointing right.



Or the 8th shape should be pointing left.



The 5th shape has not made half a turn.



Possible answer: Whitney is correct.

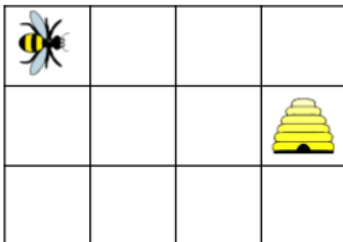
A quarter turn clockwise is the same as a three-quarter turn anticlockwise.

Children may use objects/small people to show their reasoning.

Examples of Problem Solving

How many different routes can you write for the bee to get to the hive?

Use the words forwards, backwards, left and right.



Possible answers:
Forward 3, Right 1.

Right 1, Forward 3.

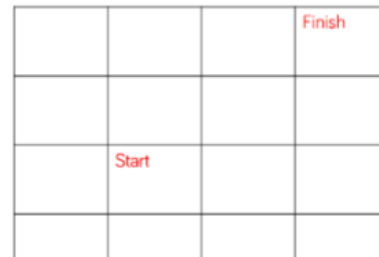
Right 2, Forward 3,
Left 1.

Right 1, Forward 3.

Right 2, Forward 2,
Left 1, Forward 1.

There are more routes for the children to find.

How many different routes can you find to get from start to finish. Use the words 'forwards', 'backwards', 'clockwise', 'anti-clockwise' and 'quarter turn'.



Always, Sometimes, Never

If two objects turn in different directions they will not be facing the same way.

Sometimes. It depends on how far the objects are turned - quarter, half, three quarters or full.

Children will find a range of routes. For example:



Turn a quarter anticlockwise.
Forward 1
Turn a quarter clockwise.
Forward 1
Turn a quarter clockwise.
Forward 3
Turn a quarter anticlockwise.
Forward 1

ICT Opportunities

Purple Mash:

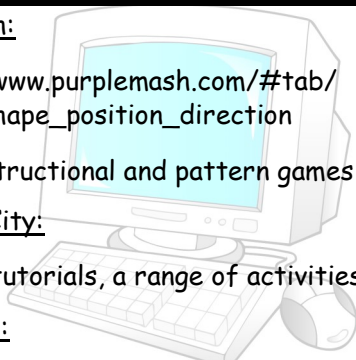
- https://www.purplemash.com/#tab/maths_shape_position_direction
- Many instructional and pattern games

Education City:

- Videos, tutorials, a range of activities and games

Manga High:

- A wealth of games, activities and competitions



Daily Maths

- Questioning during the register (How many people are absent? How many children are here? How many more children have school dinners than packed lunch).
- Lining up games - counting on/back, 2x, 5x and 10x table games
- Days of the week/months of the year

