Year ②

Small Steps Guidance and Examples

Block 1: Position & Direction

White Rose Maths

Year 2 – Yearly Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place value			Number: Addition and Subtraction					Measurement: Money		Number: Multiplication and Division	
Spring	Number: Multiplication and Division			Statistics		Geometry: Properties of Shape			Number: Fractions		Measurement: length and height	Consolidation
Summer	Position and direction			Problem solving and efficient methods		Measurement: Time			Measurement: Mass, Capacity and Temperature		Investigations	

Overview

Small Steps

- Describing movement
- Describing turns
- Describing movement and turns
- Making patterns with shapes

NC Objectives

Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).

Order and arrange combinations of mathematical objects in patterns and sequences

Describing Movement

Notes and Guidance

Children use language 'forwards', 'backwards', 'up', 'down', 'left' and 'right' to describe movement in a straight line.

Children will practically follow and give directions with a partner before writing directions for routes and recording routes on 2D grids. Teachers need to have discussions around the direction objects are facing in order to correctly complete left and right movements.

Mathematical Talk

How far have you/has your partner moved?
In what direction have you/has your partner moved?

What direction are we facing in at the start? Why is this important?

Can you describe the movements made by ____?

How could we record these movements?

Varied Fluency

1) Using the words forwards, backwards, up, down, left and right, give your partner some instructions to complete around the classroom/playground.
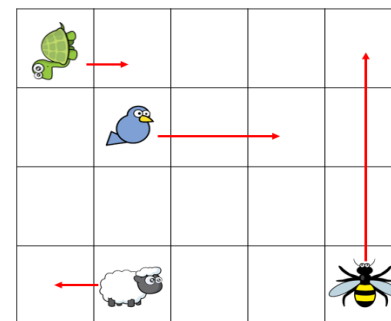
2) Complete the stem sentences to describe the movements made.
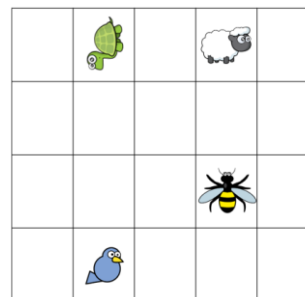The tortoise has moved 1 square ____.
The bee has moved ___ squares ____.
The ____ has moved 1 square backwards.
The ____ has moved ___ squares forwards.

3) Record these movements on the grid using arrows.
The turtle moves 1 square right.
The bee moves 3 squares left.
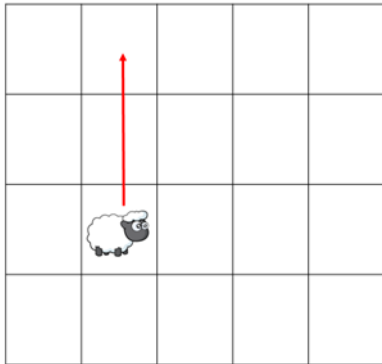The bird moves 1 square backwards.
The sheep moves 1 square forwards.

## Describing Movement

Reasoning and Problem Solving

Freddie

The sheep has moved 2 squares forward.

Is Freddie correct?
Explain your reasoning.

Freddie is incorrect. The sheep has moved 2 squares to the left because of the way it was facing to begin with.

How many different routes can you write for the horse to get to the hay?
Use the words forwards, backwards, left and right.
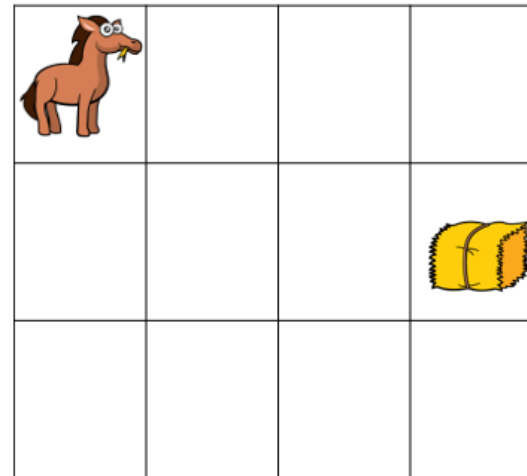
Forward 3, Right 1.

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.

Describing Turns

Notes and Guidance

Children continue to use language 'forwards', 'backwards', 'up', 'down', 'left' and 'right' to describe movement in a straight line.

Children write directions for given routes and record routes on 2D grids. It is important to encourage the children to take into consideration which direction the object is facing to begin with. Teachers should discuss the difference between a turn and moving with the children.

Mathematical Talk

What is each turn called?
What direction was the turn in?

Can we end up facing the same direction if we started facing different directions?

How far has the shape turned?
What does the shape look like after a turn?

Varied Fluency

1. Using the words forwards, backwards, up, down, left and right, give your partner some instructions to complete around the classroom/playground.

2. Draw what the shape will look like once it has turned.

▯	After a quarter turn clockwise	🔺	After a three quarter turn anti-clockwise
▯	After a half turn anti-clockwise	🔺	After a full turn clockwise
▯	After a full turn anti-clockwise	🔺	After a quarter turn clockwise
▯	After a three quarter turn clockwise	🔺	After a three quarter turn anti-clockwise

3. Describe how the triangle has turned each time.

The triangle has made a _____ turn _____.
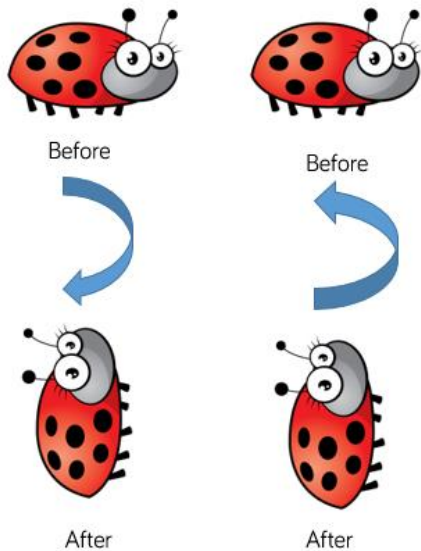
The triangle has made a _____ turn _____.

The triangle has made a _____ turn _____.

Describing Turns

Reasoning and Problem Solving

Explain what is the same and what is different about the turns made by the ladybirds.

Before   Before

After   After

Both ladybirds started facing the same way and have finished facing the same direction.
The first ladybird turned three quarters clockwise. The second ladybird turned a quarter anti-clockwise.

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.

Describing Movement & Turns

Notes and Guidance

Children use their knowledge of movement and turns to describe and record directions.

Children need to be aware of the directions the objects are facing at various times in order to complete turns correctly and turn in the right direction.

Mathematical Talk

Which direction is ____ facing to begin with? Why is this important?

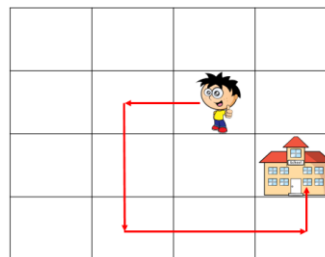Is ____ moving or just changing direction? How do you know?

How can we record the directions given?
How can we show the difference between a turn and moving?
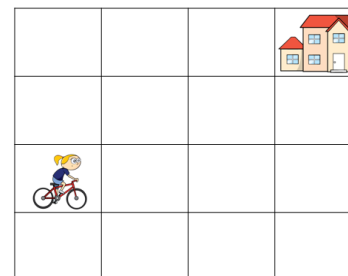
Is there a more efficient route to take?

Varied Fluency

1 Fill in the blanks to describe the route Dennis takes to school.

Walk ____ 1 square. Turn a _____ turn left. Walk forwards ___ squares. Turn _____. Walk _____ 2 squares. Turn a _____ turn _____. Walk _____.

2 Draw the route to show these directions.

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

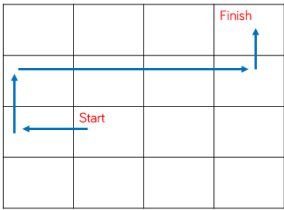**3** Write directions for Dennis to get to each place on the map.
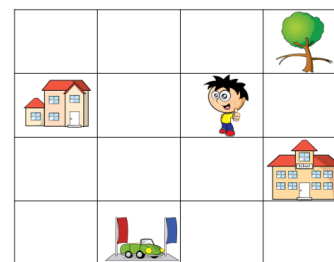
Describing Movement & Turns

Reasoning and Problem Solving

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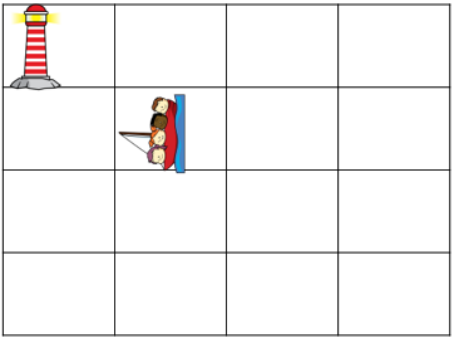

Children will find a range of routes.
For example:

Step right, Turn a quarter clockwise, Forward 1, Turn three quarters anti-clockwise, Forwards 4, Step left.

The boat is sailing to the lighthouse.

The boat needs to turn a quarter clockwise first.

Oliver

The boat needs to turn left first.

Shama

Who is correct?
Explain how you know.

Both children could be correct. Shama does not state how far the boat should turn. Half a turn left would be as efficient as Oliver's quarter turn clockwise.

Making Patterns with Shapes

Notes and Guidance

Children build on previous knowledge of patterns and repeating patterns from Year 1 and their understanding of turns to now create patterns that involve direction and turns.

Children use the language 'left', 'right', 'clockwise', 'anti-clockwise', 'quarter', 'half' and 'three quarters' to create and describe patterns.

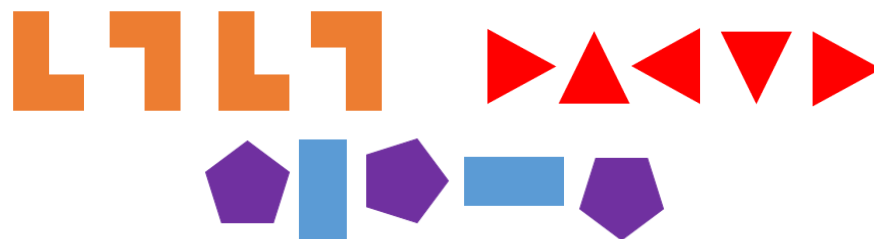## Mathematical Talk

What is happening in the pattern?

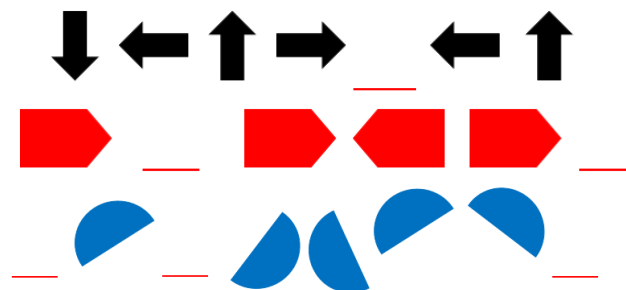What would the next shape look like?

What would the ____ shape be?

How can we work out the missing shape?

Varied Fluency

1 Continue these patterns by adding the next 3 shapes.

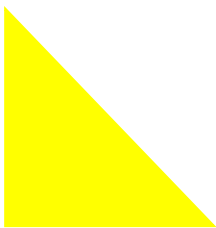2 Fill in the missing shapes to complete the patterns.

3 Describe the turn for each pattern.
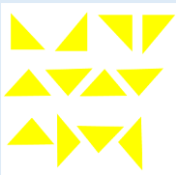   Write rules for these patterns.

Making Patterns with Shapes

Reasoning and Problem Solving

How many different patterns can you create using this shape?

For example:

Kate and Faye could both be correct as no direction is given. Kate may be turning clockwise and Faye anti-clockwise.

The rule is turn the shape a quarter turn.

Kate

The rule is turn the shape three quarters.

Faye

Who is correct?

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

The last shape should be turned another 90°

The 4th shape should be pointing right.

The 5th shape has turned 90° too far.