

**White**

**Rose  
Maths**

Summer - Block 1

**Position & Direction**

**Year 2**

# 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 2-D grids. Teachers need to discuss 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

- Using the words forwards, backwards, left and right, give your partner some instructions to follow when moving around the classroom/playground.

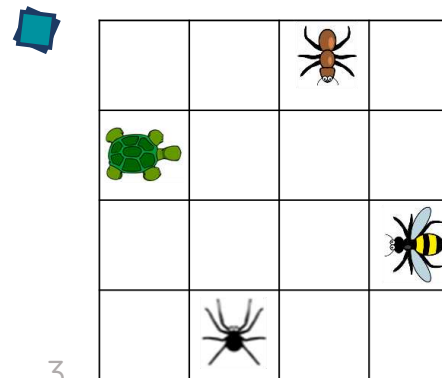
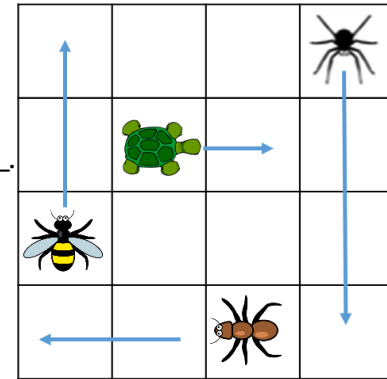
- Complete the stem sentences to describe the movements made.

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.

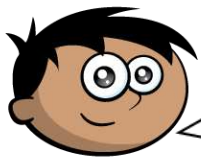
The  moves 3 squares forward.

The  moves 1 square down.

The  moves 1 square up.

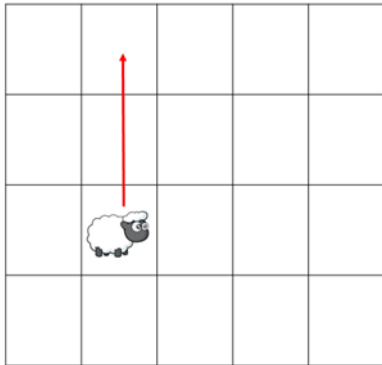
# Describing Movement

## Reasoning and Problem Solving



The sheep has moved 2 squares forward.

Amir

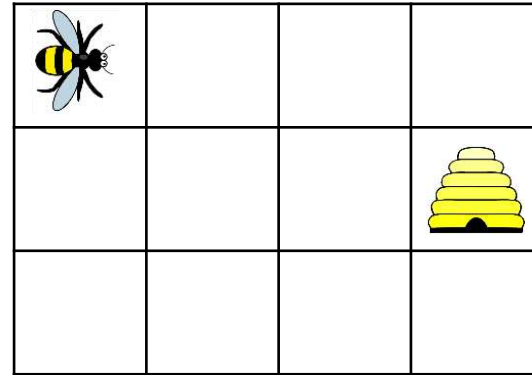


Amir is incorrect. The sheep has moved 2 squares to the left because of the way it was facing to begin with.

Is Amir correct?  
Explain your reasoning.

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.

# Describing Turns

## Notes and Guidance

Children describe turns using the language 'full turn', 'half turn', 'quarter turn', 'three-quarter turn', 'clockwise' and 'anticlockwise'.

It is important to encourage the children to take into consideration which direction the object/person is facing to begin with.

## Mathematical Talk

What direction was the turn?

Describe the turn that the number shapes have made?

Could there be more than one answer? Why?

## Varied Fluency

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.

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

Look at the number shape below:



How could the number shape have turned?

Describe all possibilities.

Possible answers:

No turn  
Quarter/half/  
three-quarter or  
full turn clockwise.

Quarter/half/  
three-quarter or  
full turn  
anticlockwise.

### 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.

They need to be aware of the direction the object is facing before it is turned.

Children may explore movement and turns further using ICT or during P.E.

## Mathematical Talk

Which direction is \_\_\_ facing to begin with? Why is this important?

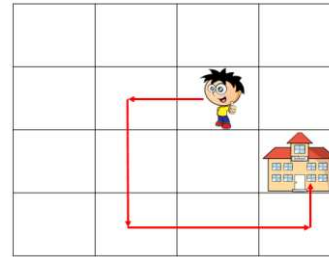
Is \_\_\_ moving or just changing direction? How do you know?


How can we record the directions given?

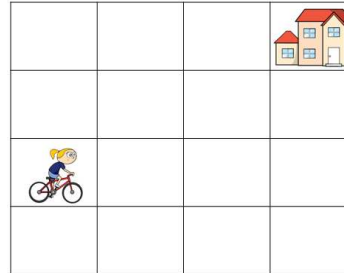
Are there any other routes that could be taken?

## Varied Fluency

-  Describe the route Dennis takes to school.



-  Draw the route to show these directions.




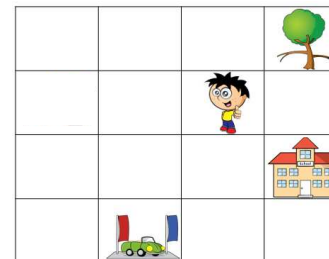
Forward 1 square. Turn left.

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

-  Write directions for Dennis to get to each place on the map.



# Describing Movement & Turns

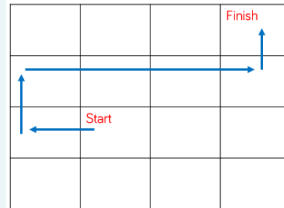
## Reasoning and Problem Solving

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

			Finish
	Start		

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

Is Whitney correct?



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

Convince me.

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.



# Making Patterns with Shapes

## Notes and Guidance

Children build on previous knowledge of patterns and repeating patterns from Year 1

They now describe and create patterns that involve direction and turns.

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

## Mathematical Talk

What is happening in the pattern?

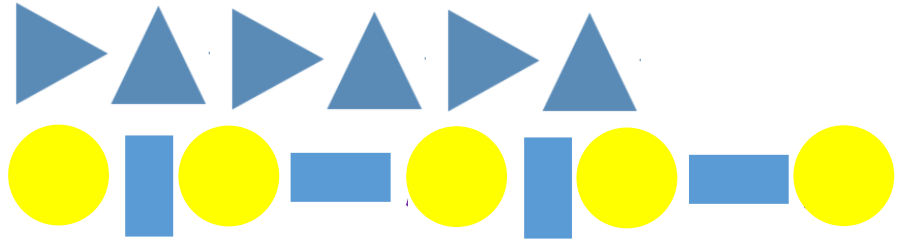
What would the next shape look like?

How would you describe its position?

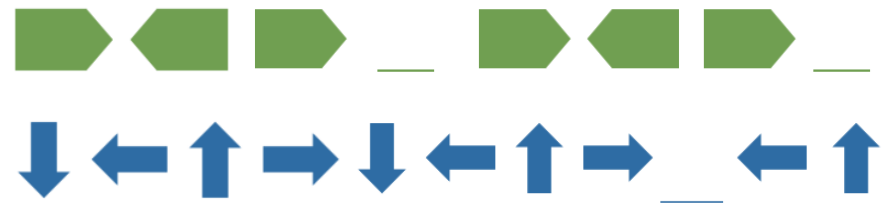
How can we work out the missing shape?

## Varied Fluency

- Continue these patterns by adding the next 3 shapes.



- Fill in the missing shapes to complete the patterns.



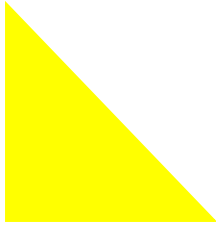
- Describe the turn for each pattern.



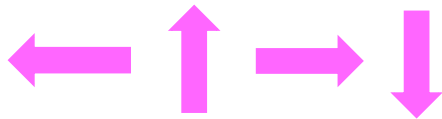
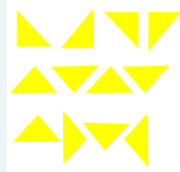
# Making Patterns with Shapes

## Reasoning and Problem Solving

How many different patterns can you create using this shape?



Possible answers:



The rule is turn the shape a quarter turn.

Eva

The rule is turn the shape three quarters.



Rosie

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

Who is correct?

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



The 4th shape should be pointing right.



Or the 8<sup>th</sup> shape should be pointing left.



The 5th shape has not made half a turn.

