

# Reasoning and Problem Solving

## Position and Direction – Year 2

### About This Resource

This resource is aimed at Year 2 Expected and has been designed to give children the opportunity to consolidate the skills they have learned in Summer Block 1 Geometry: Position and Direction.

The questions are based on a selection of the same ‘small steps’ that are addressed in the block, but are presented in a different way so children can work through the pack independently and demonstrate their understanding and skills.

### Small Steps

Describing Movements

Describing Turns

Describe Movements and Turns

Making Patterns with Shapes

### National Curriculum Objectives

Mathematics Year 2: (2P1) [Order and arrange combinations of mathematical objects in patterns and sequences](#)

Mathematics Year 2: (2P2) [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 \(clockwise and anticlockwise\)](#)

Did you like this resource? Don't forget to [review](#) it on our website.



Welcome, welcome one and all,  
To the quiz which is huge, not small.  
I'm the master of this maze,  
Pass through me and you will get the praise.

Who will take this mighty chance?  
To win the treasure and join the victory dance.  
Could it be you Seren and Ali?  
Jump on up and we will see!

Seren and Ali can not believe their luck. It is finally their turn to take on the Master of the Maze. They must try to reach the castle to find the magic key and open the treasure chest. Can they do it? They are going to need your help.







“Here goes!” says Seren. “The moment that we have been waiting for, we will need to work as a team but I’m sure if we work together we will succeed.”

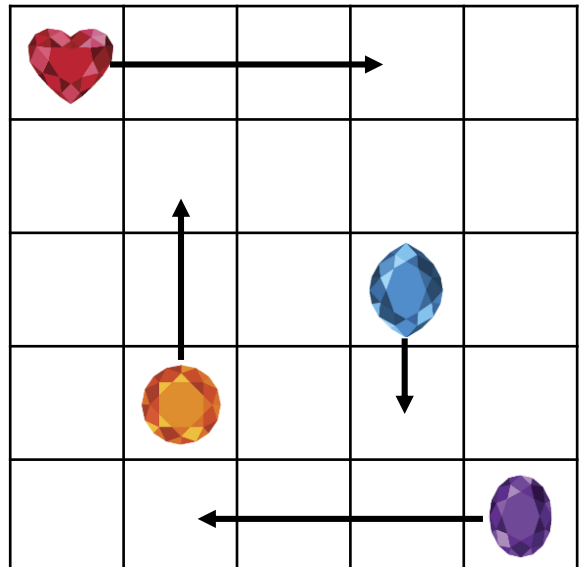
Seren and Ali nervously take to the stage and join the Master of the Maze ready for their first challenge.

“OK you two, your first challenge awaits! Go through door 1 and into the next room and you will find your instructions. Good luck.”

1a. Help Seren complete the table to explain how each jewel has moved.

Explain how each coloured jewel has moved.  
Make sure you use the words: up, down, left and right.

	The orange jewel has moved ___ squares _____
	The red jewel has moved ___ squares _____
	The blue jewel has moved ___ square _____
	The purple jewel has moved ___ squares _____

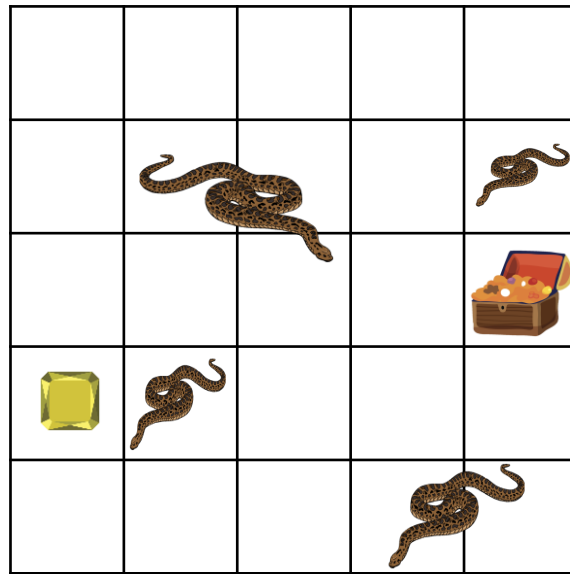


Super! Well done team now lets see what the next challenge is.

1b.

The yellow jewel needs to be inside the treasure box.

Draw a line on the grid from the jewel to the chest using the least amount of moves. You can't pass through any squares that have snakes in them.



1c. Ali thinks that he can move the jewel to the chest in 5 steps. Is he correct? Explain why?

It is a good job that Ali and Seren have your help otherwise I think they might have failed that challenge.  
Good work, you have passed the first two challenges, go through door 2 and into the next room, let's see what we have to do next...

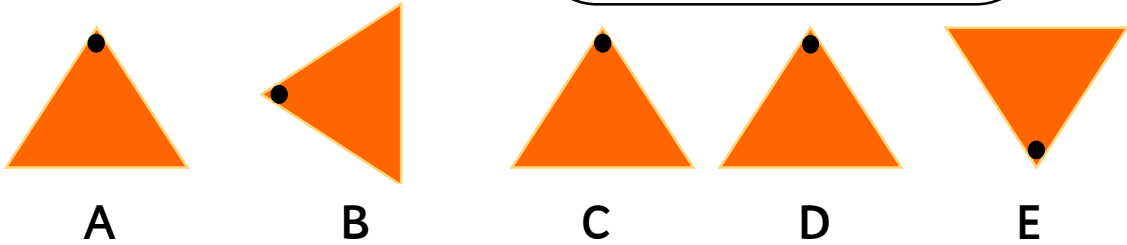
This room is so colourful and full of shapes. Ali finds the next challenge.

Look at the five triangles carefully. B and E are different. Describe how you can turn them to make them look the same.

We need to make sure that we use the words anti-clockwise, clockwise, quarter, three-quarter and half turns.



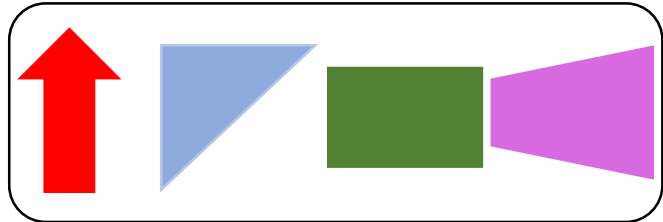
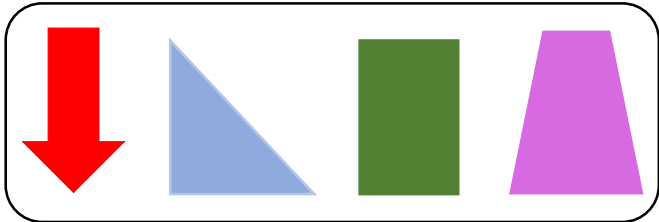
2a.



Some of the shapes on the wall tiles have been turned.

A

B



2b. Help Seren to match the tiles.

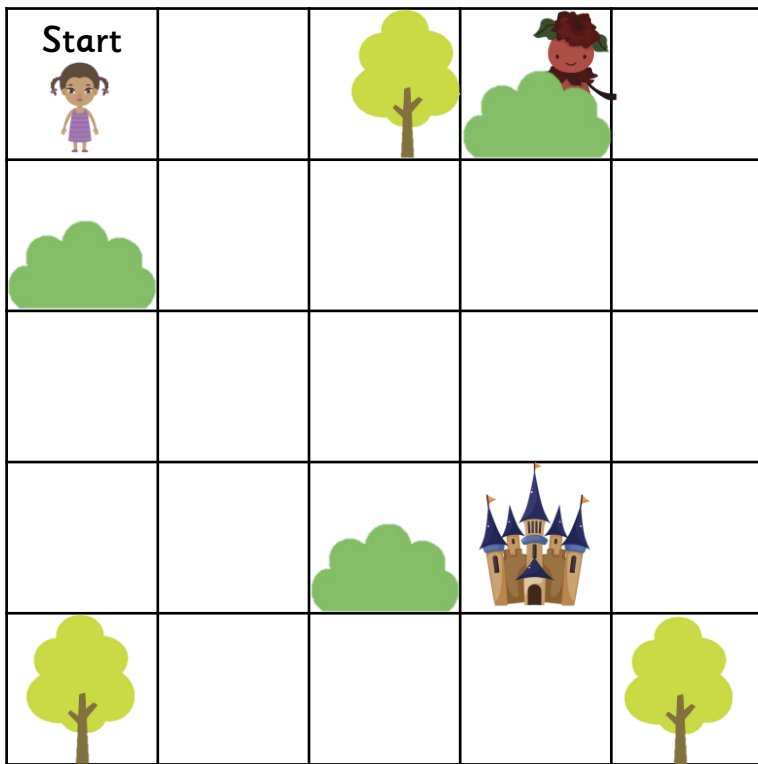
Describe how you would turn the shapes in tile B so that they match the shapes in tile A.

Suddenly, the door opens and the Master of the Maze appears.

He has the next challenge...

“Fabulous work team. You have done well so far, however, this next part is tricky!” says the Master of the Maze. “You have reached the maze. Work together to get to the castle, you are getting closer to that magic key.”

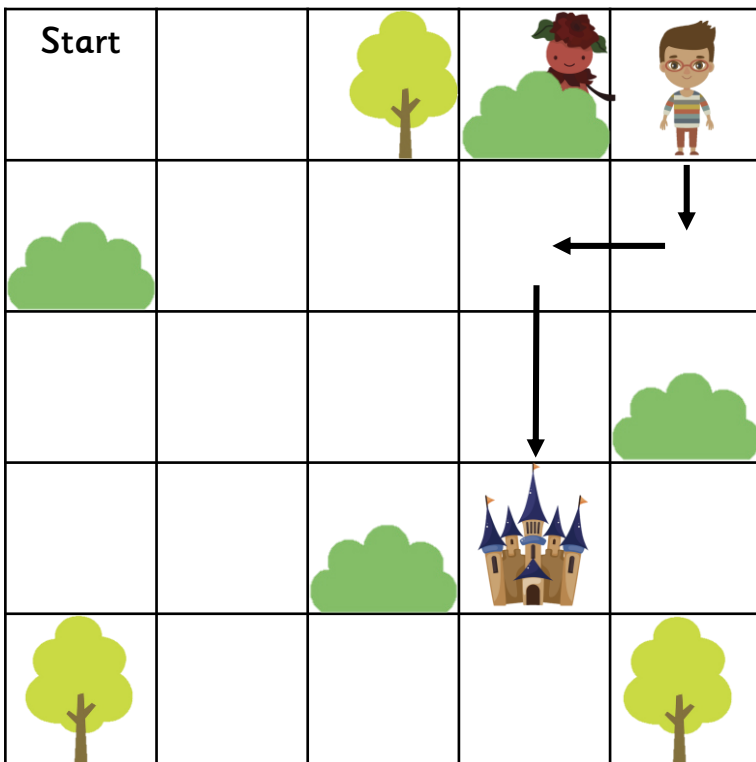
3a. Seren finds the next challenge. Help her to get through the maze and to the castle by following the Instructions. Draw a line for her to follow.



You've done the quiz now here is a maze. Follow the instructions and try not to get lost in a daze!

Turn a quarter turn left  
Step forward 1  
Turn a quarter turn right  
Step forward 2  
Step a quarter turn left  
Step forward 2  
Turn a quarter turn right  
Step forward 1

Well done. You have followed the instructions and Seren has reached the Castle. But where is Ali? Ali has got lost in the maze.

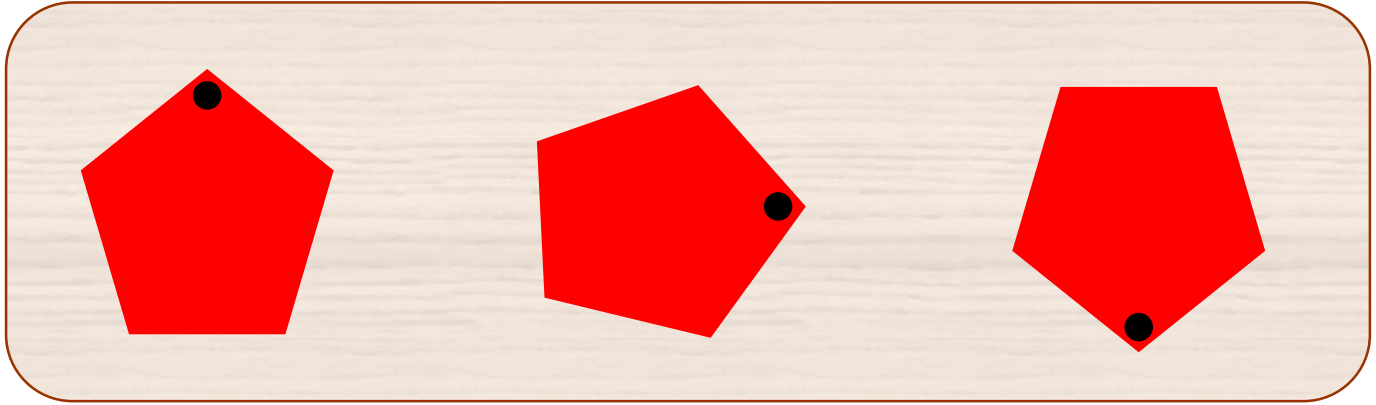


3b. You need to write the instructions for Ali to follow so that he can reach the castle. I have drawn an arrow for the route he should follow.

YES! Seren and Ali have both made it to the castle. There is one more challenge left to complete. Inside the castle door the magic key awaits.

Look carefully at the door of the castle.  
Can you continue the pattern. Draw the next three shapes in the sequence.

4a. Look carefully at the pattern.



Draw the next three shapes in the pattern.



4b. Seren says that the shape has been turned half a turn clockwise each time. Is she correct? Explain why.







The door has opened. Well done you have successfully completed the quiz.  
You have found the magic key and the treasure is yours to share.

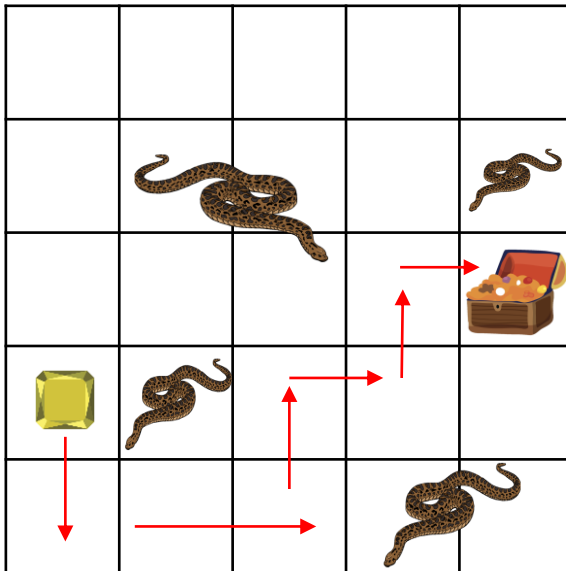
Well done Team.



1a.

	The orange jewel has moved <b>2 squares up</b>
	The red jewel has moved <b>3 squares right</b>
	The blue jewel has moved <b>1 square down</b>
	The purple jewel has moved <b>3 squares left</b>

1b.

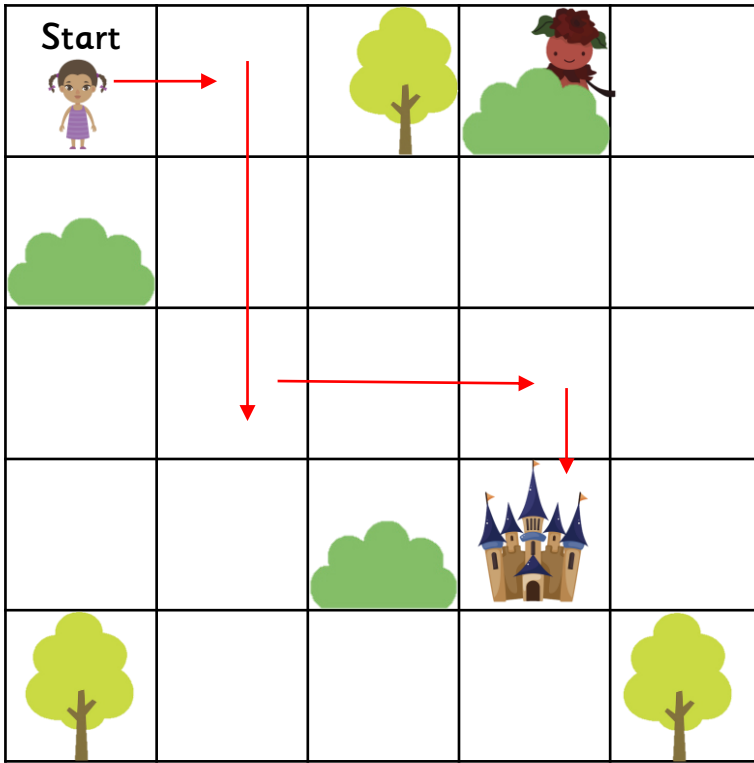


1c. No Ali is not correct. The shortest way to get to the chest takes 7 steps. The jewel can not go diagonally and can not pass through any boxes with snakes in.

2a. Shape B – A quarter turn clockwise or a three-quarter turn anti-clockwise  
 Shape E – A half turn clockwise or a half turn anti-clockwise.

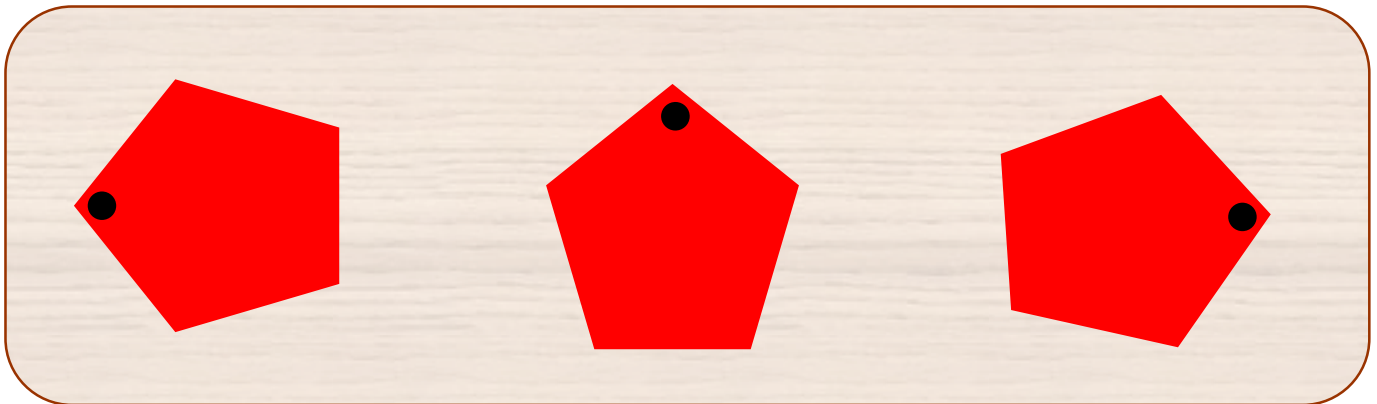
2b. Red arrow – A half turn clockwise or anti-clockwise  
 Blue triangle – A quarter turn anti-clockwise or three-quarter turn clockwise  
 Green rectangle – A quarter turn anti-clockwise or clockwise  
 Purple parallelogram – A quarter turn clockwise or three-quarter turn anti-clockwise.

3a.



3b. Step forward 1 step. Turn a quarter turn right. Step forward 1 step. Turn a quarter turn left. Step forward 2 steps.

4a. Images to show a pentagon and the dot to move a quarter turn clockwise each time



4b. She is not correct. The shape has been turned a quarter turn clockwise each time.