

Reasoning and Problem Solving

Step 1: Turns and Angles

National Curriculum Objectives:

Mathematics Year 3: (3G4a) [Recognise that angles are a property of a shape or a description of a turn](#)

Mathematics Year 3: (3G4b) [Identify right angles, recognise that two right angles make a half turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Identify a shape from given criteria. Shapes are given.

Expected Draw a shape from given criteria. Using regular shapes.

Greater Depth Draw a shape from given criteria. Using irregular shapes.

Questions 2, 5 and 8 (Problem Solving)

Developing Identify the starting position following a given turn. Using half turns and quarter turns written in words.

Expected Identify the starting position following a given turn. Using half turns, quarter turns and three-quarter turns written in words.

Greater Depth Identify the starting position following two given turns. Using half turns, quarter turns and three-quarter turns written in words.

Questions 3, 6 and 9 (Reasoning)

Developing Explain if a child is correct in describing a turn using half and quarter turns with four compass points.

Expected Explain if children are correct in describing a turn using half, quarter and three-quarter turns with four compass points.

Greater Depth Explain if children are correct in describing more than one turn using half, quarter and three-quarter turns with eight compass points.

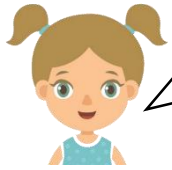
More [Year 3 Properties of Shape](#) resources.

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

Turns and Angles

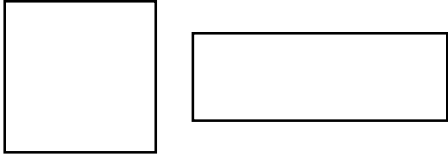
1a. Sally is thinking of a shape.

She says,



The shape has 4 angles and 4 equal sides.

Which shape is she thinking of?



PS

Turns and Angles

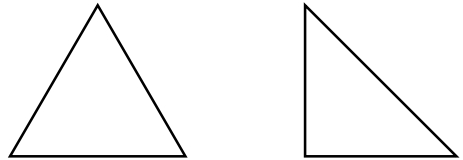
1b. Shazib is thinking of a shape.

He says,



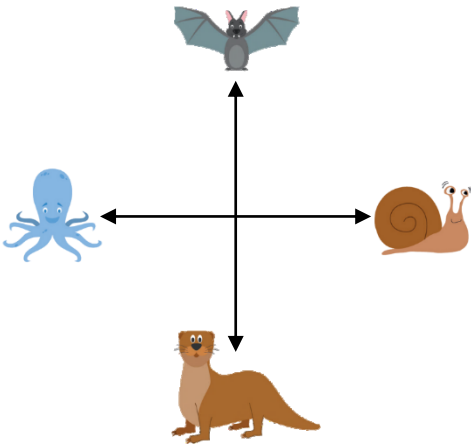
The shape has 3 sides and one right angle.

Which shape is she thinking of?



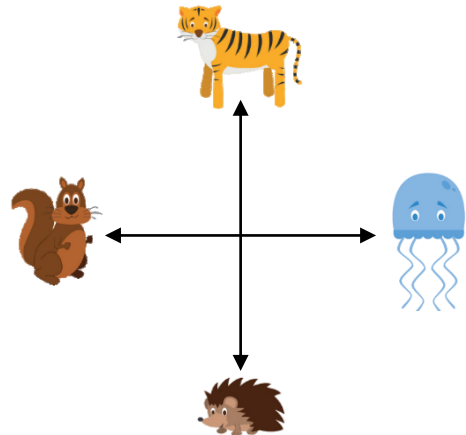
PS

2a. After a quarter turn clockwise, you are now facing the bat. Which animal were you facing when you started?



PS

2b. After a half turn clockwise, you are now facing the squirrel. Which animal were you facing when you started?



PS

3a. A compass needle has moved from north to east.



Jason says,



It has moved a quarter turn anti-clockwise.

Is he correct? Explain how you know.



R

3b. A compass needle has moved from north to south.



Aaron says,



It has moved a half turn anti-clockwise.

Is he correct? Explain how you know.



R

Turns and Angles

Turns and Angles

4a. Sallah is thinking of a shape.

He says,



The shape has 3 angles and 3 sides of the same length.

Draw the shape that he is thinking of.



PS

4b. Katie is thinking of a shape.

She says,



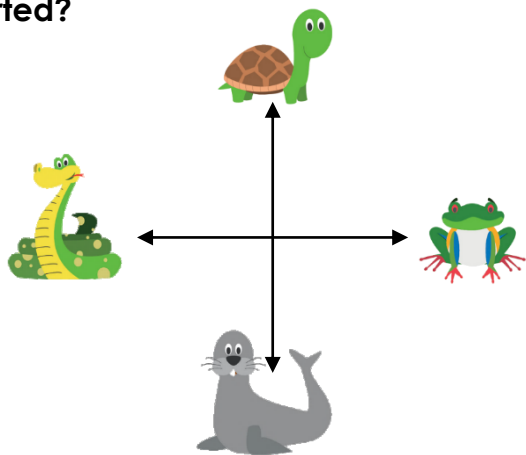
The shape has 4 angles and 4 sides all the same length.

Draw the shape that she is thinking of.



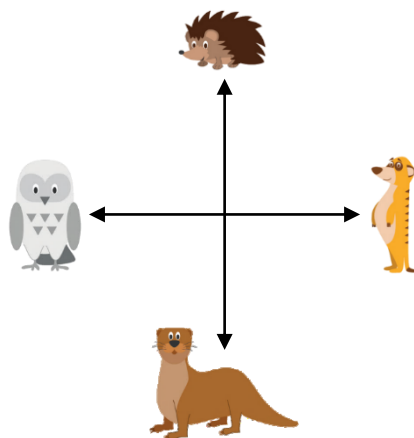
PS

5a. After a three quarter turn anti-clockwise, you are now facing the seal. Which animal were you facing when you started?



PS

5b. After a three quarter turn clockwise, you are now facing the owl. Which animal were you facing when you started?



PS

6a. A compass needle has moved from south to west.



Max says,



It has moved a quarter turn clockwise.

Emmy says,



It has moved a quarter turn anti-clockwise.

Who is correct? Explain how you know.



R

6b. A compass needle has moved from east to south.



Rosie says,



It has made a half turn.

Courtney says,



It has made a quarter turn anti-clockwise.

Who is correct? Explain how you know.



R

Turns and Angles

7a. Jenny is thinking of a shape.

She says,



The shape has 2 sets of equal angles.

Draw the shape that she is thinking of.



PS

Turns and Angles

7b. Faizal is thinking of a shape.

He says,



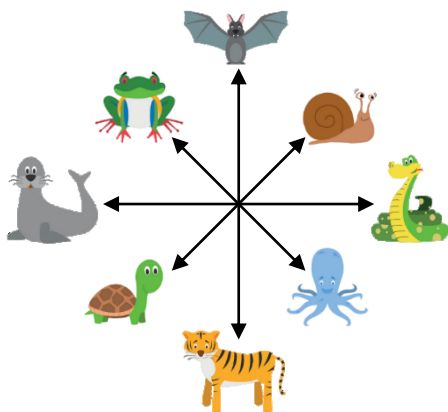
The shape has 5 sides and one angle is a right angle.

Draw the shape that he is thinking of.



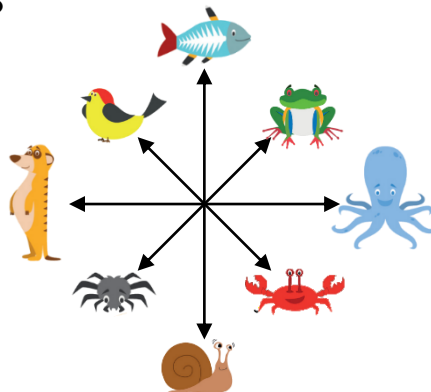
PS

8a. After a quarter turn clockwise and a three quarter turn anti-clockwise, you are now facing the tortoise. Which animal were you facing when you started?



PS

8b. After a three quarter turn anti-clockwise and a quarter turn clockwise, you are now facing the frog. Which animal were you facing when you started?



PS

9a. A compass needle has moved from NW to NE.



Aisha says,



It has moved a three-quarter turn clockwise and a quarter turn anti-clockwise.

Kem says,



It has moved a half turn clockwise and a quarter turn anti-clockwise.

Who is correct? Explain how you know.



R

9b. A compass needle has moved from SE to SW.



Levi says,



It has moved a quarter turn anti-clockwise followed by a half turn anti-clockwise.

Louise says,



It has moved a three-quarter turn clockwise followed by a quarter turn anti-clockwise.

Who is correct? Explain how you know.



R

Reasoning and Problem Solving Turns and Angles

Developing

- 1a. Square
- 2a. Octopus
- 3a. Jason is incorrect. It has turned a quarter turn clockwise.

Expected

- 4a. Equilateral triangle
- 5a. Frog
- 6a. Max could be correct, but it could also have been a three quarter turn anti-clockwise.

Greater Depth

- 7a. Various possible answers, for example parallelogram or rhombus
- 8a. Snail
- 9a. Kem is correct as the turn described by Alisha ends up facing SE.

Reasoning and Problem Solving Turns and Angles


Developing

- 1b. Right angle triangle
- 2b. Jellyfish
- 3b. Aaron could be correct. It could have made a half turn clockwise or anti-clockwise.

Expected

- 4b. Square
- 5b. Hedgehog
- 6b. Rosie and Courtney are both incorrect. The compass has made a quarter turn clockwise or a three quarter turn anti-clockwise.

Greater Depth

- 7b. Various pentagons possible with one right angle, for example:

- 8b. Spider
- 9b. Levi is correct as the turn described by Louise ends up facing NW.