

# Discussion Problems

## Step 1: Measuring Angles in Degrees

### National Curriculum Objectives:

Mathematics Year 5: (5G4a) [Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles](#)

Mathematics Year 5: (5G4b) [Identify angles at a point and one whole turn \(total 360\)](#)

Mathematics Year 5: (5G4b) [Identify angles at a point on a straight line and 1/2 a turn \(total 180\)](#)

Mathematics Year 5: (5G4b) [Identify other multiples of 90](#)

Mathematics Year 5: (5G4c) [Draw given angles, and measure them in degrees](#)

### About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More Year 5 [Properties of Shapes](#) resources.

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

# Measuring Angles in Degrees

1. Jessica and Lee are playing a game. Jessica has chosen an angle and given clues to Lee so that he can guess what it is.



My angle is obtuse. I have turned a half turn clockwise followed by an eighth of a turn anti-clockwise. What is my angle?



I think it's  $135^\circ$

Is Lee correct?

With a partner, take turns to describe an angle. Choose one from the list below.

$45^\circ$

$90^\circ$

$135^\circ$

$180^\circ$

$225^\circ$

$270^\circ$

$315^\circ$

$360^\circ$

You might find this vocabulary useful.

acute	obtuse	reflex	degrees	clockwise
anti-clockwise	turn	half	quarter	full

DP

2. Joshua is visiting the Wildlife Park. He doesn't want to miss anything so he decides to follow a route to make sure he sees all the animals.

Write a route for Joshua. He must go to all 6 animals and then return to the entrance/exit. Use angle vocabulary to describe his journey.



Hippos



Crocodiles



Elephants

Toucans



Giraffes



Lions



ENTRANCE  
AND EXIT



DP

## Measuring Angles in Degrees

1. Jessica and Lee are playing a game. Jessica has chosen an angle and given clues to Lee so that he can guess what it is.

Lee is correct. Jessica has turned  $180^\circ$  clockwise, then  $45^\circ$  anti-clockwise.

Various answers, for example:

My angle is an acute angle. I have turned a quarter turn anti-clockwise followed by an eighth of a turn clockwise. What am I?  $45^\circ$

My angle is a reflex angle. I have turned a quarter turn clockwise followed by a half turn clockwise and then an eighth of a turn clockwise. What am I?  $315^\circ$

My angle is the same as three right angles clockwise. What am I?  $270^\circ$

DP

2. Write a route for Joshua. He must go to all 6 animals and then return to the entrance/exit. Use angle vocabulary to describe his journey.

Various answers, for example:

Go forward to the end of the path and turn a quarter turn anti-clockwise. Go forward and see the hippos on your right.

Turn a half turn clockwise and walk forward to the end of the path. Turn  $90^\circ$  clockwise and walk forwards until you see a turning to your left. Turn  $90^\circ$  anti-clockwise and walk forwards until the path forks. Turn  $45^\circ$  clockwise and walk forwards. You will see the toucans on your left.

Carry on forwards until the road forks again. Turn  $45^\circ$  clockwise again and walk forward. You will see the giraffes on your left.

At the end of the path, turn  $90^\circ$  anti-clockwise and walk forward until the end of the path. Turn  $90^\circ$  anti-clockwise and walk forward. You will see the lions on your left.

Carry on forwards, past the fork on your left, until you reach the end of the path. On your left, you will see the elephants.

Turn  $270^\circ$  clockwise and carry on to the end of the path. You will see the crocodiles on your left.

Turn  $180^\circ$  and walk forward until you see a path on your right. Turn  $90^\circ$  clockwise and go forward until the path forks. Turn  $45^\circ$  clockwise and walk forward until you see the path fork. Turn  $45^\circ$  clockwise and walk to the end of the path. Turn  $90^\circ$  anti-clockwise and walk to the exit.

DP