SHAPE AND SPACE

From Another Angle

Adapted from NZMaths.co.nz

Learning focus

- Identify acute, obtuse and reflex angles
- Measure an angle using a protractor
- Use compass, ruler and protractor to draw diagrams
- Investigate scoring goals from different angles

Key vocabulary

- Angle
- Acute
- Obtuse
- Reflex

Resources

- Clipboards
- Rulers
- Rope
- Cones
- Trundle wheel
- Large teacher demonstration protractor

Activity

Gather the children on the school football pitch. Elicit children's ideas about angles by asking them to identify and describe angles in the environment.

What angles do you see?
Can you use your body to show an angle of 90 degrees? 45 degrees?

Teaching point

Angles can be thought about in a number of ways. Considering dynamic aspects allows us to consider movement. For example, when a person or object is making a turn, and the size of the angle is changing. Angles where no movement is involved, such as those that occur in the corners of 2-D shapes, are known as static angles.

Discuss where on a football pitch is the easiest position to take a shot on goal from and why this is so. Set a distance, for example, 10 m from goal, so that the children can focus on the angle.

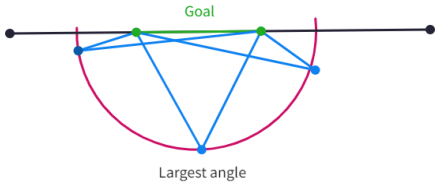
Which position gives you the best chance of kicking the goal? Why?

What happens as the kicker moves away from the central point?

The children can draw diagrams to explain their thinking. Through discussion and examination of the diagrams, the children should see that as the kicker moves from the central point, the angle becomes smaller and scoring might be more difficult.

Teaching point

The best position for kicking is facing the centre of the goal as this gives the largest angle. As the kicker moves further back, or to either side this angle gets smaller.



Explain that the class is going to investigate this. As a class decide which angles that you will investigate. A rope and large demonstration protractor can be used to measure the angles and to place cones at the appropriate points. Keep the distance fixed by using a rope of an appropriate length to mark spots 10 metres from the centre of the goal. Have the children make predictions of how likely they are to score when kicking from each of the cones.

From which cone, will we score the most goals? Why?
Which cone will be harder to score from? Why?
Is this a fair test? Why/Why/not?

Assign a record-keeper at each cone. Have children take 2-3 kicks each from each cone, and have the record keeper keep a tally of successful and unsuccessful attempts. A table can be created for the data. The children can make posters of their findings.

Angle	Successful	Unsuccessful

Taking ideas further

The children can use a similar approach to investigate angles in other sports or games that they are familiar with, e.g., hockey, snooker, basketball.

Assessment opportunities

Are the children able to:

- Estimate angles with some accuracy
- Label angles appropriately: right, acute, obtuse, reflex
- Record data accurately
- Make appropriate inferences from the data