

Angle

Whether you are a parent, teacher or home school educator, we've compiled examples of activities, games and puzzles which can be used to support the learning of shape and space.

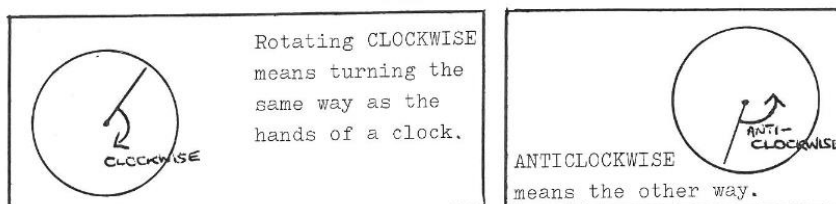
These examples are taken from the 'angle' packs found in our SMILE resource collection. The mathematical demand increases as you work through the packs. There are lots more ideas in the complete packs, which can be downloaded at <https://www.stem.org.uk/rxzf3>

Answers to cards can be found at <https://www.stem.org.uk/rxxo5>

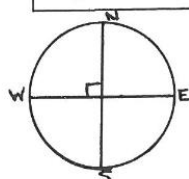
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You will need: compasses

Right Angles 1



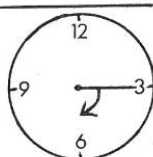
A quarter turn is called a RIGHT ANGLE



Draw a circle. Mark on N,S,E and W
One right angle has been marked with a square corner. Mark the others the same way.
How many right-angles are there?

Stand. Face North. Rotate clockwise to face South. How many right-angles did you turn through?

The hand of a clock turns from the 3 down to the 6.
How many right angles is this?

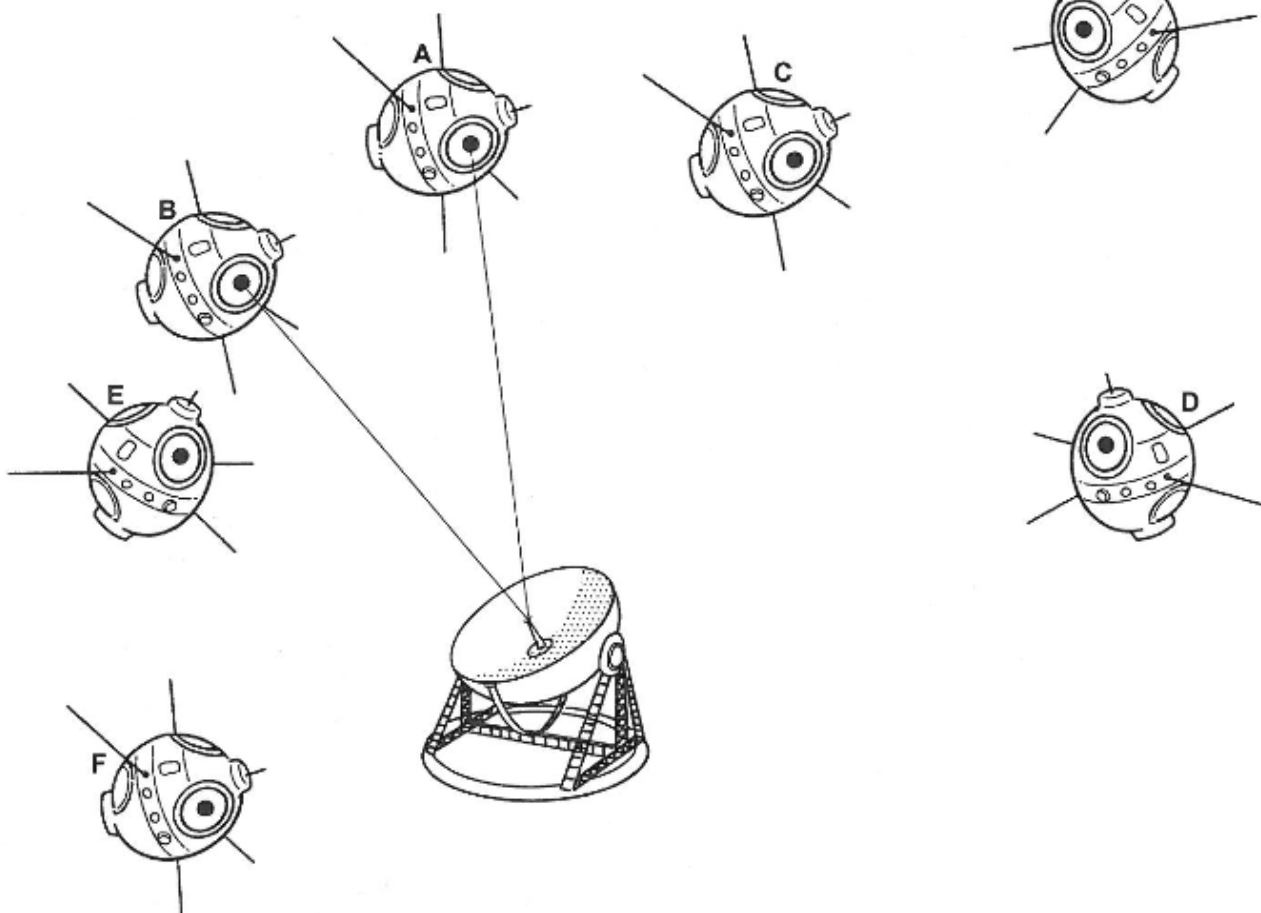


Copy and complete this table writing in how many right-angles:-

	Start	Which way	End	Number of Right-angles
(a)	South	Anticlockwise	East	1
(b)	East	Anticlockwise	South	
(c)	South	Clockwise	West	
(d)	North	Clockwise	East	
(e)	West	Anticlockwise	North	
(f)	South	Anticlockwise	North	
(g)	12	Clockwise	6	
(h)	3	Clockwise	12	
(i)	6	Clockwise	9	
(j)	9	Clockwise	3	
(k)	12	Anticlockwise	9	
(l)	12	Anticlockwise	3	

Satellite Signals

You will need an angle indicator.



The radio telescope receives signals from satellite **A** then turns to each of the other satellites in order. Estimate the angle, clockwise or anticlockwise, the telescope must be turned to aim at the next satellite.

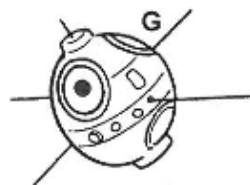
Record your estimates in this table:

Turn	Estimate	Clockwise or anticlockwise	Measure
A to B			
B to C			
C to D			
D to E			
E to F			
F to G			
G to H			

Now use your angle indicator to measure these angles.

Record them in the table.

You pick up the signal if you are within 5° of the position. How many satellites did you pick up signals from?



Radar

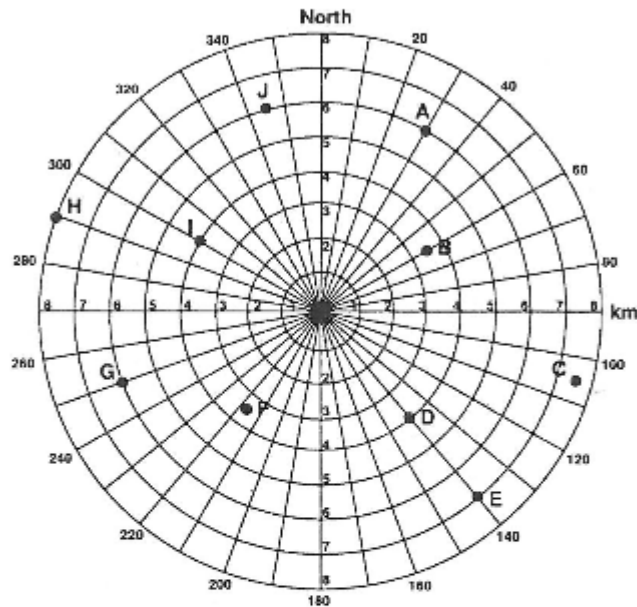
Radar uses high-powered radio pulses for locating objects from a central point.

A radar screen is made up of radii at 10° intervals and concentric circles.

Objects on a radar screen can be located by **polar co-ordinates**.

The first number of a polar co-ordinate represents the distance from the centre, the second number represents a 3 figure bearing.

- The objects **A** to **J** are located on this radar screen.
Complete the table of polar co-ordinates for each object.

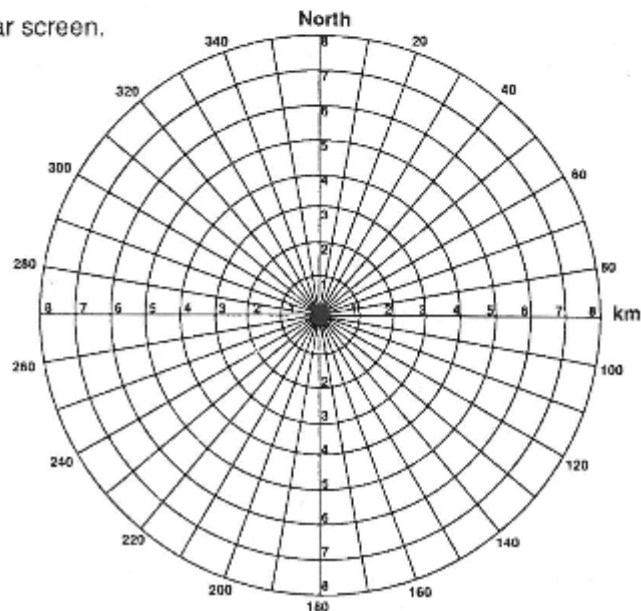


Object **A** is 6 kilometres away from the centre, on a bearing of 030° .
The **polar co-ordinates** of object **A** are (6, 030).

Object	Polar co-ordinates
A	(6, 030)
B	
C	
D	
E	
F	
G	
H	
I	
J	

- Plot these nine objects on this radar screen.

Object	Polar co-ordinates
a	(4, 025)
b	(6.5, 070)
c	(2, 105)
d	(8, 150)
e	(8, 215)
f	(5, 260)
g	(7.5, 260)
h	(1, 300)
i	(3, 345)



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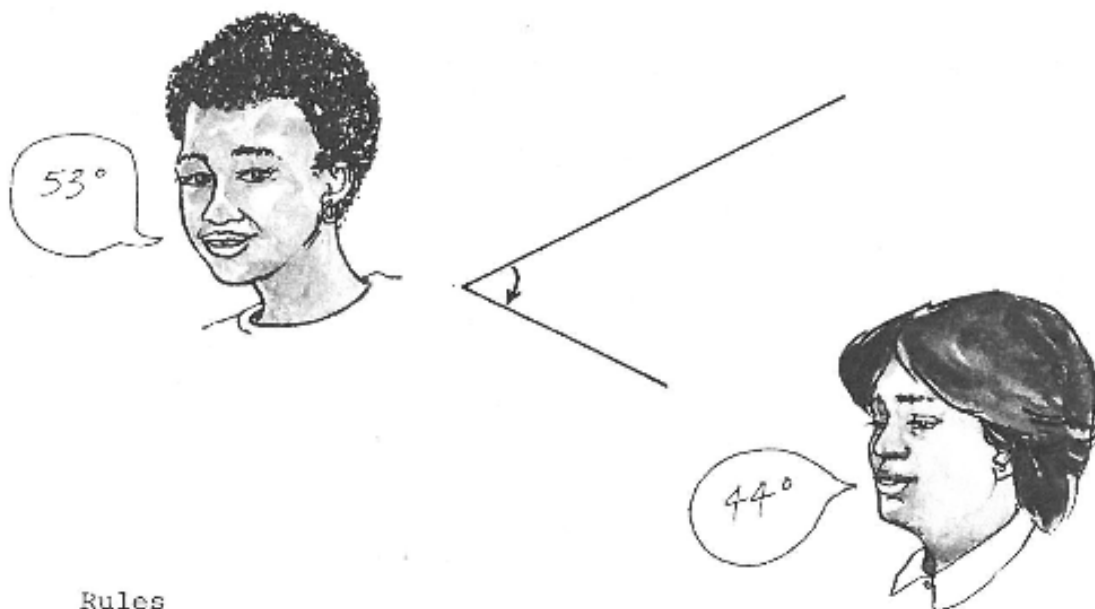
SMILE

You will need: angle indicator.

ANGLE

This is a competition for 2 or more.

ESTIMATION



Rules

- (1) One player draws an angle (take turns).
- (2) All players record an estimate (guess) for the size of the angle.
- (3) One player measures the angle (take turns).
- (4) The player with the best guess scores 1 point.
- (5) The winner is the first player to score 10 points.

More Advanced Version

- (1) - (3) As above
- (4) Each player starts with 50 points.
Subtract 1 point for each degree you are out.
- (5) When a player reaches 0 he loses.