



# WLBC ENV. EDUCATION

## LESSON PLAN:

### KEY STAGE 2;

### MATHS TRAIL

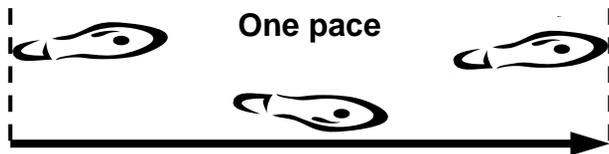
#### Resources

Rulers  
Measuring tape  
Pencils  
Writing boards

Clinometers  
Distance wheel  
Compasses

In your local park set up a maths trail, either by creating a basic aerial map via Google maps or using compasses to set up bearings.

**Pacing;** using a distance wheel or school running track measure a set distance (50/100 metres) for the children to practice pacing over.



When teaching the children pacing, get them to count every other step. They can now work out how many paces it takes for them to travel several distances in metres.

**Bearings;** get the children to practice the use of compasses by using bearings. Hold the compass horizontally at all times when taking bearing readings.

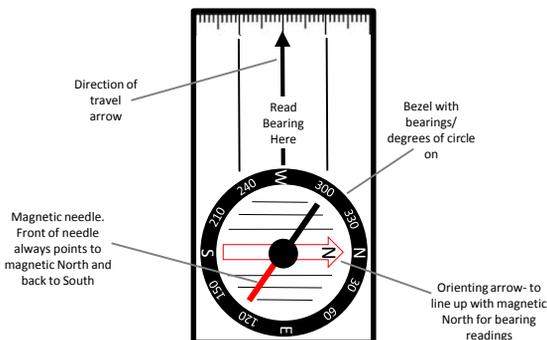


#### Taking a bearing point:-

1. Point the arrow at the front of the compass (direction of travel) toward the object you want to take a bearing of.
2. Turn the bezel of the compass so that the orienting arrow lines up with the magnetic north needle on the compass.
3. Take the bearing from where it says 'read bearing here'. It will be between  $0^\circ$  and  $360^\circ$  with north being  $000^\circ$  or  $360^\circ$ .

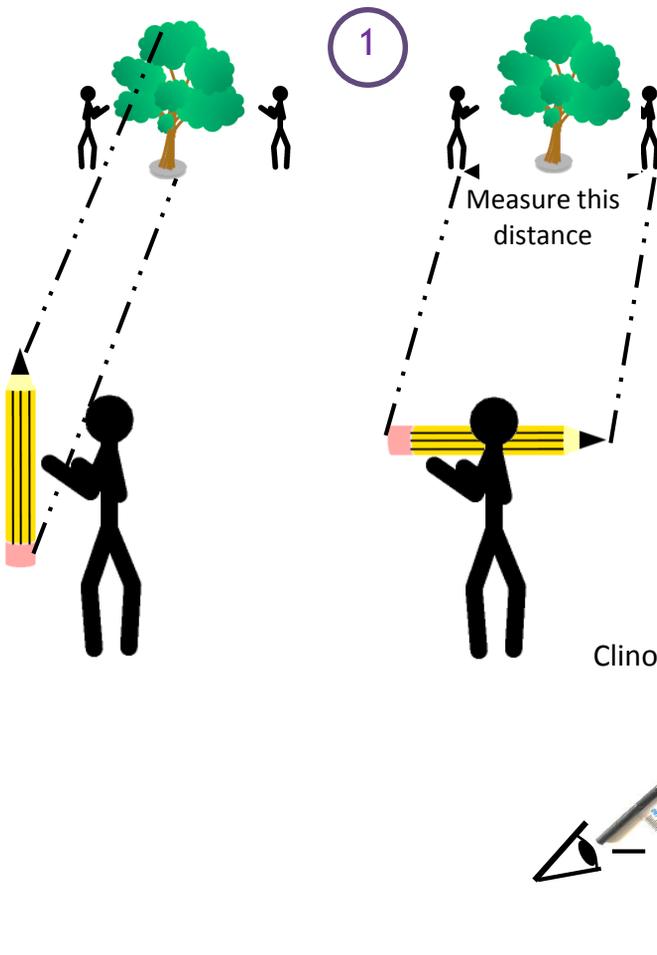
#### Finding a bearing point:-

1. Turn the bezel of the compass so the bearing you have eg.  $060^\circ$  lines up with the direction of travel and the 'read bearing here' line.
2. Turn the entire compass until the magnetic north needle lines up with the orienting arrow.
3. Follow the direction of travel arrow and see where it points to.

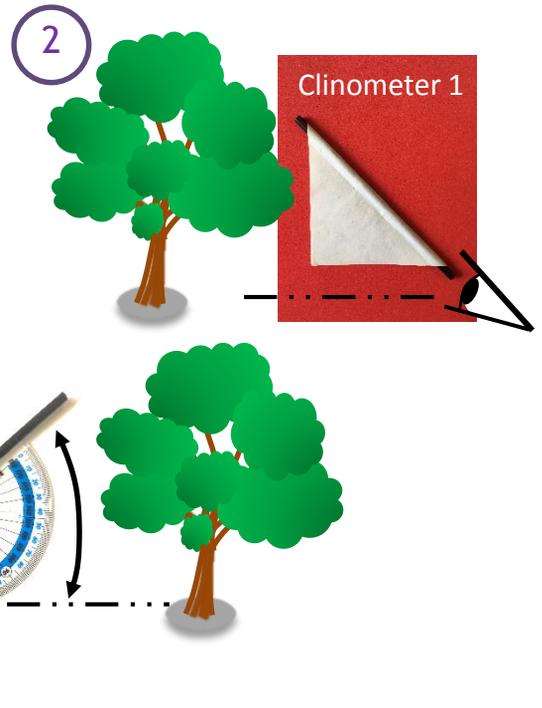


Practice taking bearings of several objects around the park. Give the children some bearings to see if they can spot what you chose. They must stand in the same place that you took the bearing from though to locate what you found.

**Measure the height of a tree;** in a group of 3/4 children. Get one child to walk away from a tree that they can see the base of until their pencil appears to be as tall as the tree. Turn the pencil horizontally and get a child to stand at each end of the pencil near to the tree. Measure that length and that will give them the height of the tree.

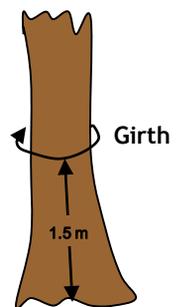


Angles; use the clinometers to measure angles and work out the height of a tree by pacing the distance away from the tree and measuring the angle using a home made clinometer.



A right angled isosceles triangle has 2 equal sides, so the distance from the tree is the same as its height. To avoid lying on the floor measure your height to eye level and add that to the distance measured. You can make an angle clinometer using a protractor and a weighted cotton line, hanging from the centre.

**Measure the age of a tree;** at 1.5 metres from the base of the tree the girth (circumference) of a tree increases each year by approximately 2.5 cms. So if you measure the circumference at 1.5 m from the base of the tree (see picture) and divide that by 2.5, this will tell you approximately how old the tree is.



Using pacing measure the perimeter of areas within the park getting the children to pace the distance and then convert it to metres.