The clinometer
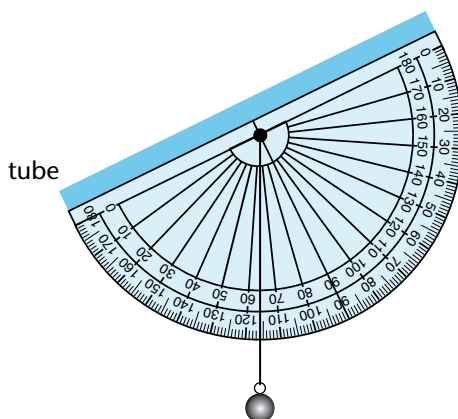
The clinometer is a device which can be used for measuring an angle of elevation.

To make a clinometer, you need a white-board protractor, a length of string, a small weight with a hole in it, and a small length of metal tube.

Drill a small hole
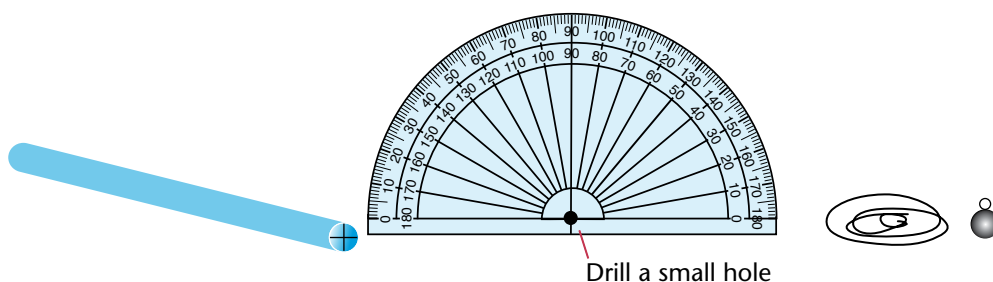
The pieces are assembled to make the clinometer, as drawn below.

tube

The thin tube should be fastened firmly to the diameter of the protractor for greater accuracy in sighting an object. It may be helpful to place a hair-line cross at the end of the tube to line up the object

How to use a clinometer

To measure the angle of elevation of a flag pole, a student looks through the tube to sight the top of the flag pole.

The clinometer must then be kept very steady while the other student reads the angle on the outside scale of the protractor. This angle will always be an obtuse angle, say 147°.

The angle of elevation of the top of the flagpole is found by subtracting 90° from the reading of 147°. The angle of elevation is 57°.
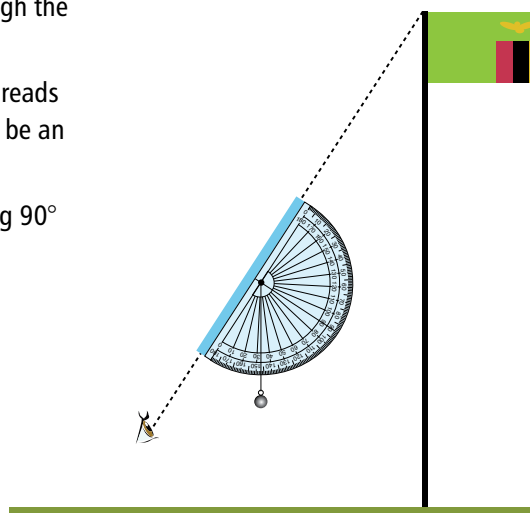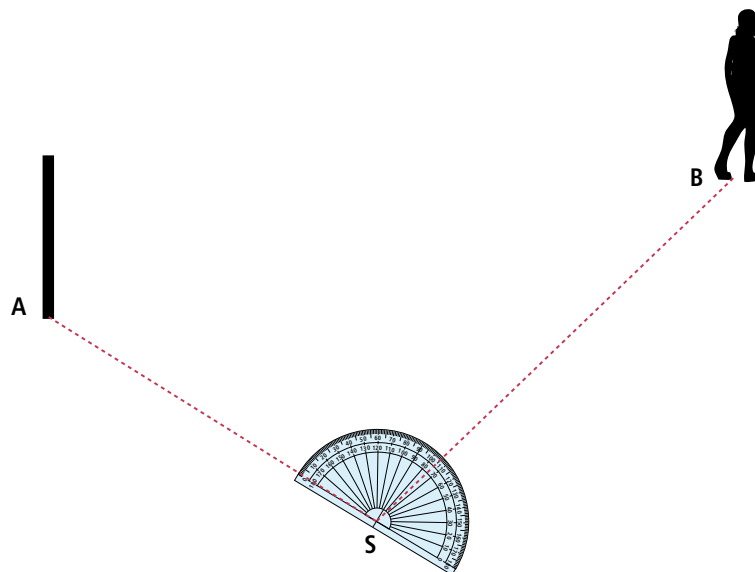
The angle measurer

This is an instrument for measuring the angle between two horizontal lines.

The angle measurer consists of a white board protractor and a needle that rotates around the degree scale. A thin tube is fastened to the needle and rotates with it. This tube is used to accurately sight objects.
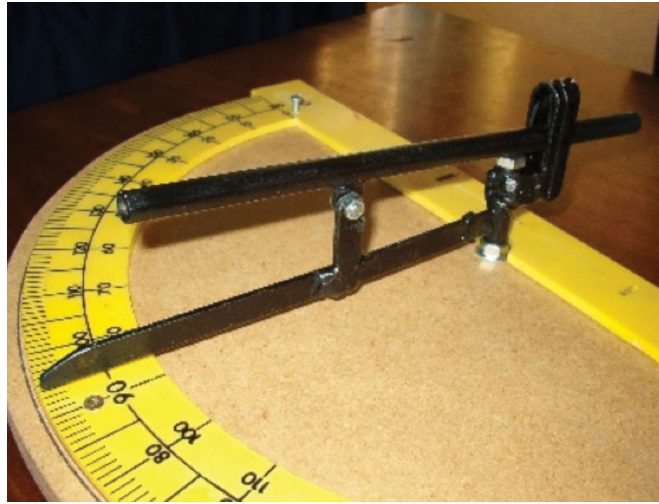
How to use the angle measurer

Place the angle measurer on a stool at S and position the needle at zero on the degree scale with the viewing tube lined up with the object A, say a pole.

Keeping the angle measurer fixed on the stool, turn the needle and tube until another object B, say a student, is sighted. Record the reading in degrees on the scale.

The angle turned through is angle ASB.

Acknowledgement: Thanks to Mr David Green of St Bede's College, who designed the clinometer and the angle measurer and has agreed for them to be used in the text.