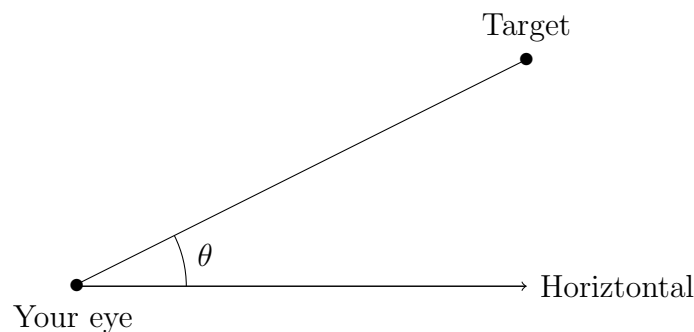


## What is a Clinometer?

A clinometer is a rudimentary tool which can be used to find the angle of elevation of an object.

The angle of elevation is the angle created by two lines:

1. The line between your eye and the object.
2. The horizontal line that starts at your eye (as if you were looking directly forward).

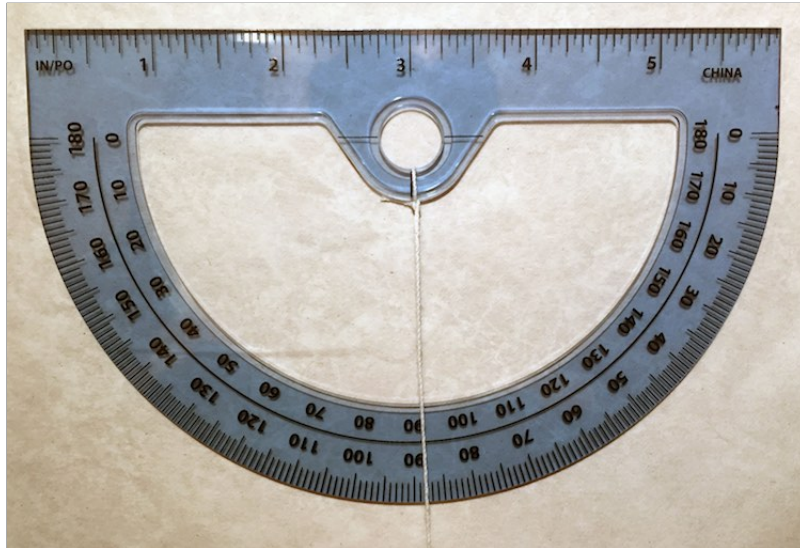


## How Do I Build a Clinometer?

You are going to need some basic materials.

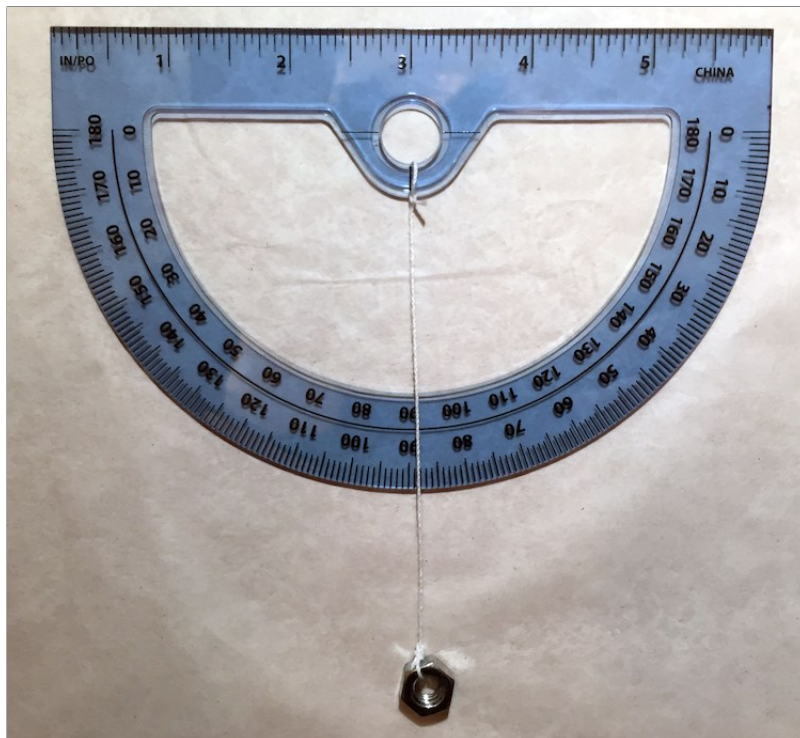
- A protractor
- Some string or fishing wire
- A weight (like a nut or a washer)
- A drinking straw
- Some tape
- Scissors

**Step 1** – Tie some string through the hole in the protractor



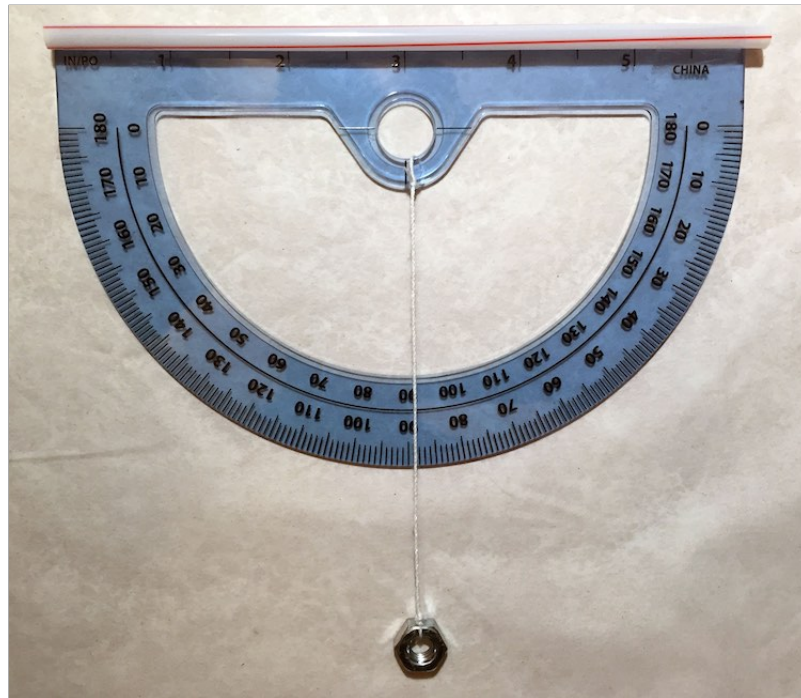
Don't tie the string too tightly. It should slide around if you turn the protractor.  
Make sure your string is long enough for step 2!

**Step 2** – Tie your weight to the other end of the string



The weight should hang below the protractor.

**Step 3** – Tape a straw to the straight edge of the protractor



Keep the straw as straight as possible.  
You may want to cut off the ends of the straw.

Congratulations! Your clinometer is complete.

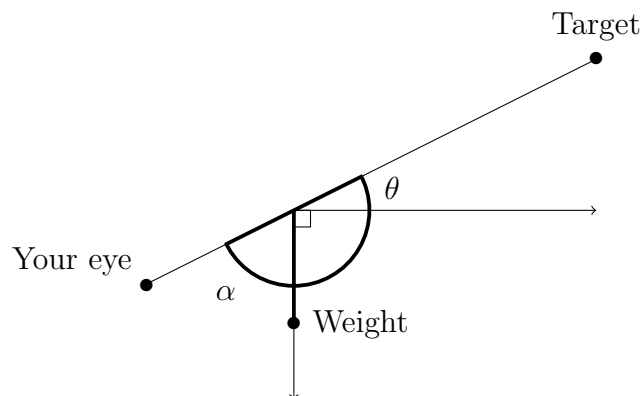
### How Do I Use a Clinometer?

By looking at your target through the straw, the clinometer gives you an easy way to measure the angle of elevation.

$\theta$  is your angle of elevation, so:

$$\theta = 180^\circ - 90^\circ - \alpha$$

$$\theta = 90^\circ - \alpha$$



Once you know the angle of elevation, the distance from the base of the object, and the height of your eye, you can calculate the total height an object.