

# Make a Sextant

The sextant is a navigational tool used by sailors and submariners to determine the angle of elevation of a celestial body (sun, moon and stars). Once they had determined the angle of elevation, they are able to find their latitude (how far north or south they are) on a map. Use the template provided and follow the steps below to make your very own sextant.

## You will need:

- Protractor template (provided)
- Piece of cardboard (at least 16cm x 11cm)
- String, approximately 20cm long
- Fishing weight or some other object that can be tied to the string as a weight, such as an eraser or large heavy bead
- Plastic straw
- Tape
- Hole punch
- Glue
- Scissors

## Directions:

1. Print out a copy of the protractor template (provided).
2. Cut along the dotted lines above and below the protractor.
3. Glue the image of the protractor onto the cardboard and cut out the template.
4. With the hole punch, make a hole at the 90° mark along the bottom of the protractor. The hole should be just above the line that runs horizontally from 0 to 0.
5. Tie your weight to one end of the string and then tie the other end through the hole of the protractor so that the string runs down the 90° line when the protractor is held upside-down with the straight edge up and the rounded edge downward.
6. Attach the straw across the bottom of your protractor, placing a piece of tape at either end of the straw to secure it in place.
7. Your sextant is now ready to use.

How to Use your Sextant:

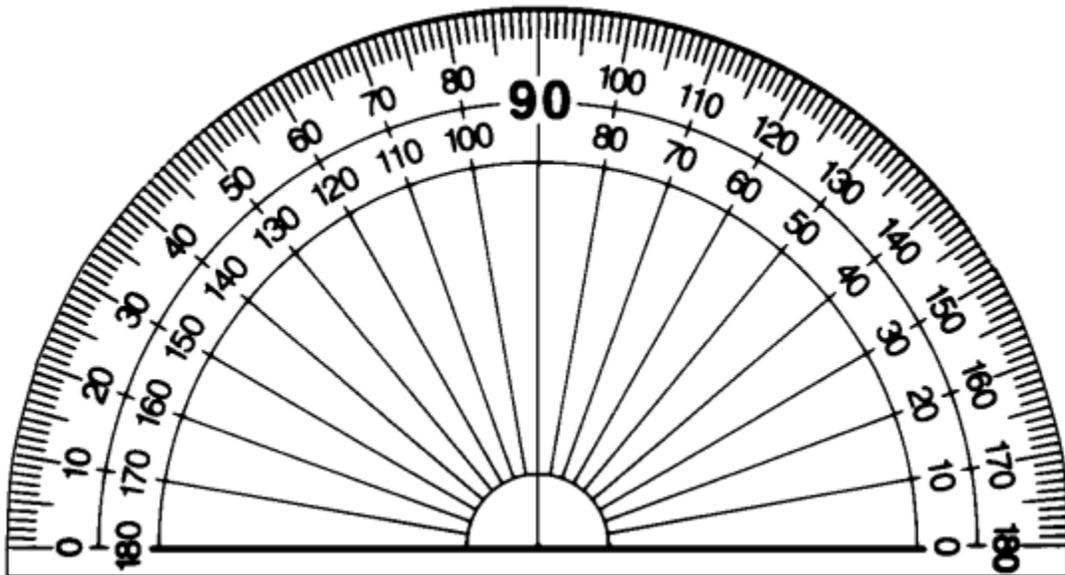
1. Look through the straw of your sextant and locate an object above your head.
2. Once you've found the object, keep the string in place along the protractor by placing your finger over it to stop the string from moving.
3. With your finger over the string, find the angle of the object. The angle is determined by where along the first row of numbers (scale from 0° to 90°), the string is resting.
4. Determine the angle of elevation for the object. This is done using simple math equation: 90 minus the angle you read off of the protractor for your object.

**For example:** If the object was spotted at an angle of 70° the angle of elevation would be 20° (or 90 minus 70)

**Try this once your sextant is complete:**

On the next clear night, try to find the North Star and measure your latitude according to your homemade sextant.

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