

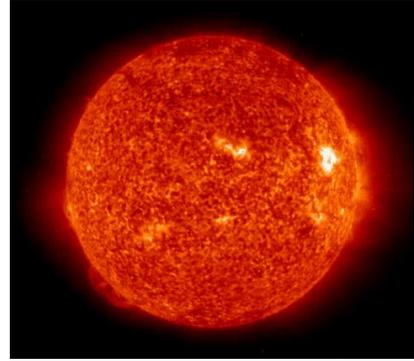
Praxis “Making Science Fun”

Finding the Size of the Sun?

A pinhole viewer can be used to project images that can be used to calculate the size of the Sun.

Materials:

- Cardboard
- Tape
- Aluminum Foil
- Push Pin
- Candle
- Ruler
- Calculator



Procedure: (Remember to be sure to have your parent’s permission and they have the time to watch and help you.)

- Cut a square about 2 x 2 centimetres out of the centre of the cardboard.
- Place the piece of aluminum foil over the opening and tape it down.
- Using the pin, make a small hole near the centre of the foil. This is the pinhole viewer.
- Test your viewer: Set up the candle 10 centimeters away from the pinhole viewer. Light the candle and turn out the lights. Hold a white sheet of paper a few centimetres from the opposite side of the pinhole viewer. Slowly move the paper until you see a clear image of the flame projected on the paper (it’s upside down).
- Repeat the previous step only this time use the Sun instead of the candle. Make the distance between the pinhole and the paper as large as possible. **Remember never look directly at the Sun.**
- Measure:
 - a. The diameter of the image of the Sun on the paper =
 - b. The distance from the pinhole to the paper =
- Calculate the diameter of the Sun:

Diameter of the image of the Sun

Distance from the pinhole to the paper

X

150 000 000
(average distance between Earth and Sun)

=

Diameter of the Sun

What's happening?

The pinhole viewer was the first “camera”. See camera obscura in Wikipedia.

Extension:

Determine the size of the moon (average distance = 384 000 kilometres). The moon looks larger than the Sun but we know the Sun is larger. Why?

For experiments like this see: <http://cse.ssl.berkeley.edu/AtHomeAstronomy/index.html>

This experiment is based on our “Astronomy and Sky Science” Learning Kit. Our teaching kits are loaned out FREE to provide classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways. Please consider volunteering to speak to a class about any one of our Science learning kits described on our website.



On January 30th, Praxis will be hosting Operation Minerva, a conference for grade 9 girls, that promotes Science, Technology, Engineering and Mathematical (STEM) based careers where students job shadow and attend workshops. Please see our website for more details. If you are a business or organization who wishes to support this conference, please contact us.

Lorne Cooper, Regional Executive Director

PRAXIS, “Making Science Fun”. Contact Praxis at praxis@praxismh.ca, www.praxismh.ca, Tweet or follow us @PraxisMedHat, or friend us on Facebook. Address: c/o 200 7th Street S.W., Medicine Hat, AB, T1A 4K1 Phone: 403-527-5365, Fax: 403-527-6570.