

MAKE A PINHOLE PROJECTOR

USE A PINHOLE PROJECTOR TO WATCH THE
SOLAR ECLIPSE ON JANUARY 26TH.
THIS IS SAFE, BECAUSE YOU DO NOT LOOK
DIRECTLY AT THE SUN.



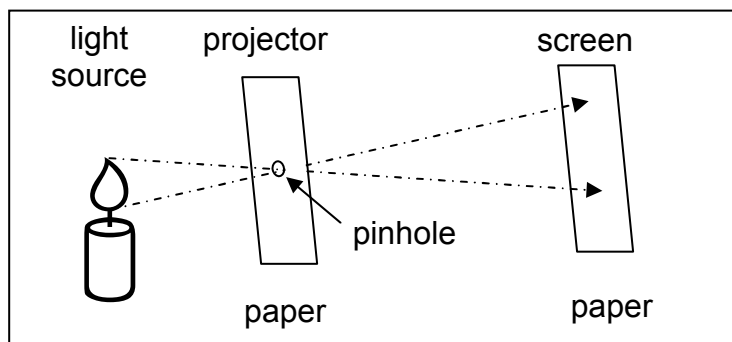
YOU NEED:

- two sheets of white A4 paper
- a pin
- a fairly dark place (indoors)
- Light sources with a shape, for experiments:
 - a candle flame;
 - un-shaded lamp with a clear 100W light bulb.

MAKE A PINHOLE PROJECTOR

- Make a small hole in one sheet of paper with a pin – this is the “projector”.
- Hold the other piece of paper (the “screen”) as shown in the diagram, and look for the image of the light-source on the screen. Do this in a dark place, if possible.

HOW THE PINHOLE PROJECTOR WORKS



The pinhole collects light from each part of the light-source and directs it onto a **small** part of the screen.

The “projector” paper must be large enough to cast a shadow on the screen – the image will then be easier to see.

Predict: If the hole in the projector is larger, then light from each part of the source is directed onto a *larger/smaller* spot on the screen, and the image on the screen will be *clearer / less focused* [underline your prediction].

Test your prediction: Use the 100W clear bulb as the light source. If the hole in your “projector paper” is larger, does the image look clearer?

Result: A larger hole makes the image *clearer / less focused*.

Predict: The diagram above predicts that the image will be the *right way up / upside down* [underline your prediction].

Test: Use the candle as the light source.

Result: The image is *right way up / upside down*.

Predict: The diagram above shows that the image will be *larger / smaller* [underline your prediction] if the screen is further from the “projector.”

Result: If the screen is further from the projector, the image is *larger / smaller*.

THE GAPS BETWEEN THE LEAVES OF A TREE ARE NATURAL PINHOLE PROJECTORS.

LAY A PIECE OF WHITE PAPER ON THE GROUND UNDER A TREE, AND LOOK FOR THE IMAGES OF THE SUN. TRY THIS DURING THE ECLIPSE!