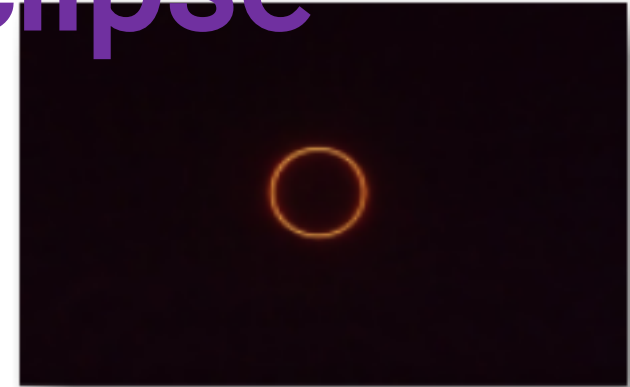


# Best Techniques of Viewing Solar Eclipse



**Be Safe**



# HOW TO VIEW A SOLAR ECLIPSE

- Be sure to prepare for viewing solar eclipses live: use the mentioned tips and techniques to get a clear view without injuring your eyes.
- Three most useful techniques are:
  - Pinhole Projection
  - Optical Projection
  - Solar Viewer



# PINHOLE PROJECTION

Pass sunlight through a small opening (for example, a hole punched in an index card) and project an image of the Sun onto a nearby surface (for example, another card, a wall, or the ground)



# PINHOLE PROJECTOR

- A pinhole camera can be used to view the sun at any point the sun is viewable directly.

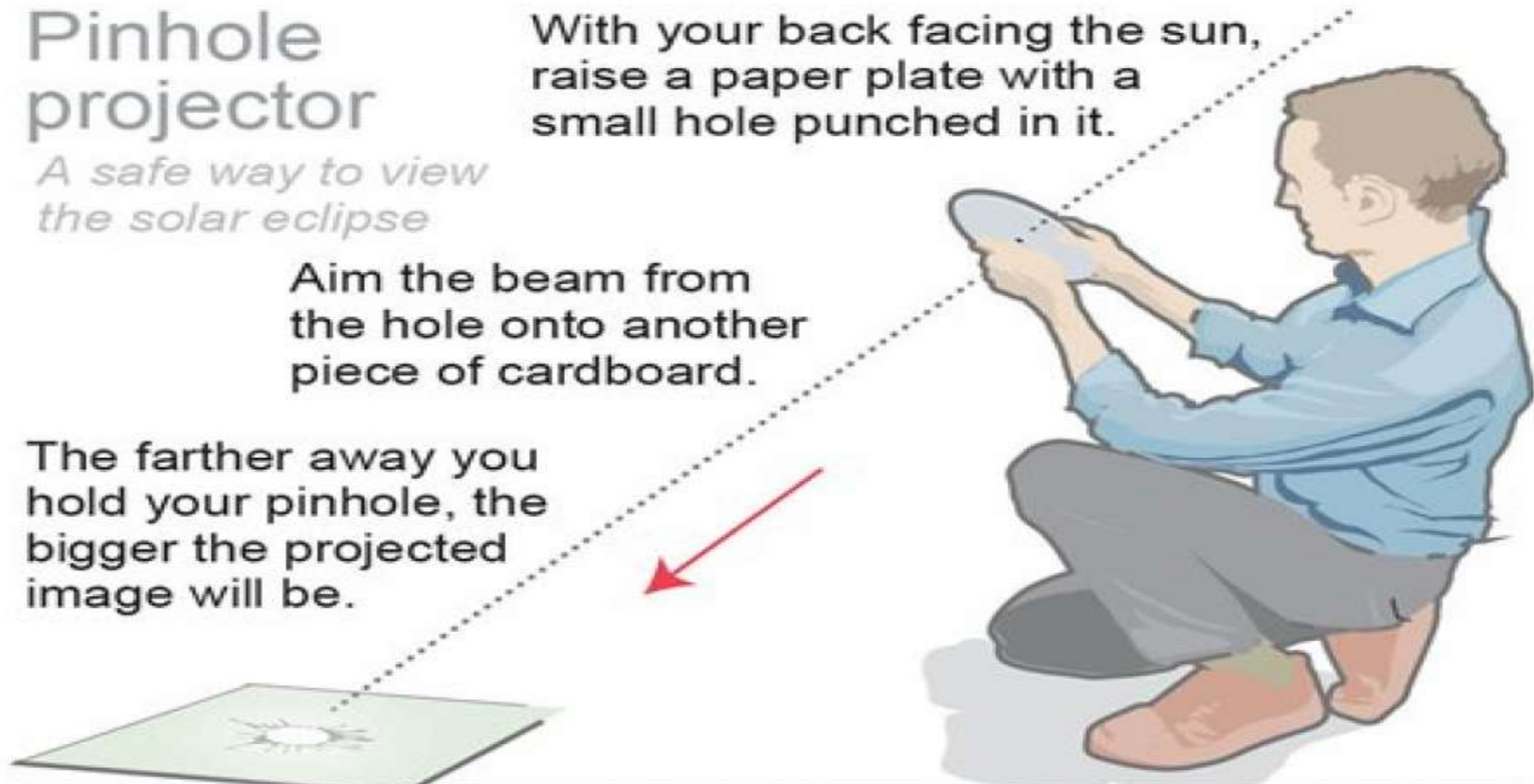
## Pinhole projector

*A safe way to view the solar eclipse*

With your back facing the sun, raise a paper plate with a small hole punched in it.

Aim the beam from the hole onto another piece of cardboard.

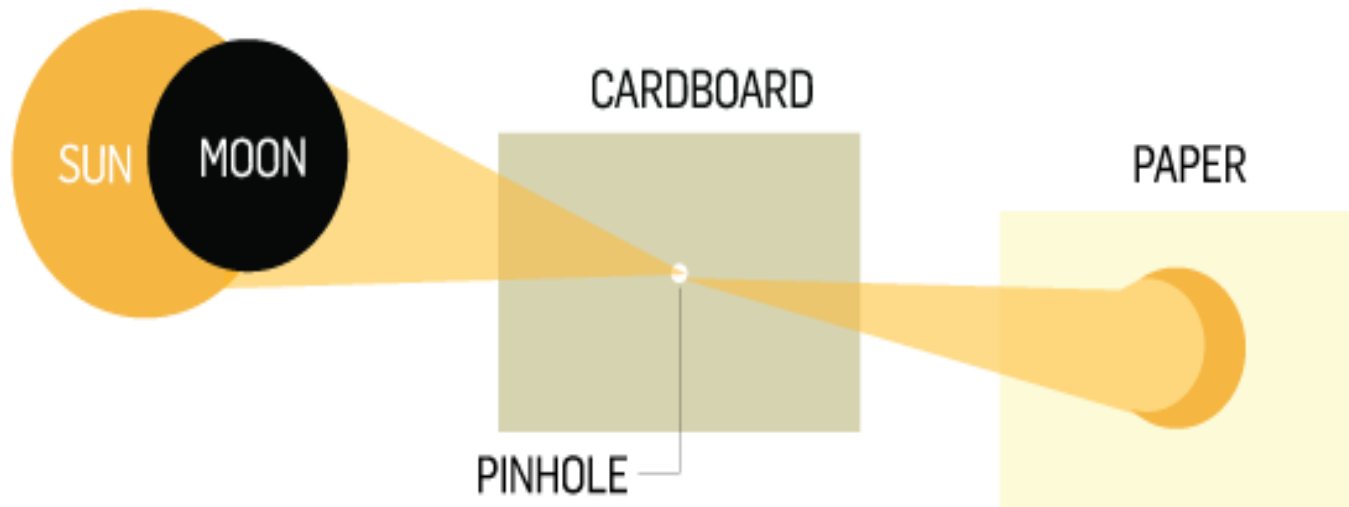
The farther away you hold your pinhole, the bigger the projected image will be.



# TWO CARDBOARD PIECES

- Two cardboard pieces method can be used to see the Sun at any point with the help of cardboards.

## Simple pinhole projector



# USE YOUR HANDS

- Hold up both hands with your fingers overlapping at right angles. The holes between your fingers make pinholes.



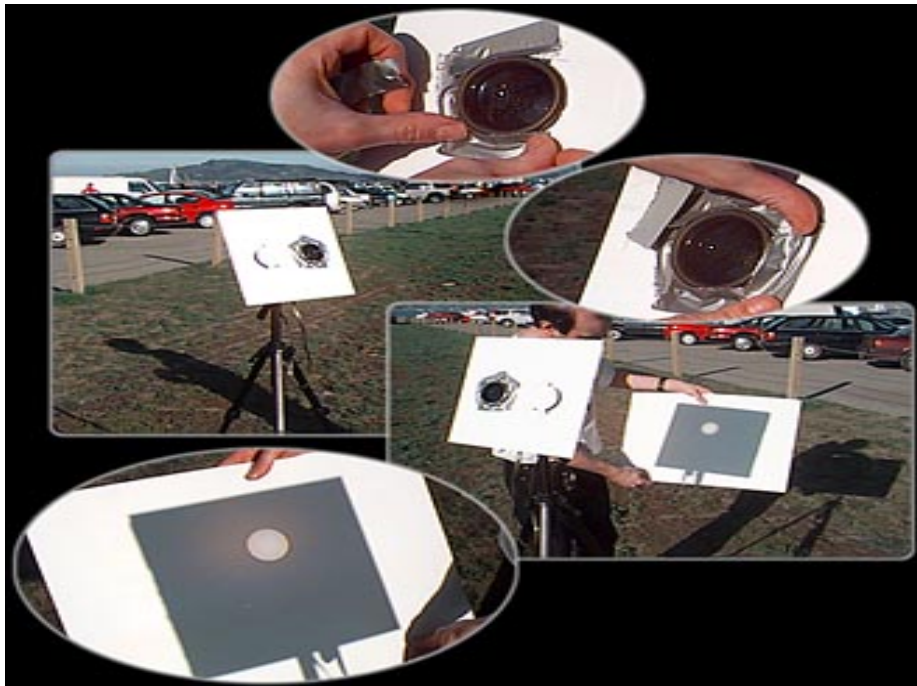
# OPTICAL PROJECTION

- A beam of light from the light source is passed through the Condenser lens(C) and Projection lens(P) and fall on the Screen
- Compared with pinhole projection, optical projection generally provides bigger, brighter, sharper images.



# USE A TELESCOPE OR BINOCULARS

- Use a telescope or binoculars to project images of the partially eclipsed Sun onto a surface for convenient viewing. This is called *optical projection*, because it involves optics (that is, lenses and/or mirrors).





# SUN FUNNEL

- In this, we project an image of the Sun from the telescope onto a card or screen. Now nobody has to look through the telescope (which means no refocusing and no bumping), and many people can view the solar image at the same time.



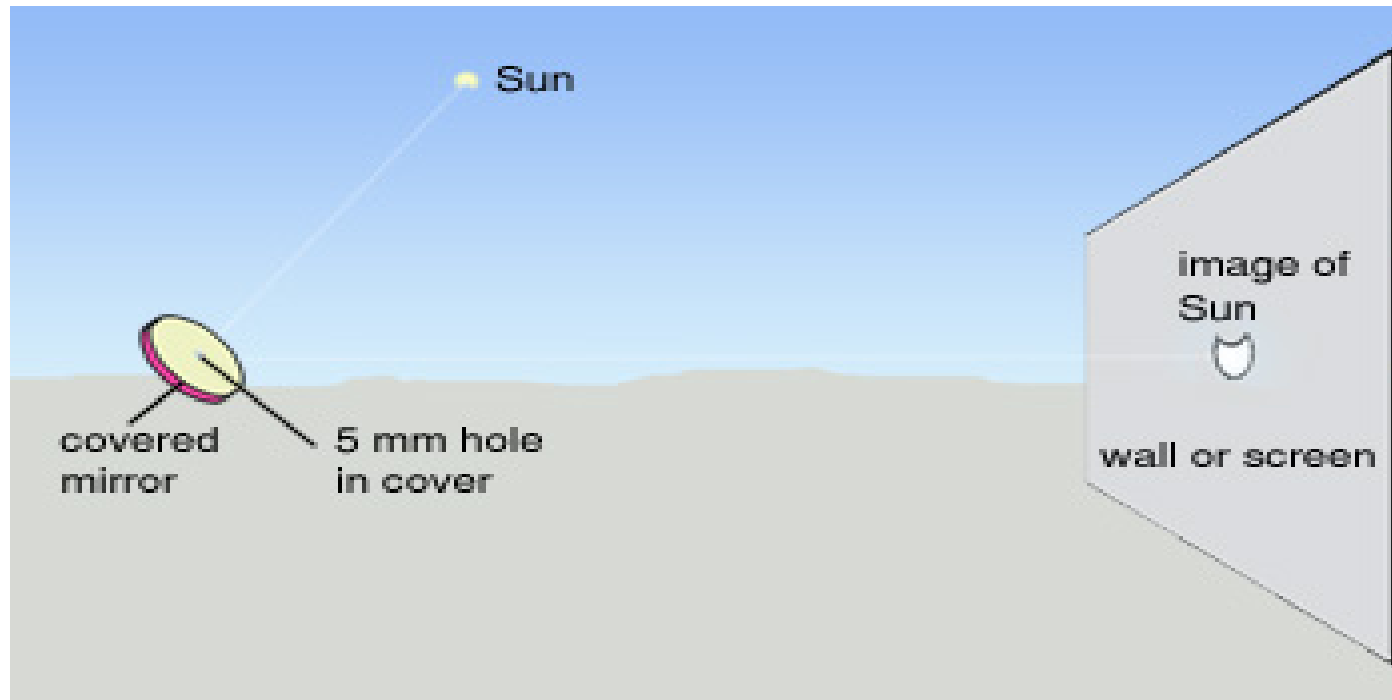
# SUNSPOTTER & SOLARSCOPE

- Sunspotter uses optical projection to produce a magnified image of the Sun that can be viewed by many people at once without risk of anyone looking into a bright beam of sunlight.
- Alternative method is the Solarscope, which comes in several versions (some made of wood, like the Sunspotter, and some made of cardboard).



# MIRROR METHOD

- A household mirror can also be used to view the eclipse. If you cover a small mirror with a piece of paper or card with a hole in it, it will project a pinhole image of the eclipse onto the far wall.
- This is one of the best and simplest methods of watching the progress of the eclipse.



# SOLAR VIEWER

Solar viewer (also known as solar viewing glasses or solar eclipse glasses) are special eyewear designed for direct viewing of the Sun. Standard sunglasses are unable to filter out eye damaging radiation.



# SOLAR FILTER GOGGLES

- Solar filters goggles are made for looking at the sun are typically 100,000 times darker



# SOLAR FILTER

- Solar filters block most of the sunlight to avoid any damage to the eyes



# WELDER'S GLASS

- Welder's glass allows to view an eclipse directly. Welder's glass is a bit more durable than commercial eclipse glasses.



# CAUTION

- Never view the Sun with the naked eye or by looking through optical devices such as binoculars or telescopes!
- Do not look through the pinhole at the Sun! Look only at the image on the paper.
- Do NOT use sunglasses, polaroid filters, smoked glass, exposed color film, X-ray film, or photographic neutral-density filters.
- DO NOT put your hand or anything flammable near the eyepiece. The concentrated sunlight exiting there can cause a nasty burn or set something ablaze!

