Pinhole Camera for Total Solar Eclipse

https://www.youtube.com/watch?v=pTjzSsk4Lw8

Materials


Box with lid



Scissors / X-Acto knife *


Pencil


Tape


Aluminum Foil


Paper

Instructions

* Use with caution and adult supervision

1. Tape a blank sheet of paper to the inside of one side of the box (roughly a shoebox or cereal box size)
2. Across from the side with the paper, cut a rectangular window (roughly 10cm x 10cm) with scissors or an X-Acto knife (carefully with adult supervision)
3. On the outside of this window, tape a piece of smoothed aluminum foil, cut to be larger (about 15 cm x 15 cm) than the rectangle
4. Poke a small hole (to be the pinhole) with a sharp pencil or pen at the center of the aluminum foil
5. Cut another similar rectangular window (to be used for viewing) about ~10 cm away from the first pinhole window
6. Tape the lid of the box closed and also be sure to cover any small holes in the box that may let light leak in

Testing time

7. Point the pinhole at the Sun and look through the viewing window

Explore some more

1. Repeat for the light from a lamp and other objects, do you notice any differences?
2. Can you think of ways to improve this design?
3. How might this device compare to an actual camera?

The science, how does it work?

Viewing a solar eclipse directly with our eyes is not safe as our eyes adjust to the darkness during the eclipse and can let too much light in after it's over. The pinhole camera allows us to safely transfer or "project" the image of the eclipse onto another screen, the paper, rather than directly onto a similar screen within our eyes known as the "retina"

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