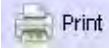


Make Your Own Pinhole Camera for Next to Nothing!

From EHSO.com

Click on the printer icon that looks like this:  (at the top left, to the right of "save a copy") to print!

Most people realize that the sun pumps out a lot of radiation and looking directly at it can damage your eyes and vision. But NASA tells us that for a brief total phase of a solar eclipse (the "totality" phase), when the moon entirely blocks the sun's bright face you can look at the eclipse for that 2 minute duration. But with this simple pinhole camera, you can watch the eclipse!

glasses, and even those in the total



How to make the pinhole camera

A pinhole camera (a.k.a., a camera obscura) is simple and inexpensive to make in a few minutes.

Here's all you need:

Step 1: Gather the materials

You'll need:

- 3 or 4 pieces of stiff cardstock paper or thin cardboard. The big side of a box of breakfast cereal works great!
- Aluminum foil - just a piece about 4 inches square.
- "Scotch" tape or other adhesive tape.
- Scissors
- A pushpin, safety pin, paper clip, or sharpened pencil



Step 2 - cut a square hole in the stiff paper or thin cardboard.

Cut a square or rectangular hole, 1-inch to 2-inches, in the center of the pieces of cardboard or stiff paper.



Step 3 - cut the foil and tape it over the hole

Cut the aluminum foil to an inch or 2 bigger in both dimensions (like 4 inches by 4 inches) that the hole and tape it on the cardboard over the hole.



Step 4 - Poke the hole

Flip the cardboard over, so the side with the aluminum foil and tape is facing down, and place the cardboard on another piece of cardboard. Poke ONE hole with your pushpin or safety pin right in the center of the aluminum foil.



Step 5 - Set up to view

1. Place a second piece of white cardboard or stiff paper on the ground.
2. Hold the piece with aluminum foil over it with the taped foil side up, facing towards the sun.
3. Now, with the Sun behind you, and view the projected image on the card stock below! To focus, move the foil/paper closer or farther from the paper on the ground. Farther away makes the image bigger, but also fuzzier.
4. It helps to have the paper on the ground under shade, while you hold the foil paper out in the full unobstructed sun.
5. To make the image bigger without losing resolution, take a photo with a good phone camera and zoom in!



What happens if you look at the eclipse without the special glasses?

Solar retinopathy is the name for the disorder that happens when the sun's rays damage or destroy the photoreceptors that in your retina. The retina is the back of the inside of your eyeball that takes the light collected by the lens and changes it to electrical impulses. Photoreceptors convert light into the electrical signals which are then sent by nerve cells to the optic nerve and the brain. If they are damaged by the

<https://www.ehso.com/SolarEclipseSafeViewing-how-to-make-a-pinhole-camera.php>

sun, they may take 3-6 months to recover... or never recover or grow back. Lose enough photoreceptors and you go blind.

What type of eclipses viewing glasses do you need and where to get them?

[Get solar eclipse viewing glasses, CE and ISO Certified, on Amazon](#)

Looking directly at the sun is unsafe except during the total eclipse, in the center of the eclipse path.).The only safe way to look

directly at the uneclipsed or partially eclipsed sun is through special-purpose solar filters, such as "eclipse glasses" (example shown at right) or hand-held solar viewers. These glasses are made to meet proper ISO 12312-2 international safety standards that ensure they will block the harmful radiation and only let visible light through.

Amazon sell a variety of them, but [we found these were the CE / ISO approved glass for the price.](#)

Homemade filters or ordinary sunglasses, even very dark ones, **are not safe for looking at the sun**; they transmit *thousands* of times too much sunlight. You eyes can and will be damaged without you even feeling it nor realizing it until later. Think of it like a sunburn. You don't realize your skin is getting burned until it is already damaged and turns red. But eyes do not recover from this damage!

A solar eclipse is one of nature's grandest spectacles. By following these simple rules, you can safely

enjoy the view and be rewarded with memories to last a lifetime. More information: eclipse.aas.org eclipse2017.nasa.gov

This document does not constitute medical advice. Readers with questions should contact a qualified eye-care professional.

