How to look at the sun

A solar eclipse is one of the natural phenomena that most fascinate people.

But contrary to what you might think, watching a solar eclipse is not an easy task. Solar radiation is so intense that even when the Sun is completely blocked out by the Moon, the light can cause our eyes to suffer irreparable damage.

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If you were to look directly at the Sun during an eclipse, even for just a few seconds, the solar radiation would burn your retina and cause permanent blindness before you even felt any pain. For this reason, you can only look directly at the Sun if you use special eye protection, as we'll see a bit later. The Sun cannot be viewed safely with the naked eye, sunglasses, telescopes, binoculars or any other optical devices.

But this doesn't mean that looking at the Sun during an eclipse is more dangerous than it is at other times. It's just that if you try to look directly at the Sun under normal conditions, the light is so intense that you will be forced to look away before you suffer any eye damage.

Let's take a look at some safe ways to observe the Sun:

1. Projection methods
2. Methods for direct viewing with eye protection

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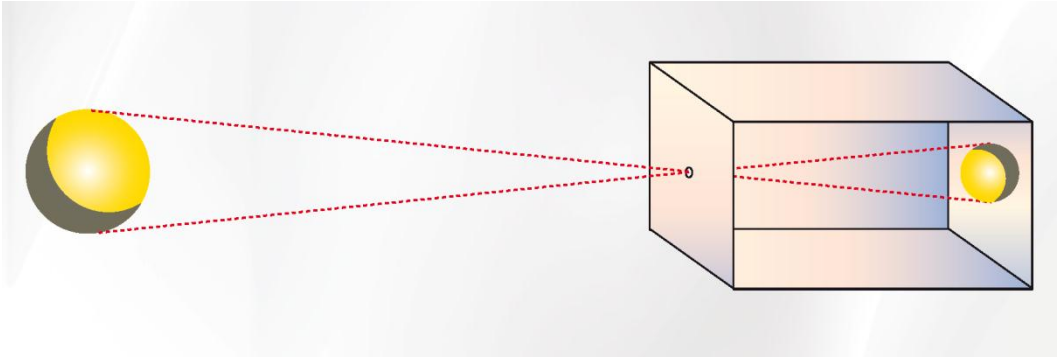
1. Projection methods

Projection is the safest way to view the Sun, since your eyes never look directly at the Sun, but rather at an image that is formed on a screen. Here are some methods:

Pinhole camera

This method consists of making a pinhole camera, which is a cardboard box with a small hole in one of its sides. The hole should be as small and uniform as possible.

When you aim the hole at the Sun, an image of it will be formed on the opposite wall of the box.



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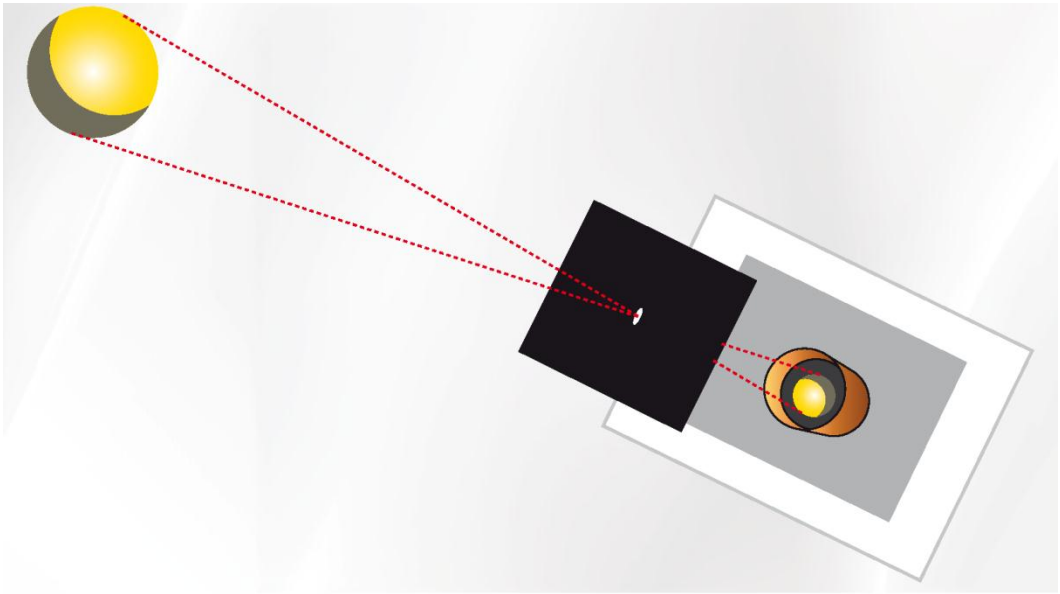
1. Projection methods

Stiff paper

Like the previous method, this technique involves making a small hole with a pin or needle, this time in a piece of stiff paper. Then the paper is placed in such a way that it casts a shadow on the ground.

En el centro de la sombra observaremos la imagen del Sol producida al atravesar los rayos solares el agujero. Para hacer más visible la imagen, podemos intentar oscurecer el entorno, colocando un tubo de cartón alrededor de esta.



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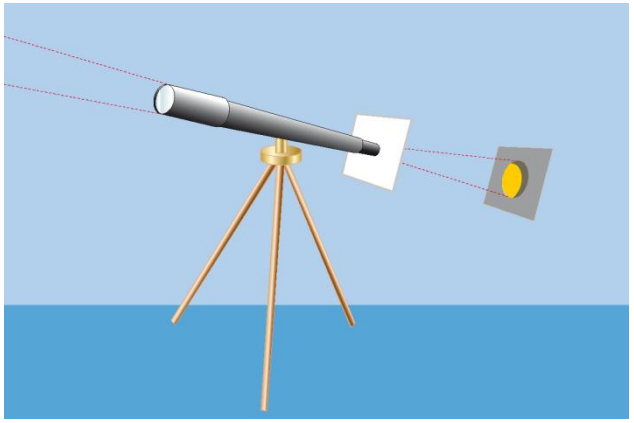
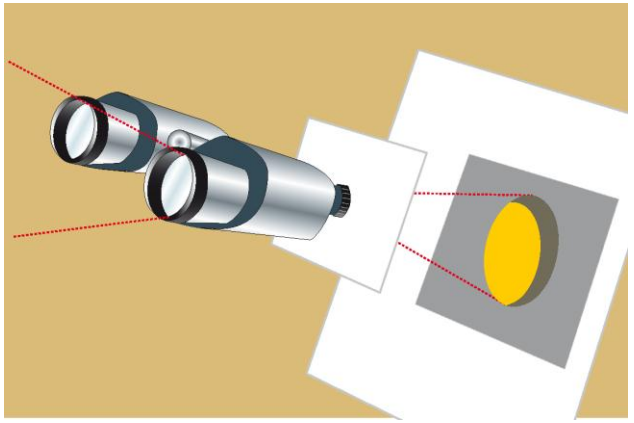
1. Projection methods

Telescope or binoculars

You can use these optical devices to project the Sun's image onto a screen, but never look at the Sun through them, not even to adjust their position or to try to focus the image: your retina would be damaged in just a fraction of a second.

With both the telescope and binoculars, the device is positioned so that the lens projects an image of the Sun onto a wall or piece of stiff paper. You may also want to use another piece of paper as a shade in order to see the image more clearly (you can also try to project the image in a shady area).





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2. Methods for direct viewing with eye protection

These methods are safe as long as you never look directly at the Sun without eye protection. You have to take special care when you are putting on or taking off the protection. And even when you are using eye protection, remember that you must not look at the Sun for more than thirty seconds in order to avoid damage to your eyes.

We will now take a look at the most effective forms of eye protection, but remember: when in doubt, it's better to wait a few years to see the next eclipse than to risk permanent blindness.

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2. Methods for direct viewing with eye protection

Welder's glass

This is a rectangular material that is held in front of the eyes. Welder's glass is easy to find, but you have to make sure that it is rated at 14 or higher.

Aluminised Mylar

Mylar is a plastic that is used to manufacture food packaging. However, you cannot use just any container made out of Mylar as eye protection for viewing the Sun. You have to make sure that it is aluminised Mylar manufactured specifically for solar observation.

Eclipse glasses

These glasses are manufactured specifically for solar observation and can usually be found at an optician's shop during the time leading up to a solar eclipse.