



# EXPERIENCE THE 2017 ECLIPSE ACROSS AMERICA THROUGH THE EYES OF NASA

<http://eclipse2017.nasa.gov>  
**MONDAY • AUGUST 21, 2017**



### WHAT IS A SOLAR ECLIPSE?

A solar eclipse happens when the moon casts a shadow on Earth, fully or partially blocking the sun's light in some areas.

Observers within the path of totality will be able to see the sun's corona (weather permitting), like in the images above and left. Observers outside this path will see a partial eclipse.

### THE NEXT ECLIPSE

After the 2017 solar eclipse, the next total solar eclipse visible over the continental United States will be on April 8, 2024.



### TOTAL SOLAR ECLIPSE: Monday • August 21, 2017

This will be the first total solar eclipse visible in the continental United States in 38 years.

Not to scale: If drawn to scale, the moon would be 30 Earth diameters away from Earth. The sun would be 400 times that distance.

Credit: Rick Farnberg, TransQuest International and Wilderness Travel

In this series of stills from 2013, the eclipse sequence runs from right to left. The center image shows totality; on either side are the 2nd contact (right) and 3rd contact (left) diamond rings that mark the beginning and end of totality respectively.

#### WHERE TO WATCH

Find a nice, clear spot with a good view of the sky.

#### HOW TO WATCH

You can see the sun and the eclipse with special eclipse glasses. **NEVER** look directly at the sun without appropriate eyewear. Regular sunglasses are not safe to view the eclipse. More: <http://eclipse2017.nasa.gov/safety>

#### HOW LONG WILL IT LAST

The total eclipse, when the sun is completely blocked by the moon, will last up to 2 minutes and 40 seconds, depending on your location.

**EVERYONE IN NORTH AMERICA WILL BE ABLE TO EXPERIENCE THIS ECLIPSE.**

Credit: NASA's Scientific Visualization Studio

This map shows the path of the moon's umbral shadow—in which the sun will be completely obscured by the moon—during the total solar eclipse of August 21, 2017. The lunar shadow enters the United States near Lincoln City, Oregon, at 9:05 a.m. PDT. Totality begins in Lincoln City, Oregon, at 10:16 a.m. PDT. The total eclipse will end in Charleston, South Carolina, at 2:48 p.m. EDT. The lunar shadow leaves the United States at 4:09 p.m. EDT. Outside this path, a partial solar eclipse will be visible throughout the continental U.S., and this map shows the fraction of the sun's area covered by the moon outside the path of totality.

# SAFELY observing THE SUN

**WARNING!** Never look directly at the sun without proper eye protection. You can *seriously* injure your eyes.



Check with local science museums, schools and astronomy clubs for eclipse glasses—or purchase an ISO 12312-2 compliant and CE certified pair of these special shades!



View the eclipse with special eclipse glasses.



Regular sunglasses are not safe to view the eclipse.

## SUN FUNNEL



Inexpensive and easy to build, the sun funnel is a device that completely encloses the light coming from a telescope and projects a magnified image of the sun, large enough for many people to view at once.  
<http://eclipse2017.nasa.gov/make-sun-funnel>

## STRANGE SHADOWS!



Sunlight from a partial eclipse funnels through tree leaves to project images of crescents on the ground.

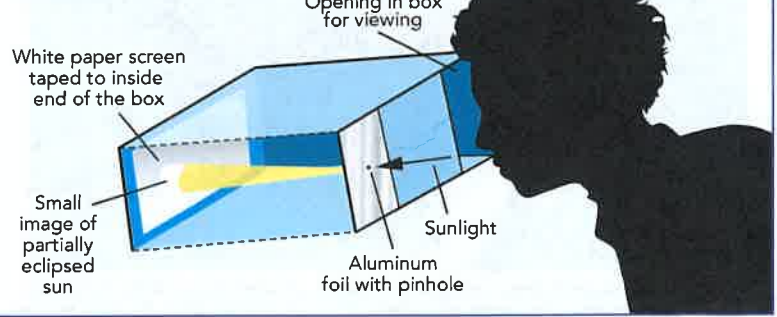
## ECLIPSE DETAILS FOR CITIES IN THE PATH OF TOTALITY

	Eclipse Begins	Totality Begins	Totality Ends	Eclipse Ends	
Madras, OR	09:06	10:19	10:21	11:41	PDT
Idaho Falls, ID	10:15	11:33	11:34	12:58	MDT
Casper, WY	10:22	11:42	11:45	01:09	MDT
Lincoln, NE	11:37	01:02	01:04	02:29	CDT
Jefferson City, MO	11:46	01:13	01:15	02:41	CDT
Carbondale, IL	11:52	01:20	01:22	02:47	CDT
Paducah, KY	11:54	01:22	01:24	02:49	CDT
Nashville, TN	11:58	01:27	01:29	02:54	CDT
Clayton, GA	01:06	02:35	02:38	04:01	EDT
Columbia, SC	01:13	02:41	02:44	04:06	EDT

## MAKE YOUR OWN ECLIPSE PROJECTOR

You can make this simple eclipse projector with almost any cardboard box, paper, tape and foil.  
The longer the distance from the pinhole to screen, the larger the image of the sun will be.

**NEVER** look directly at the sun without appropriate eyewear.



More on eclipses <http://eclipse2017.nasa.gov>  
<http://www.nasa.gov/eclipse>  
 More on safe viewing of eclipses <http://eclipse2017.nasa.gov/safety>  
<http://go.nasa.gov/2evRZBG>

## MIRROR IN AN ENVELOPE

Slide a mirror into an envelope with a ragged hole about 5/8 inch (1.5 cm) cut into the front. Point the mirror toward the sun so that an image is reflected onto a screen about 15 feet (5 meters) away. The longer the distance, the larger the image.

**DO NOT LOOK AT THE MIRROR, ONLY AT THE SCREEN.**

