EXPERIENCE

THE 2017 ECLIPSE ACROSS AMERICA

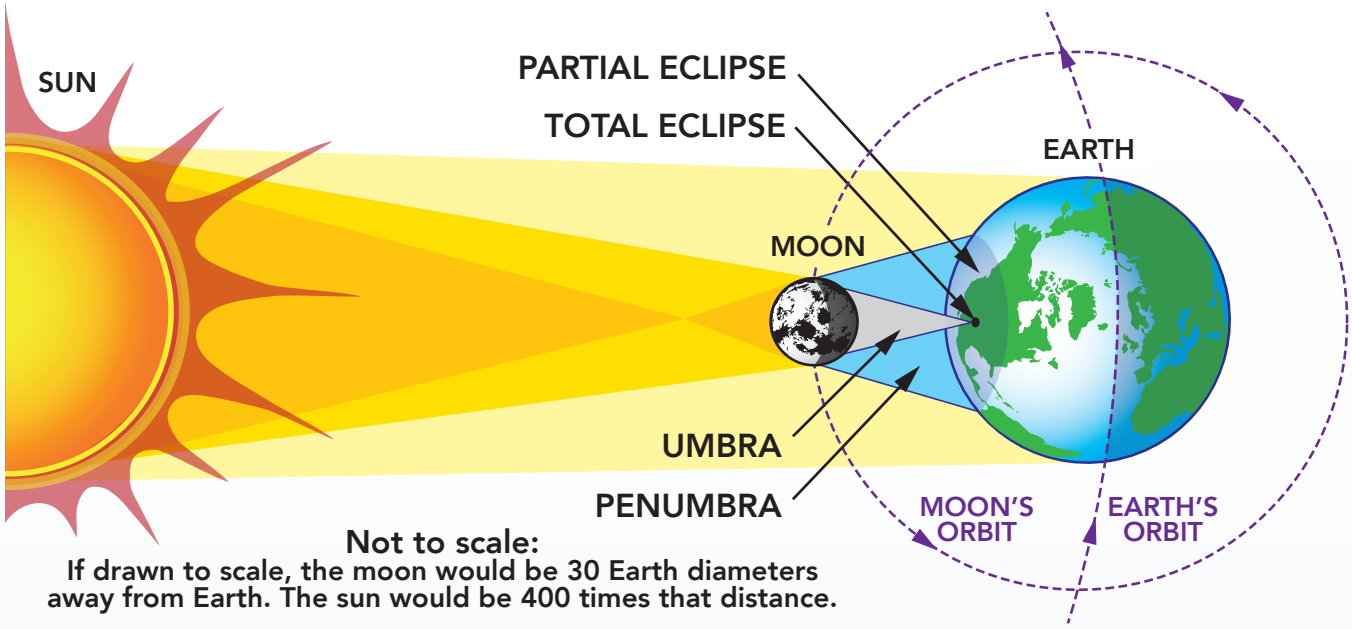
THROUGH THE EYES OF NASA ▸ http://eclipse2017.nasa.gov

MONDAY • AUGUST 21, 2017

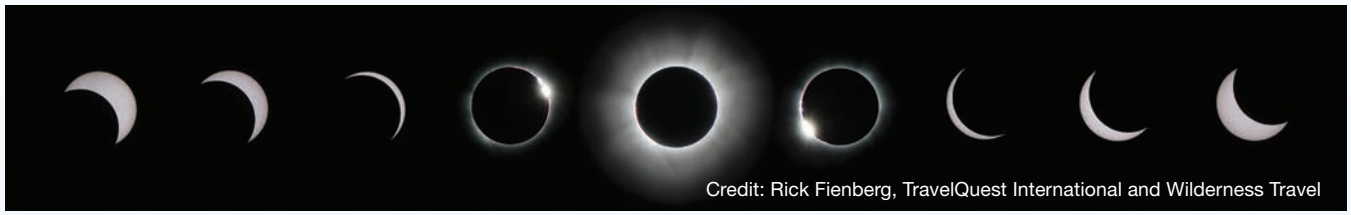

National Aeronautics and Space Administration
NASA
EXPERIENCE
THE 2017 ECLIPSE
ACROSS AMERICA
THROUGH THE EYES OF NASA
http://eclipse2017.nasa.gov
total Eclipse
AUGUST 21.2017
Credit: S. Habbal, M. Druckmüller and P. Aniol
www.nasa.gov

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.



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

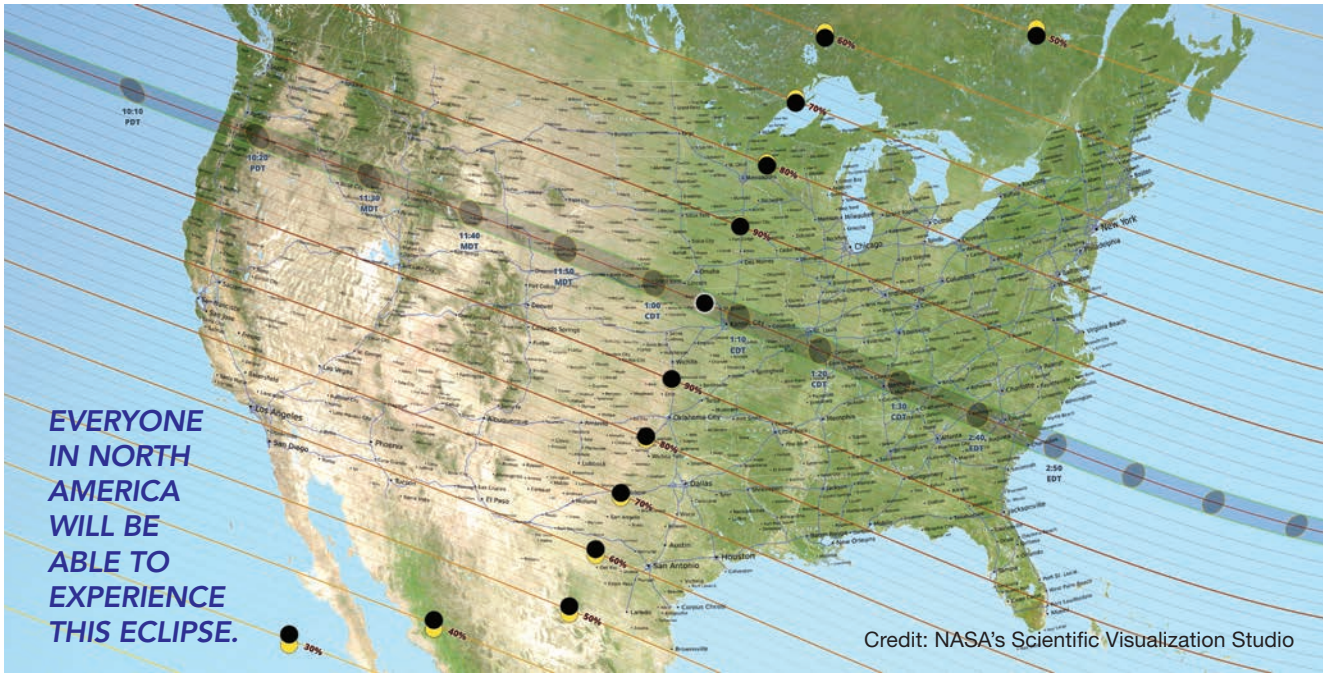
Find a nice, clear spot with a good view of the sky.

HOW TO WATCH

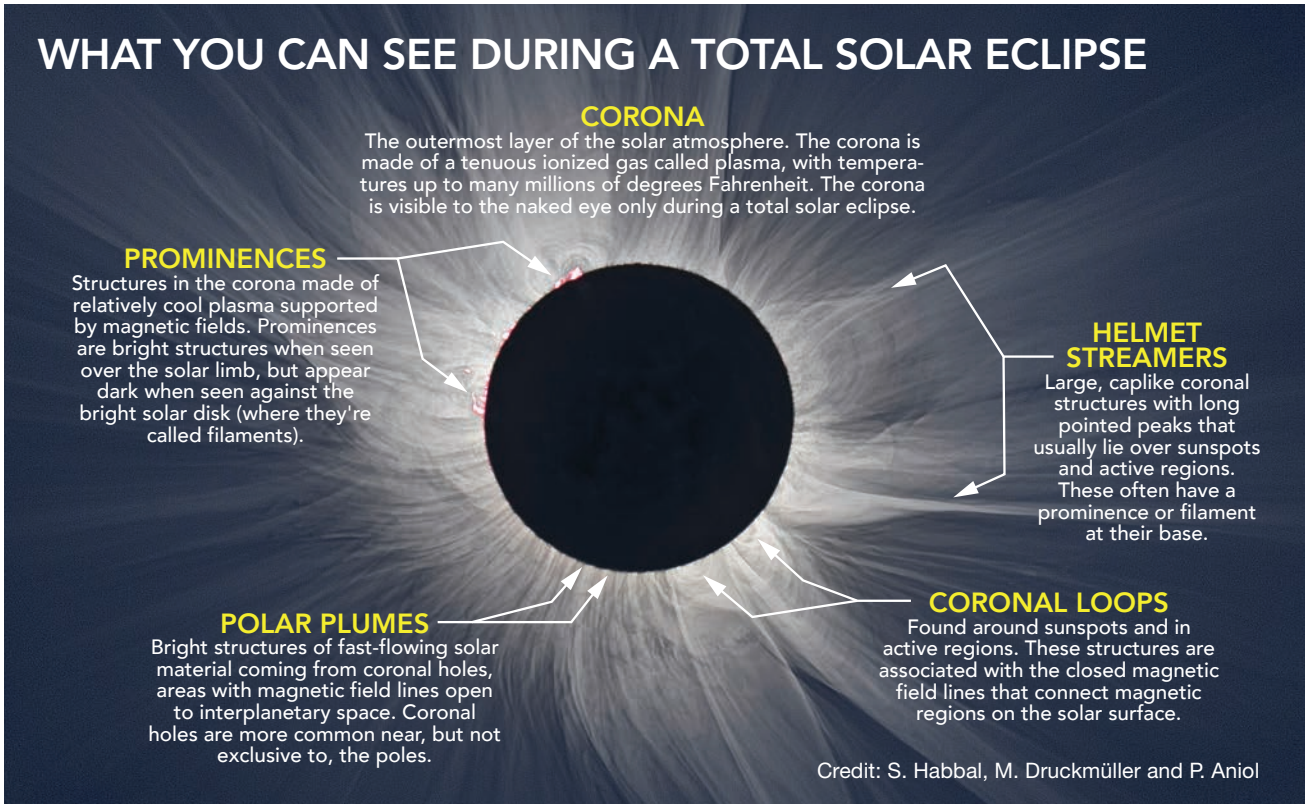
You can see the sun and the eclipse with special eclipse glasses. NEVER look directly at the sun without appropriate eyewear. Regular sunglasses are not safe to view the eclipse. More: *http://eclipse2017.nasa.gov/safety*

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.



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.


WHAT YOU CAN SEE DURING A TOTAL SOLAR ECLIPSE
CORONA
The outermost layer of the solar atmosphere. The corona is made of a tenuous ionized gas called plasma, with temperatures up to many millions of degrees Fahrenheit. The corona is visible to the naked eye only during a total solar eclipse.
PROMINENCES
Structures in the corona made of relatively cool plasma supported by magnetic fields. Prominences are bright structures when seen over the solar limb, but appear dark when seen against the bright solar disk (where they're called filaments).
HELMET STREAMERS
Large, caplike coronal structures with long pointed peaks that usually lie over sunspots and active regions. These often have a prominence or filament at their base.
POLAR PLUMES
Bright structures of fast-flowing solar material coming from coronal holes, areas with magnetic field lines open to interplanetary space. Coronal holes are more common near, but not exclusive to, the poles.
CORONAL LOOPS
Found around sunspots and in active regions. These structures are associated with the closed magnetic field lines that connect magnetic regions on the solar surface.
Credit: S. Habbal, M. Druckmüller and P. Aniol

EYE SAFETY DURING AN ECLIPSE

It's NEVER safe to look directly at the sun, except when the sun is completely blocked during the period of a total eclipse known as *TOTALITY.*

1 PARTIAL ECLIPSE • GLASSES ON

The eclipse begins when the sun's disk is partially blocked by the moon. This partial eclipse phase can last over an hour.

2 DIAMOND RING • GLASSES ON

The last of the sunlight streaming through the moon's valleys creates a single bright flash of light on the side of the moon. This is known as the diamond ring effect, and it marks the last few seconds before totality begins.

3 BAILY'S BEADS • GLASSES ON

As totality approaches, only the low-lying valleys on the moon's edge allow sunlight through, forming bright spots of light called Baily's Beads.

4 TOTALITY • GLASSES OFF

Once the diamond ring disappears and the moon completely covers the entire disk of the sun, you may safely look at the eclipse without a solar filter. Be careful to protect your eyes again before the end of totality—the total eclipse may last less than a minute in some locations.

5 FINAL STAGES • GLASSES ON

A crescent will begin to grow on the opposite side of the sun from where the Baily's Beads shone at the beginning. This crescent is the lower atmosphere of the sun, beginning to peek out from behind the moon and it is your signal to stop looking directly at the eclipse. ***Make sure you have safety glasses back on—or are otherwise watching the eclipse through a safe, indirect method—before the first flash of sunlight appears around the edges of the moon.***

Images 1, 2, 4, 5 Credit: Rick Fienberg, TravelQuest International and Wilderness Travel
Image 3 Credit: Arne Danielson

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*