

The Great American Total Solar Eclipse

August 21, 2017



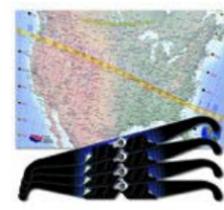
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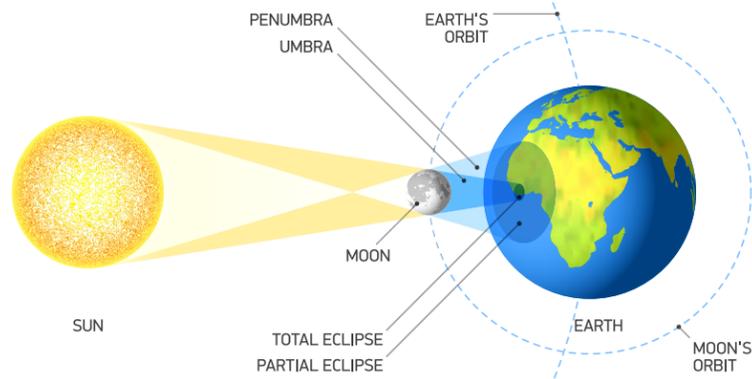


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Solar Eclipse Facts

Total Solar Eclipse



Occurs when the dark silhouette of the moon completely obscures the intensely bright light of the sun, allowing the much fainter solar corona to be visible. During any one eclipse, totality occurs at best only in a narrow track on the surface of Earth.

There are four types of solar eclipses:

- Total
- Annular
- Hybrid
- Partial

Safety

Here's how to safely observe the sun during a solar eclipse



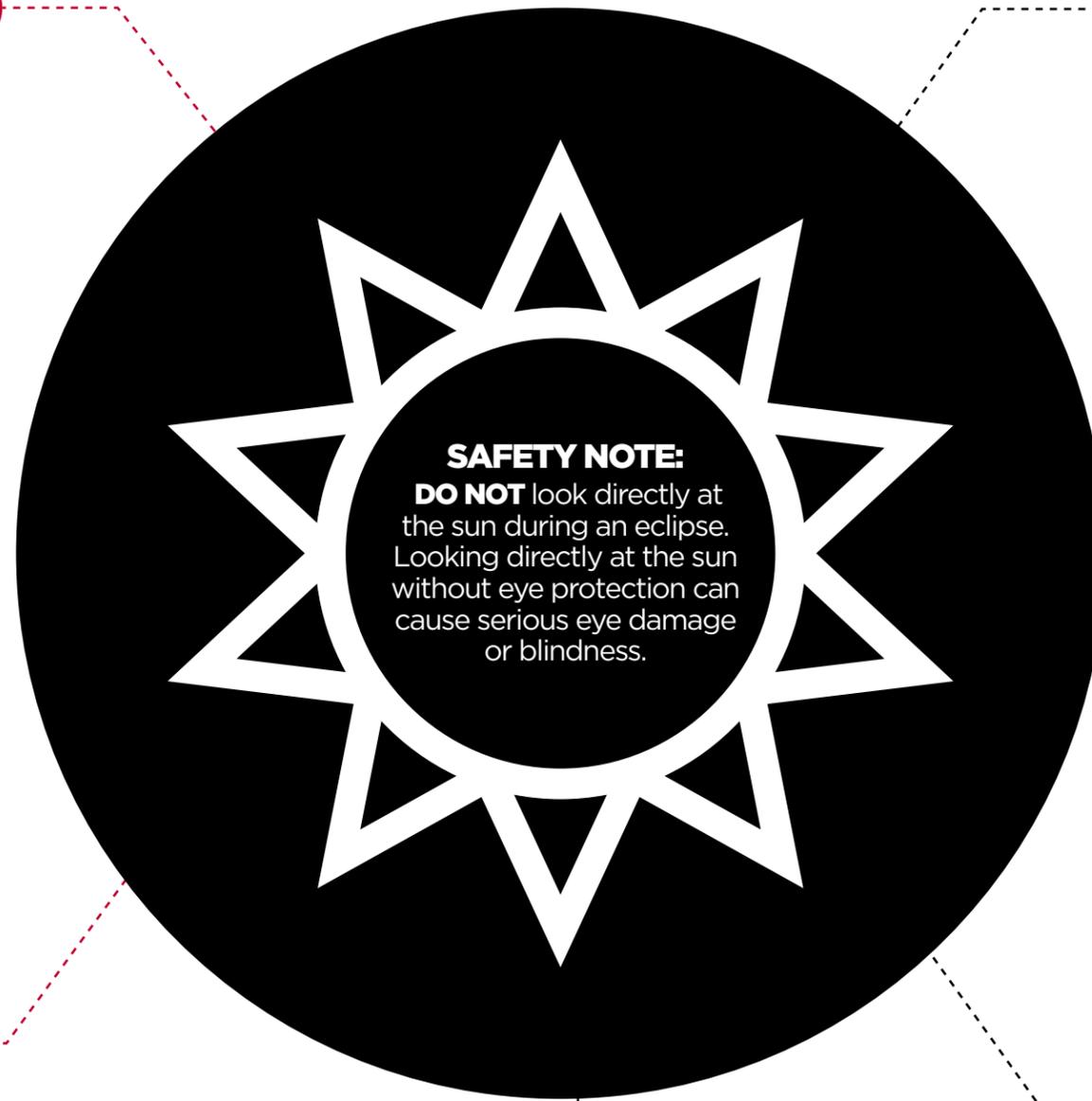
Pinhole camera: This is an "indirect" way of observing the sun, because the viewer sees only a projection of the sun and the moon.



Eclipse Glasses: Glasses are made from special-purpose solar filters that are hundreds of thousands of times darker than regular sunglasses and allow viewing of eclipses and sunspots.



Filtered Telescopes, Cameras, Binoculars: With the help of a special solar filter, these allow direct viewing of the sun. **Never** view the sun magnified without a proper solar filter (even with eclipse glasses).



SAFETY NOTE:

DO NOT look directly at the sun during an eclipse. Looking directly at the sun without eye protection can cause serious eye damage or blindness.

TOTALITY
ONLY time to safely view eclipse without proper eye protection.

Vocabulary

Orbit: The curved path of a celestial object or spacecraft around a star, planet, or moon, especially a periodic elliptical revolution.

Corona: The outermost region of the sun's atmosphere, visible as a faint halo during a solar eclipse.

Umbra: The central cone of darkness which tapers away from the Earth or Moon.

Penumbra: The outer cone of partial shadow which diverges instead of tapering.

First Contact: The instant when the partial phase of an eclipse begins.

Fourth Contact: The instant when the partial phase of an eclipse ends

Greatest Duration: The instant when the axis of the Moon's shadow cone passes closest to Earth's center.

Totality: The maximum phase of a total eclipse during which the Moon's disk completely covers the Sun. Totality is the period between second and third contact during a total eclipse.



Baily's Beads & Diamond Rings

You may hear observers say "Baily's beads!" when the spots of light appear at the edge of the moon. As totality nears, you may also hear "Diamond ring!" This is when only one "bead" is still visible at the edge of the moon just before totality is reached. It will glow like a diamond, and the red corona of the sun will create a circular band of light. Together, they will look like a diamond ring.

