



FACT SHEET



Date of Eclipse: Monday, August 21, 2017

WHAT IS A TOTAL SOLAR ECLIPSE?

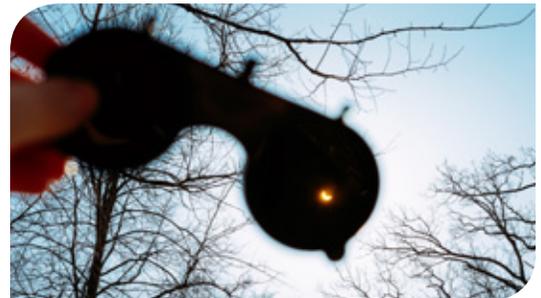
A total solar eclipse occurs when the moon passes between the Earth and the sun, so it totally or partly obscures the image of the sun. Everyone in the U.S. will be able to see at least a partial eclipse on Monday, August 21, 2017. And those in the path of totality will see the moon completely cover the sun in this exciting celestial event!

FAST FACTS

- The total solar eclipse will begin at 10:15 a.m. PDT near Lincoln City, OR
- Totality ends at 2:48 p.m. EDT near Charleston, SC
- Totality will last for about two minutes and 40 seconds
- The path of totality is about 70 miles wide and extends from Oregon to South Carolina
- A total solar eclipse can only be observed when the moon is approximately 400 times closer to the earth than the sun
- The last time the contiguous U.S. saw a total eclipse was in 1979, although there is only one other coast-to-coast eclipse to compare this upcoming eclipse to, and that happened nearly 100 years ago on June 8, 1918
- It is predicted that between 1 and 7.4 million people may commute into the path, causing heavy traffic delays that day
- The next total solar eclipse in North America (after August 21, 2017) will occur on April 8, 2024

ECLIPSE EYE SAFETY

- It is never safe to look directly at the sun, even when wearing eyeglasses with Transitions® lenses.
- Don't be fooled by the eclipse – it's still not safe to look at the sun! The ONLY exception to look at the total eclipse safely is if you're in the path of totality and the moon completely covers the sun and there is no longer any direct sunlight coming toward you.
- If you're in the path of totality, it is still very important to be vigilant to protect your eyes before and after totality. The total eclipse only lasts a minute or two in some locations.
- It's important to check local information on timing of when the total eclipse will begin and end in your area. Check out [NASA's website](#) to get started.
- **Solar Retinopathy**
 - Solar retinopathy occurs when bright light from the sun floods the retina and is caused by staring at the sun for too long. Most people can't stand to look at the sun long enough to cause damage, but the eclipse (partial or total) makes it more comfortable to stare at the sun.
 - The retina is home to the light-sensing cells that make vision possible. When they're over-stimulated by sunlight, they release a flood of communication chemicals that can damage the retina. This damage is often painless, so people don't realize they're damaging their vision.
- Sunglasses and *Transitions* lenses block harmful UV rays, but not harmful infrared or intense visible light that can cause solar retinopathy from staring at direct sunlight. They are never safe for looking directly at the sun.
 - Photokeratitis is a painful eye condition that happens when your eyes are exposed to UV rays. It is like having sunburned eyes. This condition can be prevented by wearing eye protection that block UV radiation, such as *Transitions* lenses.
- The only safe way to look directly at the sun is through glasses that meet the ISO 12312-2 international standard.
 - Only four manufacturers have met this standard: Rainbow Symphony, American Paper Optics, Thousand Oaks Optical and TSE 17.
- Solar eclipse glasses have met the following standards for becoming ISO certified:
 - 100% harmful UV
 - 100% harmful infrared
 - 99.99% of intense visible light
- An alternative method for safe viewing of the partially eclipsed sun is pinhole projection. Visit <https://eclipse2017.nasa.gov/safety> for directions on this indirect viewing method.



YEAR-ROUND EYE SAFETY

- The eclipse is only one day, but eye safety should be practiced year-round!
- Sunlight consists of two types of harmful rays: UVA rays and UVB rays. UVA rays penetrate deep into the skin – leading to signs of premature aging such as wrinkling or age spots. UVB rays are the sun's burning rays and are the primary cause of sunburn.
- Excessive UV exposure is dangerous for eyes as well as your skin. It can lead to a number of serious, sight-stealing diseases such as cataracts and age-related macular degeneration down the road – making ongoing protection from UV rays a must.
- You don't have to avoid enjoying the sun – but you should wear *Transitions* lenses to help protect your eyes from glare, harmful UV rays, and harmful blue light.
- *Transitions* lenses block 100 percent of UVA and UVB rays.
- *Transitions* lenses help protect against harmful blue light emitted by the sun and electronic devices and screens to reduce eye strain and fatigue.