

It is a Total Eclipse of the Sun

On Monday, August 21, 2017, the United States is in for a celestial treat! The Moon is going to pass between the Sun and the Earth. For part of the United States along the Path of Totality, the Moon will completely block the Sun for about two minutes and 40 seconds although the Moon will be partially blocking the sun for a much longer period. Find the time and duration for your city at <https://www.timeanddate.com/eclipse/in/@4548267>.

The Path of Totality is approximately 70 miles wide and is going to be a path that includes parts of Oregon, Idaho, Wyoming, Montana, Nebraska, Missouri, Illinois, Kentucky, Tennessee, Georgia, North Carolina, and South Carolina. Because the Earth rotates about an axis, the exact timing of totality for any given city or location is going to be different. Lincoln Beach, Oregon will be the first to experience totality at 10:16 am PDT and Charleston, South Carolina will be the last to experience totality at approximately 2:48 pm EDT.

The last total solar eclipse viewable from the contiguous U.S. was in 1979. Solar eclipses occur on average once every 18 months. But, because of the shape Moon's orbit about the Earth, the Moon's position relative to the Sun and the Earth changes, affecting the specific location and duration of the solar eclipse. Because they do not occur in the same location, a solar eclipse seems like a rare event, and for specific locations like Dallas, Texas it may be 400 years between total solar eclipses. (The next scheduled total eclipse viewable from Dallas will be predicted to be April 8, 2024, and the last one was Oct. 23, 1623.) While conversely, Denver, Colorado had a total eclipse on July 29, 1878, and will see another one on Aug. 12, 2045, which is only 167 years apart.

What will you see? First, DO NOT LOOK DIRECTLY INTO THE SUN, as the Sun's intensity can damage the eye. But, there are many other ways to watch the event. Special viewing glasses are available at viewing events or ordering them online. These glasses are designed to filter out the harmful rays to allow for safe viewing. There are indirect ways to view the event as well. (Here is a link to the NASA Safety webpage <https://eclipse2017.nasa.gov/safety>)

You can build a solar viewer, which is essentially a pinhole projector. This can be done by using a piece of paper, cardboard or cardstock. Make a tiny hole with a needle, straight pin, or thumb tack. The hole should be round and smooth. With your back towards the Sun, hold the piece of paper with the hole and project the image of the Sun onto another sheet of paper or concert (this is your screen). The size of the image will be dependent upon the distance between the paper and your screen. (<https://www.timeanddate.com/eclipse/make-pinhole-projector.html>) Caught without a piece of paper? The leaves of a tree can act as your pinhole view as well as using laced fingers. Using fingers or leaves, you are likely to get multiple images of the event. You can build a pinhole camera viewer as well, see [https://www.livescience.com/59721-solar-eclipse-viewer-photo-tutorial.html?utm\\_source=notification](https://www.livescience.com/59721-solar-eclipse-viewer-photo-tutorial.html?utm_source=notification). With the viewer, you may be able to film the event with your phone camera. The key here is to watch the event safely.

Want more details about the eclipse? You can go to NASA's eclipse website: <https://eclipse2017.nasa.gov/eclipse-who-what-where-when-and-how>. It has links to maps and other information about this upcoming event.