# The Jan. 20, 2019 Total Eclipse of the Moon

An Information Sheet by **Andrew Fraknoi** *(U. of San Francisco Fromm Institute)*

**1. What Is Happening?**

On Sunday evening Jan. 20, a total eclipse of the Moon will be visible from throughout the U.S. (and North and South America). In a lunar eclipse, the full Moon & the Sun are exactly opposite each other in our sky, and the Earth gets between them. This means the Earth's shadow falls on the full Moon, darkening it. It's a nicely democratic event; no special equipment is needed to see it (provided it's not cloudy or foggy). And it happens in the evening, so families can watch it together. Since the next day, Jan. 21st, is Martin Luther King Day, some schools will not be in session, so kids can stay up.

**2. When Will the Eclipse Happen?**

| Event | Pacific | Mountain | Central | Eastern |
|---|---|---|---|---|
| Partial eclipse starts | 7:34 pm | 8:34 pm | 9:34 pm | 10:34 pm |
| Total eclipse starts | 8:41 pm | 9:41 pm | 10:41 pm | 11:41 pm |
| Total eclipse ends | 9:43 pm | 10:43 pm | 11:43 pm | 12:43 am |
| Partial eclipse ends | 10:51 pm | 11:51 pm | 12:51 am | 1:51 am |

As Earth's shadow slowly moves across the Moon, we first see only part of the Moon darkening (partial eclipse). When our shadow completely covers the Moon, we see a total eclipse. The best time to start watching is about a 20 minutes before total eclipse begins, when much of the Moon is already darkened.

➔ NOTE: On the west coast, the eclipse will start with the Moon low in the Eastern sky, so make sure your observing location has an unobstructed view toward the East.

**3. What is Visible During a Lunar Eclipse?**

As the shadow of the Earth covers the Moon, note that our natural satellite doesn't become completely dark. Some sunlight bent by the Earth's atmosphere still reaches the shadowed Moon and gives it a dull brown or reddish glow. The exact color of the glow and its darkness depend in part on the "sooty-ness" of our atmosphere – how recently volcanoes have gone off and how much cloud cover, storm activity, fire smoke, and human pollution there is around the globe.

Once the Moon is totally eclipsed, the stars in the sky should become more easy to see. What makes this eclipse a little bit unusual is that, by coincidence, the next morning, the Moon reaches the closest point in its monthly orbit around the Earth. So the Moon will look a bit larger in the sky than usual. (The media will be calling it a "supermoon," but the effect is pretty subtle for the average person).

**4. Is it Safe to Watch, and How do I Watch?**

Since the Moon is safe to look at, and eclipses make the Moon *darker,* there's no danger in watching the eclipse with your eyes or a telescope. (The dangerous eclipse is the solar one, where it is the Sun that is covered). And lunar eclipses don't require you to go to a dark location. Bring binoculars to see the Moon larger, but just your eyes are fine. Since the total eclipse will last for an hour and 2 minutes, be sure to take someone along with whom you like to spend time in the dark!

**5. What Can I Tell My Kids (or Grandkids)?**

Suggest that they take a careful look at the shadow of the Earth as it moves across the bright face of the Moon. What shape is it? The round shape of the Earth's shadow suggested to the ancient Greeks, more than 2000 years ago, that the Earth's shape must be round too. Eclipse after eclipse, they saw that the Earth cast a round shadow, and deduced that we lived on a round planet (long before we had pictures of it from space).

Andrew Fraknoi is co-author of the kids' eclipse book *When the Sun Goes Dark* (NSTA Press). See: fraknoi.com