The Mar. 3, 2026 Total Eclipse of the Moon

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

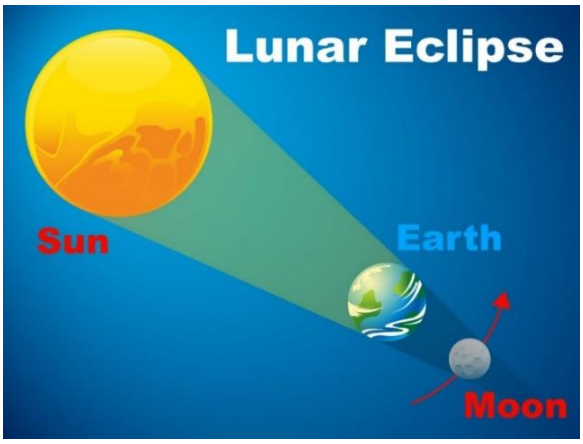

Photo by Giuseppe Donatiello (in public domain) NASA Diagram

1. What Is Happening?

Early Tuesday morning, March 3, a total eclipse of the Moon will be visible from throughout the U.S. (and North and America). In a lunar eclipse, the Moon and 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 Moon, darkening it.

It's a nicely *democratic* event; no special equipment is needed to see it (provided it's not cloudy or foggy.) However, the times (see box below) are not so convenient for people who have to go to work or school, Still, it may be that, with advance notice, allowances can be made.

2. When Will the Eclipse Happen in the US?

Event	Pacific	Mountain	Central	Eastern
Partial eclipse starts	1:50 am	2:50 am	3:50 am	4:50 am
Total eclipse starts	3:05 am	4:04 am	5:04 am	6:04 am
Total eclipse ends	4:03 am	5:03 am	6:02 am	*
Partial eclipse ends	5:17 am	6:17 am	*	*

* The Moon will set on the western horizon before the eclipse ends. In New York City, for example, the Moon will be seen to set around 6:28 am, but, as dawn approaches, may be too dim to see on the horizon a little before.

As the Moon moves slowly through the Earth's shadow, we first see only part of the Moon darkening (partial eclipse). But then, as the Moon moves fully into the Earth's shadow, we see its entire disk of the Moon become dark and reddish (total eclipse). The total eclipse lasts about an hour, and then it's partial again.

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 of the 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 erupted, plus how much cloud cover,

storm activity, fire smoke, and human pollution there is around the globe. Once the Moon is eclipsed, the stars in the sky should become easier to see. Note that in the eastern parts of the country the eclipsed Moon will be low in the western sky, and may be hard to see if you have hills or buildings on the horizon.

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, binoculars, or a telescope. 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. Be sure to bundle up against the cold night and 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 during such eclipses suggested to the ancient Greeks, more than 2000 years ago, that the Earth's shape must be round like a ball. Eclipse after eclipse, they saw that the Earth cast a round shadow, and deduced that we lived on a ball-shaped planet (long before we had pictures of it from space).

Note the round shadow (Photo by Brian Day NASA)

6. The Eclipse from the Moon

An eclipse of the Moon from Earth can be seen as an eclipse of the Sun (by the Earth) from the Moon. See the diagram on page 1 and imagine you are on the side of the Moon facing Earth. It's too bad that there will no one on the Moon to see this eclipse. (The Artemis II mission is not leaving Earth in time.)

Andrew Fraknoi is a retired astronomer, textbook author, and college professor. He is the lead author of a free, on-line astronomy textbook at: http://bit.ly/astronomytextbook (now the most frequently-used introductory astronomy textbook in the U.S.) and writes science fiction stories on astronomical themes (11 published so far). He is co-author (with Dennis Schatz) of a children's book about eclipses: *When the Sun Goes Dark* and appears regularly on regional and national radio programs explaining astronomy. You can read his fiction, and see more about his educational work and writings, at http://www.fraknoi.com The International Astronomical Union has named Asteroid 4859 Asteroid Fraknoi in recognition of his work advancing the public understanding of science.