The Dec. 20, 2010 Total Eclipse of the Moon

An Information Sheet by
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1. What Is Happening?

On Monday evening, Dec. 20 and Tuesday morning, Dec. 21, a total eclipse of the Moon will be visible. The full Moon and the Sun will be exactly opposite each other in our skies, and the Earth gets between them. This means that the Earth's shadow falls on the Moon, darkening it over the course of several hours. This eclipse will be democratically visible all over the U.S.

2. When Will the Eclipse Happen?

Event	Pacific	Mountain	Central	Eastern
Partial eclipse starts	10:33 pm	11:33 pm	12:33 am	1:33 am
Total eclipse starts	11:41 pm	12:41 am	1:41 am	2:41 am
Total eclipse ends	12:53 am	1:53 am	2:53 am	3:53 am
Partial eclipse ends	2:01 am	3:01 am	4:01 am	5:01 am

As the shadow of the Earth slowly moves across the Moon, we first see only part of the Moon darkening (partial eclipse). When the shadow complete covers the Moon, we have a total eclipse. (Of course, if it's cloudy, we would not be able to see anything.)

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. Light bent through 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 on the "sooty-ness" of our atmosphere – how recently volcanoes have gone off and how much cloud cover, storm activity, and human pollution there is around the globe.

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

Since the Moon is always safe to look at, and eclipses only makes the Moon *darker,* there is no danger in watching this eclipse with your eyes or through a telescope. (The dangerous eclipse is the solar one, where it is the Sun that gets covered.) This is one astronomical phenomenon that doesn't really require you to have fancy equipment or to go to a dark location to see it. Bring binoculars to see the Moon larger, but your eyes alone are fine. Take someone outside with you with whom you like to spend time in the dark.

5. What Can I Tell My Kids (or Kid Brother or Sister)?

Be sure to 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 from space.)