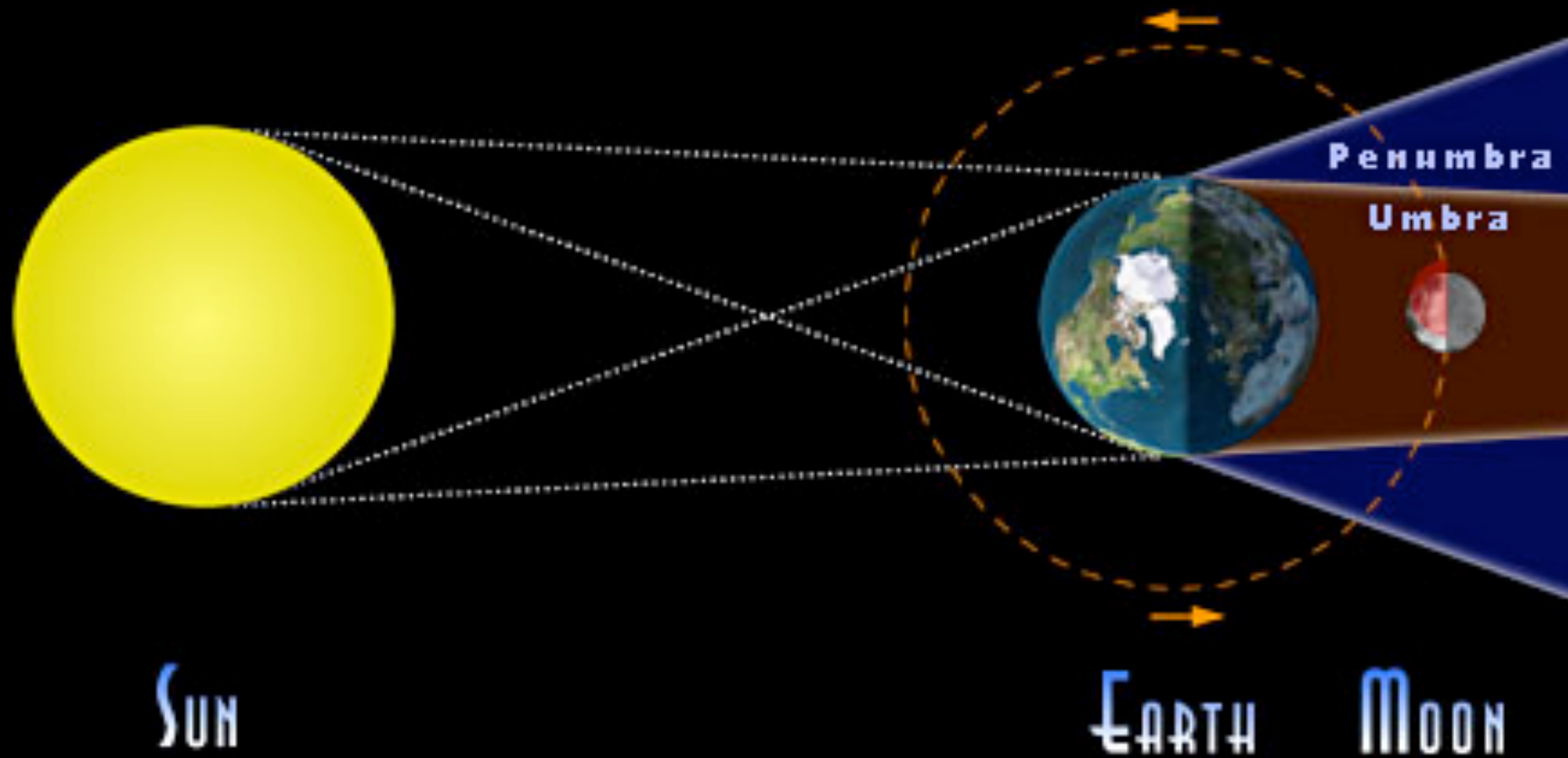


# LUNAR ECLIPSE GEOMETRY



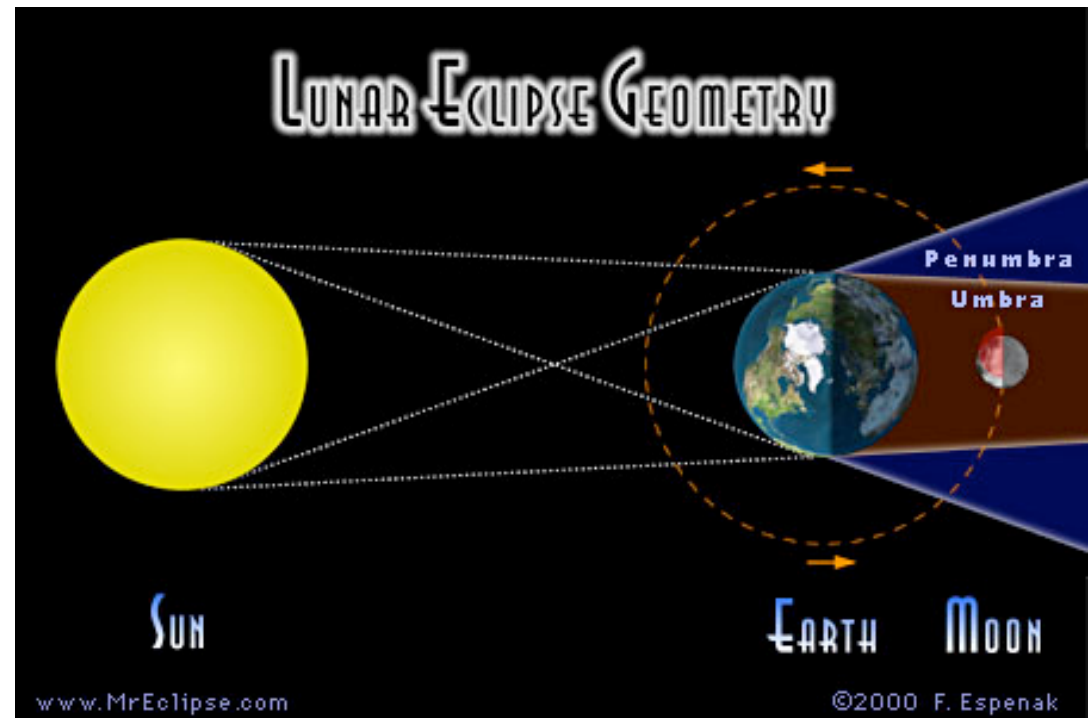
Caused by Earth's shadow on the Moon

Can only occur during a Full Moon

The darkest part of the Earth's shadow is about 10,000 km wide (2.5x larger than the Moon) at the Moon's distance so total lunar eclipses can last more than 1.5 hours.

Why don't Lunar Eclipses occur during every Full Moon?

Total Lunar eclipse visible from Philadelphia next year: Dec 21 2010, Partial starting at 1 am, total from 2:41 to 3:53 am

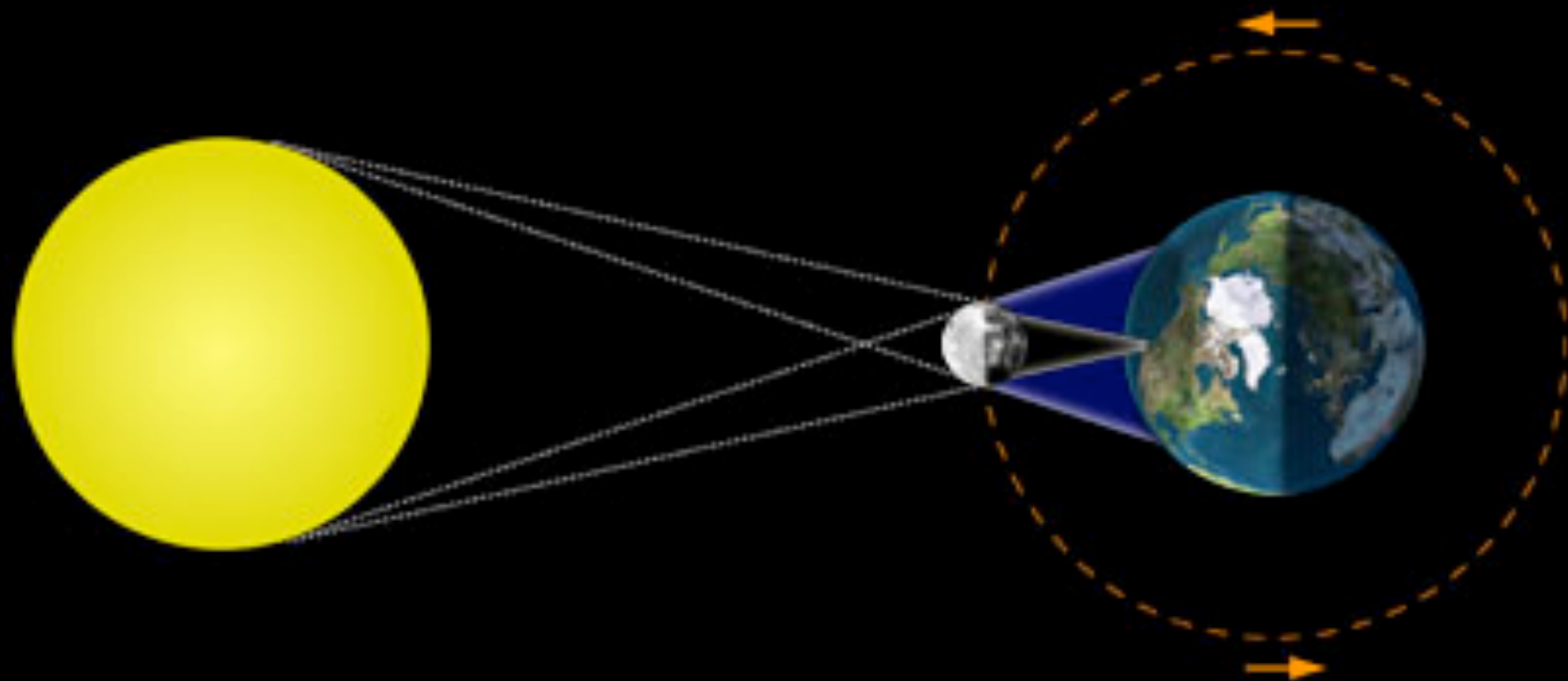


What do you think the Sun looks like from the Moon during a lunar eclipse?

**Lunar eclipses can be red** — Some red colored sunlight is refracted by the Earth's atmosphere and reflects off of the Moon



# SOLAR ECLIPSE GEOMETRY



SUN

MOON

EARTH

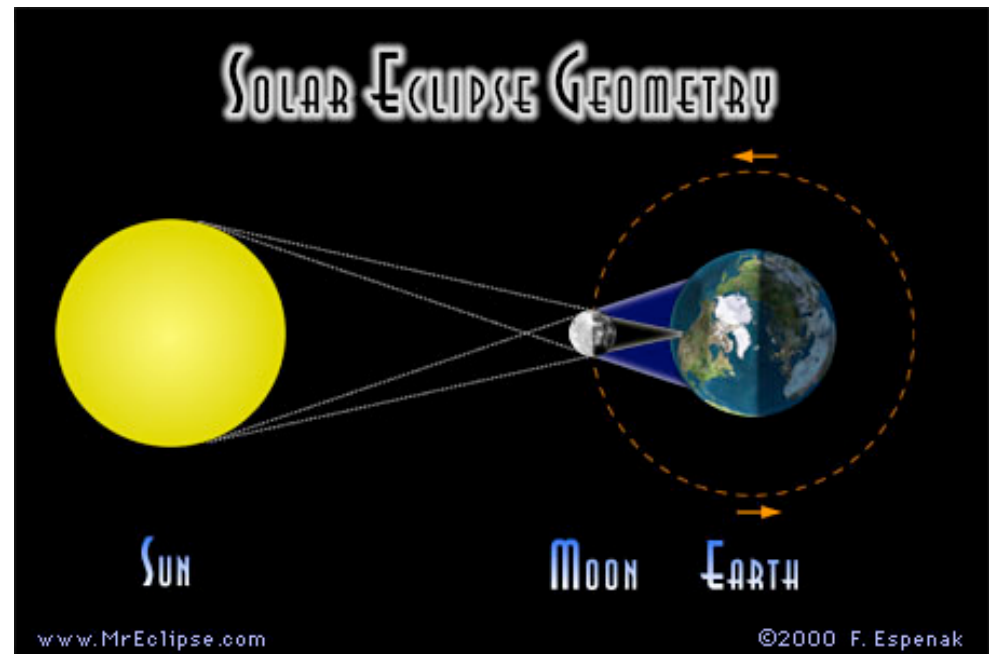
Caused by Moon's shadow on the Earth

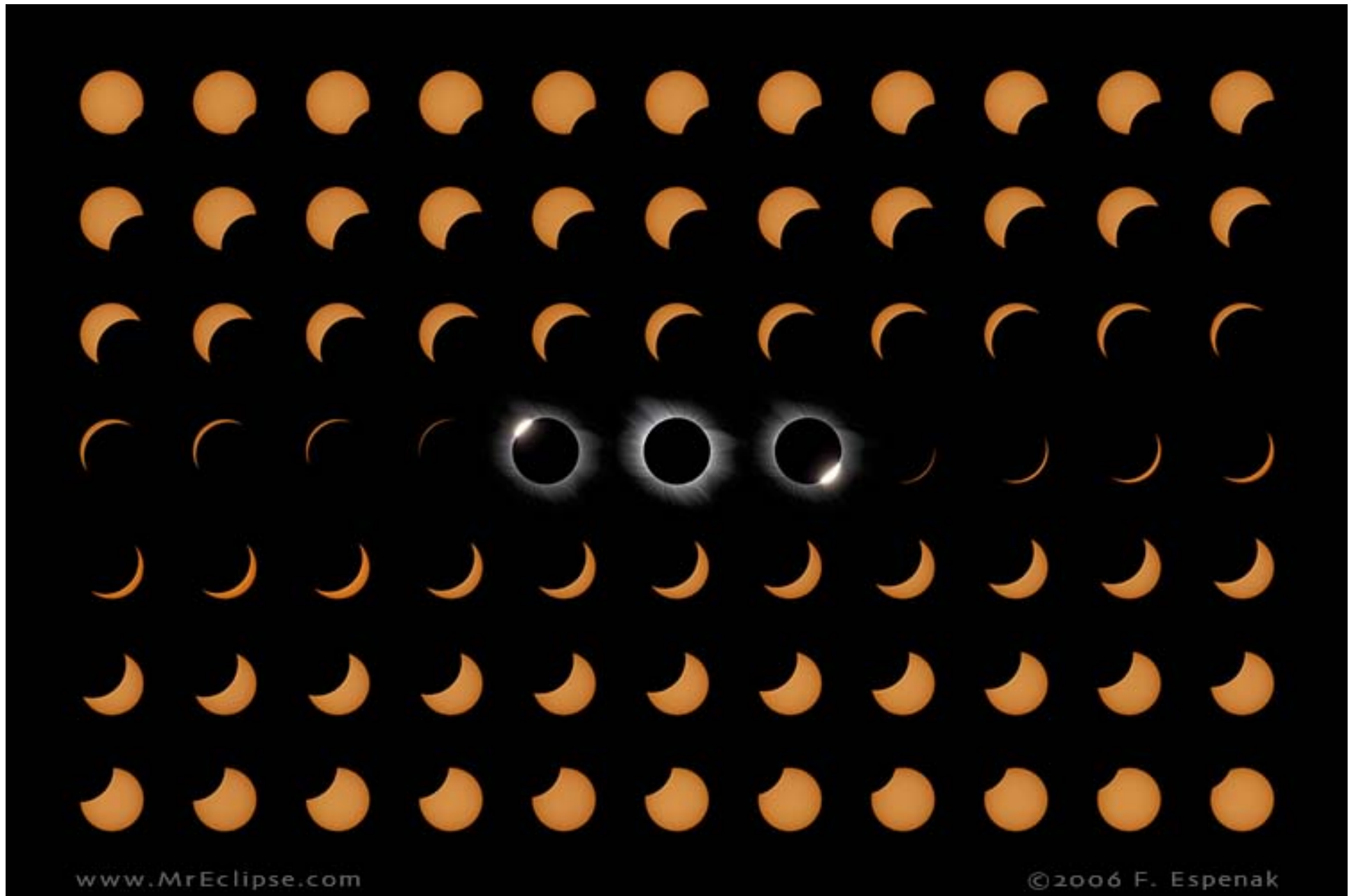
Can only occur during a New Moon

The darkest part of the Moon's shadow is about 270 km wide at the distance of Earth, so total Solar eclipses are only visible from a small part of Earth.

Why don't Solar Eclipses occur during every New Moon?

Total Lunar eclipse visible from Philadelphia next year: Dec 21 2010, Partial starting at 1 am, total from 2:41 to 3:53 am





Picture taken every two minutes during 2006 total solar eclipse