

An ecliptic end

This last year of the decade, century, and millennium provides us with two opportunities to experience total lunar eclipses. The first of these, in January 2000, will be visible from the entire continental United States. The July 2000 eclipse, however, will be visible only in the western United States. Best of all, observing a lunar eclipse really requires nothing more than a clear sky, a comfortable seat, and an eclipse events timetable.

On January 20, at approximately 9 P.M. EST, the “left” edge of the Moon will make first contact with Earth’s faint, outer *penumbral* shadow. There will be no noticeable difference in the Moon’s appearance at this time; however, over the next hour, the Moon will move completely within the penumbral shadow and should appear somewhat dimmer. By about 10 P.M. EST, the Moon will take on a “Pac-Man” appearance as it makes first contact with the Earth’s darker, inner *umbral* shadow. Gradually over the next hour, as the Moon continues moving deeper into the umbral shadow, it will darken and take on a reddish-orange tint.

Totality, when the entire disk of the Moon is within the umbral shadow, will begin at 11:05 P.M. EST and last for more than one hour. As the reflected light from the Moon diminishes, it will be much easier to see celestial objects such as the constellations Gemini and Leo and the planets Jupiter and Saturn.

The end of totality will occur on January 21 at 12:22 A.M. EST, when the leading edge of the Moon leaves the darker umbral shadow. During the next hour or so, the Moon will continue moving eastward into the fainter penumbral shadow, growing brighter as it does so. By 1:25 A.M. the Moon will once again be completely within the penumbral shadow. Over the next hour it will move entirely out from the Earth’s shadow. The total lunar eclipse is officially over at 2:24 A.M. EST, when the trailing edge of the Moon leaves the penumbral shadow. To determine local times, visit the Lunar Eclipse Computer website cited below.

Bob Riddle teaches sixth grade science at Southwest Charter School in Kansas City, Missouri. Email him at starwalk@currentsky.com or visit his website at currentsky.com.



FRED ESPENAK

Special celestial event

This month the Earth reaches *perihelion*, its minimum distance from the Sun, on January 3. On that day our planet will be 147,102,600 kilometers from the Sun, as compared to *aphelion* during July, when the Earth will be about 5 billion kilometers farther from the Sun.

The Quadrantid Meteor Shower peaks early on the morning of January 4. While it is not as well known as the Perseid Meteor Shower in August, it does nonetheless produce an average of 40 to 100 meteors per hour. And, unlike the Perseids this year, reflected light from the Moon will not interfere with viewing.

Internet resources

Lunar Eclipse Computer: aa.usno.navy.mil/AA/data/docs/LunarEclipse.html

Meteor Observing Calendar: comets.amsmeteors.org/meteors/calendar.html

Visible planets

Mercury is on the opposite side of the Sun this month and will become visible as an evening planet next month.

Venus rises before the Sun and is visible over the eastern horizon.

Mars is located low over the southwestern horizon and sets shortly after the Sun.

Jupiter is visible over the western horizon and sets after the Sun.

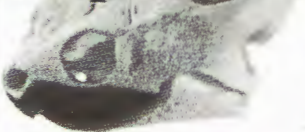
Saturn is visible over the western horizon and sets after Jupiter and the Sun.

Moon phases	January	February
Last Quarter	—	—
New Moon	1/06	2/05
First Quarter	1/14	2/12
Full Moon	1/20	2/19
Last Quarter	1/28	2/27

Mammals



Reptiles



Birds



We supply the finest natural bone specimens from around the world. Our skulls are meticulously prepared for museums, classrooms or studios.

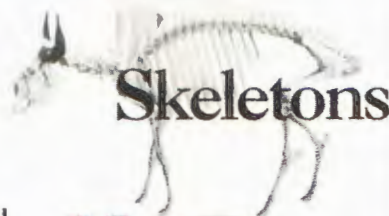
Artificial skeletons, human bones and fossil replicas are also available.

For a catalog call or write

SKULLS UNLIMITED

1-800-659-SKULL
(405) 794-9300
Fax 405-794-6985

P.O. Box 6741
Moore, OK 73153
www.skullsunlimited.com



Skeletons

Humans



Fossil Replicas

CIRCLE NO. 12 ON READERS SERVICE CARD