Name _____ Date _____ Class _____

Challenge **LESSON 3**

Eclipses and Tides

Eclipses

Observers on Earth experience two types of eclipses—lunar and solar. When the Moon or Earth falls into the other's shadow, an eclipse occurs.

When a full moon revolves into the shadow of Earth, a lunar eclipse can occur. That means the Sun, Earth, and the Moon are aligned in that order. The Earth then casts a deep shadow around the Moon, called the umbra. The lighter part at the edges of the umbra is called the penumbra. This shadow falls into space in a lunar eclipse.

Rarely, a new moon aligns with Earth and the Sun—the Sun, the Moon, and Earth, in that order. This alignment creates a solar eclipse. The Moon can barely block the Sun on a narrow spot on Earth where the Moon's umbra falls. The penumbra extends farther, but the eclipse is only partially outside the umbra. A total eclipse of the Sun can be observed in one location for only a few minutes—and then only once every 200 years or so.

Directions: *Draw a sketch of a solar eclipse. Add these labels to your drawing*—Sun, sunlight, Moon, umbra, penumbra, total eclipse, partial eclipse, *and* Earth.