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♥ Marie



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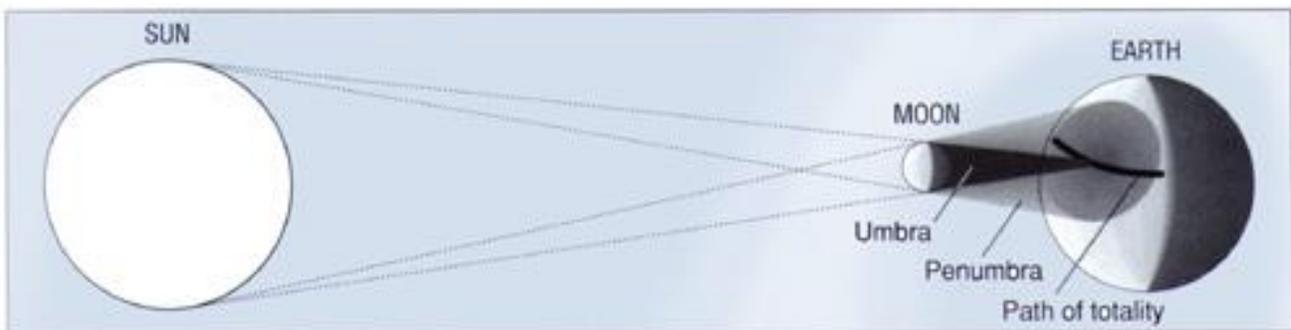
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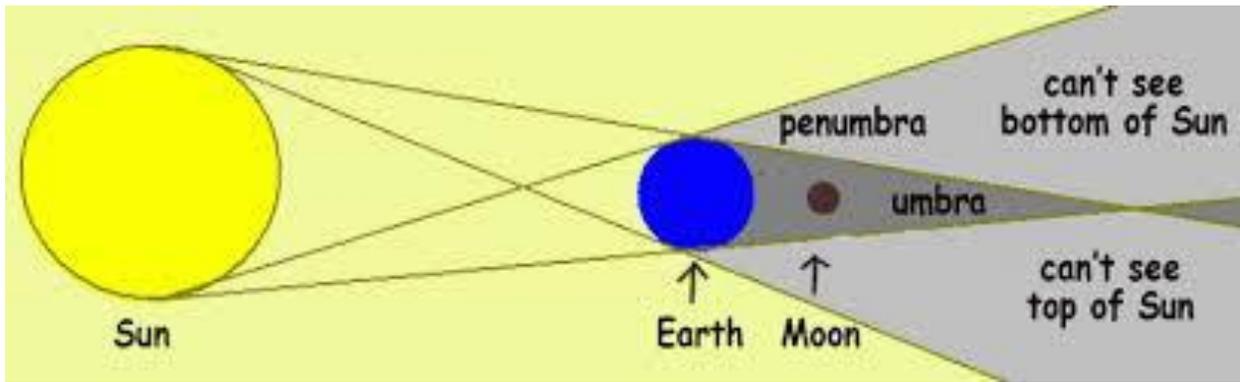
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What Causes Solar and Lunar Eclipses?

To understand eclipses, it is important to know how the Sun, Earth, and Moon move in space. The Earth travels in an orbit around the Sun, and the Moon travels in an orbit around the Earth. These objects are always moving, but sometimes they line up in special ways. When the Sun, Earth, and Moon align just right, an eclipse can occur. An eclipse happens when one object in space blocks the light from another.



A solar eclipse occurs when the Moon moves between the Sun and the Earth. When this happens, the Moon blocks some or all of the Sun's light from reaching Earth. The Moon's shadow falls on part of Earth's surface, causing the sky to darken during the daytime. Depending on how the Moon lines up with the Sun, a solar eclipse can be total, partial, or annular. During a total solar eclipse, the Moon completely covers the Sun for a short time. During a partial eclipse, only part of the Sun is covered. In an annular eclipse, the Moon covers the center of the Sun but leaves a bright ring of sunlight visible around the edges. It is very important to remember that looking directly at the Sun during a solar eclipse can damage your eyes unless special eye protection is used.



A lunar eclipse occurs when the Earth moves between the Sun and the Moon. In this case, Earth blocks sunlight from reaching the Moon, and Earth's shadow falls across the Moon's surface. As the Moon passes through Earth's shadow, it may appear darker or take on a reddish color. This reddish color happens because some sunlight bends through Earth's atmosphere and reaches the Moon. Lunar eclipses can be partial or total, depending on how much of the Moon passes into Earth's shadow. Unlike solar eclipses, lunar eclipses are safe to observe with the naked eye.

Even though the Moon orbits Earth about once every month, eclipses do not happen every month. This is because the Moon's orbit is slightly tilted compared to Earth's orbit around the Sun. Most of the time, the Moon passes above or below the shadow that would cause an eclipse. Eclipses only occur when the Sun, Earth, and Moon line up at just the right angle.

Eclipses are important to scientists because they provide opportunities to learn more about space. Solar eclipses allow scientists to study the Sun's outer atmosphere, while lunar eclipses help scientists understand Earth's atmosphere and shadows in space. Eclipses also show how predictable and organized the motion of objects in our solar system can be.

Comprehension Questions

1. What must happen for an eclipse to occur?
2. What causes a solar eclipse?
3. What causes a lunar eclipse?
4. Why does the Moon sometimes appear red during a lunar eclipse?
5. Why don't eclipses happen every month?
6. Which type of eclipse is safe to look at without special eye protection?
7. How are solar and lunar eclipses similar?
8. How are solar and lunar eclipses different?