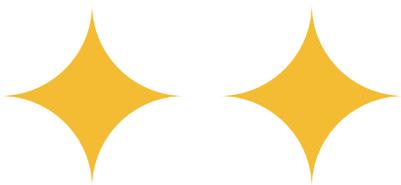




Revision Guides

Sun-Moon-Earth System



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Introduction

As we all know that the three objects that have the greatest impact on our lives are the Earth, Sun, and Moon.

The Earth, of course, is the planet beneath our feet. Without it, well, we wouldn't have anything at all. The Sun warms our planet, and with the Moon, creates the tides. The motions of bodies in the solar system are, for the most part, regular and understandable.

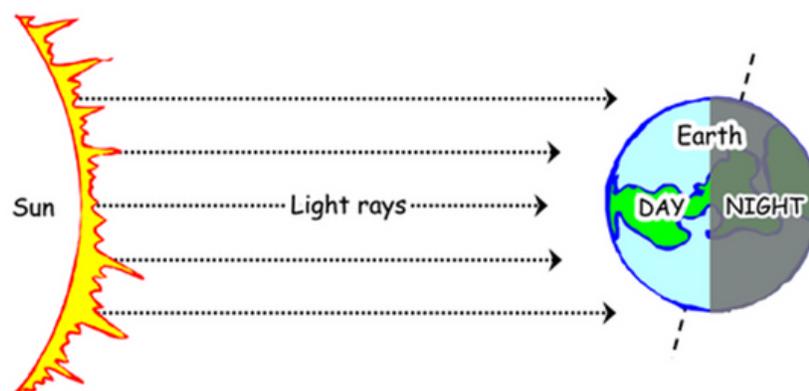
The motions of Earth relative to the Sun, and the motions of the Moon and Sun relative to Earth affect different phenomena on Earth, including day and night, the seasons, tides, and phases of the Moon.

Day & Night Cycle

Earth rotates once on its axis about every 24 hours. To an observer cooling down on the North Pole, the rotation appears counterclockwise.

Earth's rotation means that there is a cycle of daylight and darkness approximately every 24 hours, the length of a day. Different places experience sunset and sunrise at different times and the amount of time a location is in daylight and darkness also differs by location

The side facing the sun is bathed in light and heat—we call this daytime. The side facing away is cooler and darker, and experiences night.



Solar Eclipse

An eclipse happens when one object in space blocks another from view. For example, during a solar eclipse the Moon comes between Earth and the Sun. The Moon blocks the Sun for a time so that people on Earth cannot see it.

In a solar eclipse the Moon passes between the Sun and Earth. This prevents the Sun's light from reaching Earth. As the Moon passes in front of the Sun, the Moon's shadow sweeps across Earth. The sky gradually grows darker.

A solar eclipse is called total if the Sun appears totally dark. If only part of the Sun appears dark it is a partial eclipse.



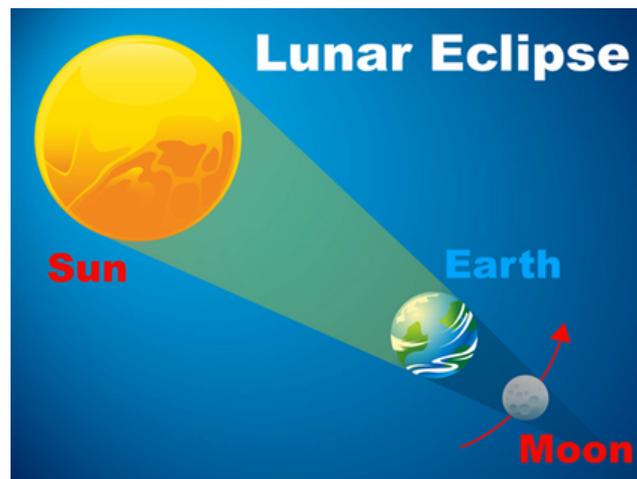
Lunar Eclipse

The Moon does not make any light itself. Rather, the Sun shines on the Moon, and the reflected sunlight makes the Moon visible from Earth.

During a lunar eclipse Earth blocks sunlight from reaching the Moon. The Sun, Earth, and the Moon line up, with Earth in the middle. The Moon is then in Earth's shadow.

But the Moon does not appear completely dark. Instead, it glows a dim orange or red color. This is because some light reaches the Moon indirectly. This light bounces off the gases surrounding Earth and then hits the Moon.

Lunar eclipses can be total or partial. Unlike a solar eclipse, a lunar eclipse is safe to view directly.



Interesting Facts

The Moon orbits the Earth and in turn, the Earth orbits the Sun. We see the Universe from a platform that is both rotating on its axis, and traveling in an elliptical orbit around the Sun.

The Earth's rotation on its axis makes the Sun rise in the east and set in the west and is a big part of why the Moon rises and sets too; although the Moon takes 29 days to complete an orbit around the Earth as well.

The brightest object in the Sky is the Sun. Astronomers measure its apparent magnitude as -26.73 . This makes it 449,000 times brighter than the full Moon. The brightness of the Moon is only -12.6 . Of course, all the Moon's brightness is just reflected light from the Sun.



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The Literacy Center is a 501(c)(3) non-profit organization dedicated to improving adult literacy and education, thereby strengthening our community.