

PHYSICAL SCIENCE

Astronomical Phenomena Known to Astronomers before the Advent of Telescopes

Learn about it!

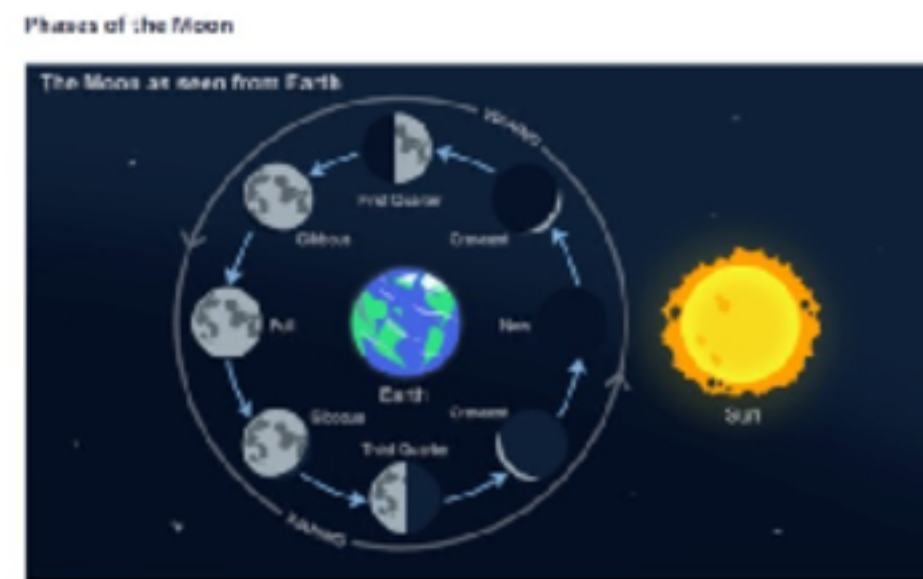
Mercury, Venus, Mars, Jupiter, and Saturn are easily seen in the sky without the aid of telescopes. These planets can be easily confused with stars and are only seen at specific times of the day. The best time to look for these planets would be before sunrise and after sunset.

Even before the invention of the telescope, ancient people have already observed different astronomical phenomena. The most observable objects in the sky are the sun and moon.

Babylonian and Egyptian civilizations used a primitive version of a sundial, called gnomon, in systematically observing the motion of the sun. By looking at the shadows that the gnomon casts, they were able to observe that the sun rises in the eastern part of the sky, reaches its highest point in midday, and sets in the western part of the sky.

Also, they recorded that the points where the sun rises and sets on the horizon varies over a year and these variations happen periodically. They observed that these variations are related to weather and so concluded that seasonal changes in climate happen during a course of one year.

Phases of the Moon



Ancient people have observed that the moon changes its path and its appearance within a period of 29.5 days. They observed that the moon changes its appearance from thin semi-circular disk to full circular disk. These phases of the moon is the basis of ancient calendars.

Lunar Eclipse



Besides their observation in the different phases of the moon, they also noticed that there are times when the moon or part of it seemed to be covered by a shadow for a brief moment. A lunar eclipse occurs when the Earth casts its shadow on the moon when the Earth is between the Sun and the Moon.

A phenomenon such as this is known as a lunar eclipse wherein the moon changes into a dark or blood red color.

Solar Eclipse



Aside from lunar eclipse, the occurrence of a solar eclipse was also observed. Solar eclipse occurs when the Moon is in between the Sun and the Earth and the moon partially or completely blocks out the sun.

The Motion of the Stars

It was also observed that the stars appear to be attached to a celestial sphere that rotates around an axis in one day. This axis intersects the celestial sphere at a point in the northern sky and is presently close to the northern star, Polaris. Also, the constellations' positions in the night sky vary depending on the time of the year.

Visibility of Planets

Astronomers have discovered that Mercury, Venus, Mars, Jupiter, and Saturn are planets because they have noticed that the stars are in a fixed position with respect to each other (like how constellations are always grouped). But there are