

Moon, planets have phases

ADAM BEALS

Popular Astronomy Club

The moon is well known to have phases as observed by a viewer on Earth: new, crescent, quarter, gibbous and full. These phases are caused by the relative angles of the sun and moon from Earth. As the moon orbits Earth, the sun shines onto different areas of the moon and we see the illuminated areas.

This phenomenon is not unique to only Earth and our moon, however. Other planets in the solar system also appear to go through phases, as seen from Earth.

Venus and Mercury have the most obvious phases when compared to the other planets. This is because of their relative orbits to Earth. Both Mercury and Venus are inferior planets, meaning that they orbit closer to our parent star than the Earth does. As a result, we see these planets go through distinct phases similar to the moon's.

When Venus is at an inferior solar conjunction — that is to say, almost directly between Earth and the sun — Venus will appear to be almost completely dark. This can be compared to how we view a new moon. Other phases of Venus include greatest western elongation (similar to a first quarter moon), superior solar conjunction (full moon) and greatest eastern elongation (last quarter moon).

Mercury observes these phases as well, though they are not always as noticeable because of Mercury's size and dimness.

The superior planets (those with orbits farther than the sun when viewed from the Earth) do not undergo as noticeable phases. We always see most of their illuminated sides because both the Earth and the sun are located in

Astronomy

From Page A3

the same relative direction of each superior planet. Often, the phases we observe with the superior planets, if we see them at all, appear only as a slight shadow on the edge of their surface. The one exception is Mars. Due to Mars' close orbit to ours, the shadow can be quite noticeable at times.

If you are interested in seeing the phases of Venus, it is approaching its greatest eastern elongation, which will peak on Aug. 17. Following this, it will reach its inferior conjunction on Oct. 26 and reach the next two phases in 2019.

Want to learn more about astronomy? Join us at dusk on July 21 in the Niabi Zoo parking lot in Coal Valley for a free, public observing event.

See **ASTRONOMY**, Page A5