

The mystery of our moon

By Vernon Whetstone

Amateur Astronomer

Okay troops, time for another question. This one is not from the in-box, but rather is a question from a friend on my Facebook page. "Does the moon rotate?" He went on to say that he has noticed that we always see the same face of the moon and was wondering why it didn't rotate.

Okay, good question. The short answer is yes, it does rotate. For the long answer we are going to need to define terms. We will need to understand the difference between rotate and orbit.

First is rotate, as in rotate on its axis, and second orbit, as in go around another object.

Although it does not look like it from Earth, the moon does indeed rotate on its axis. Like on Earth there are lunar days and lunar nights.

The big difference is that on Earth those days last about 24-hours, on the moon a day lasts about 27.3 Earth days, or the length of time it takes to orbit—or go around—Earth.

Because of a process called "tidal synchronization" the moon orbits Earth at the same speed it rotates on its axis.

If we were to see it from out in space from the aspect of the North Pole we would clearly see the moon rotates.

However since we are standing on Earth we see the same side of the moon all the time, it does not appear to rotate because the two are locked in a tidal lock, a lunar orbit and a lunar rotation take the same amount of time.

Now, having established that, we need to go a little further and say there is no "dark side" to the moon. All sides receive sunlight.

For instance, when the moon is at New Moon as seen from Earth we can't see it because there is no sunlight on the side at which we are looking; there is sunlight on the opposite side and if we were out in space between Earth and Sun we would be looking at what we know as a full moon.

Conversely at full moon, as seen from Earth, and we were back at our spot out in space we would not see the moon because there is no sunlight shining on it. It would look like what we see at New Moon.

One curious fact is all the moons in our solar system, except for one, are tidally locked to their planet. The only exception is Saturn's moon Hyperion which is tumbling too fast for a tidal synchronization to occur.

SKYWATCH: Third quarter moon on Saturday, Feb. 22. Since the moon's phase is past full, we will be seeing it during the daylight hours. On that Saturday the moon rises at 12:40 a.m. MST and sets at 10:59 a.m. MST. It will be highest in the south at 12:43 p.m. MST. Go out and look for the moon during the daytime. During the coming days the moon will be visiting three planets in the early morning hours.

Tomorrow morning, Thursday, Feb. 20, at about 1:00 a.m. MST the moon makes a nice

triangle with Mars and the bright star Spica, look in the southeast sky. Friday morning, Feb. 21, the moon has moved on to be near Saturn. Look high in the south at about 5 a.m. MST.

Tuesday, Feb. 25, the moon approaches very bright Venus, the next morning it will be even closer but on the opposite side. If you want a challenge, look for a very skinny moon near the tiny planet Mercury about an hour before local sunrise on Thursday, Feb. 27. The moon will be on top and both will be very, very low on the eastern horizon.