

Module 3: Our Moon

Short Answer Questions

1. **Why does the Moon have phases?**

The Moon has phases because of its position relative to Earth and the Sun. As the Moon orbits Earth, different portions of its sunlit side become visible from our perspective, creating the cycle of lunar phases.

2. **What is the difference between waxing and waning?**

Waxing means the Moon appears to be growing larger, as more of its surface becomes illuminated from our perspective. Waning means the Moon appears to be shrinking, as less of its illuminated surface is visible.

3. **What is the terminator, and why is it important in understanding the Moon's phases?**

The terminator is the dividing line between the lit and dark portions of the Moon. It is important because it highlights surface details and helps astronomers study the Moon's topography due to the shadows cast along this line.

4. **Why is only one side of the Moon always lit and the other always dark?**

One side of the Moon is always facing Earth due to synchronous rotation, meaning the Moon rotates on its axis at the same rate that it orbits Earth. However, half of the Moon is always illuminated by the Sun, though we only see different portions depending on its phase.

5. **If today is a Full Moon, what phase will the Moon be in one week from now?**

One week after a Full Moon, the Moon will be in the Last Quarter phase.

Multiple Choice

1. **What causes the different phases of the Moon? c**

The Moon's position relative to the Earth and Sun

Teacher Answer Sheet

2. **How long does it take for the Moon to go through all its phases (one lunar cycle)? A**
29.5 days
3. **During which phase do we see the entire Moon fully lit? D**
Full Moon
4. **Which Moon phase would be best for stargazing because the sky is darkest? C**
New Moon
5. **How much of the Moon is always lit by the Sun, even though we see different phases? A**
50%

True or False

1. **The Moon produces its own light, which is why it appears bright in the night sky.**
False – The Moon does not produce its own light; it reflects sunlight.
2. **Half of the Moon is always illuminated by the Sun, no matter what phase we see from Earth.**
True
3. **The phases of the Moon are caused by Earth's shadow covering parts of the Moon.**
False – The phases are caused by the Moon's position relative to Earth and the Sun, not by Earth's shadow.
4. **A Full Moon occurs when the Moon is on the opposite side of Earth from the Sun.**
True
5. **The term “Earthshine” refers to sunlight reflected off Earth that illuminates the dark side of the Moon.**
True

Bonus Question

Teacher Answer Sheet

What phase of the Moon is shown in the image? Waxing Crescent