Cross-Curricular Argumentation Guide A

Name: **Date:** **Class:** **Topic: Lunar Phases (sample background on following page)**

1. Clarify the claim with any qualifier and define key terms. **The cyclic pattern of lunar phases can be observed and predicted.**

- cyclic pattern - a pattern that recurs at regular intervals
- lunar phases - the shapes of the directly sunlit portion of the Moon as viewed from Earth

2. List the evidence.	**3. Analyze the reasoning.**
• The Earth rotates on its axis in approximately 24 hours.	• Since the Earth rotates on its axis in approximately 24 hours, there is the cyclic pattern of day and night.
• The Moon revolves around the Earth in approximately 29 days.	• Since the Moon revolves around the Earth in approximately 29 days, the position of the Moon relative to the Earth and the Sun changes daily.
• During the Moon's revolution around the Earth, light from the sun is reflected off the Moon's surface.	• Because the light from the sun reflects off the Moon, we can see the Moon's shape which is a lunar phase.
• The portion of the Moon's surface that is visible from Earth depends on the relative position of the Moon, the Earth, and the Sun.	• Since the position of the Moon relative to the Earth and the Sun changes daily, then the portion of the Moon visible from the Earth also changes daily; this results in a cyclic pattern of lunar phases.

4. Identify other arguments for or against the claim.

I have observed different lunar phases when looking at the night sky. I can predict that I will see a full moon about once a month.

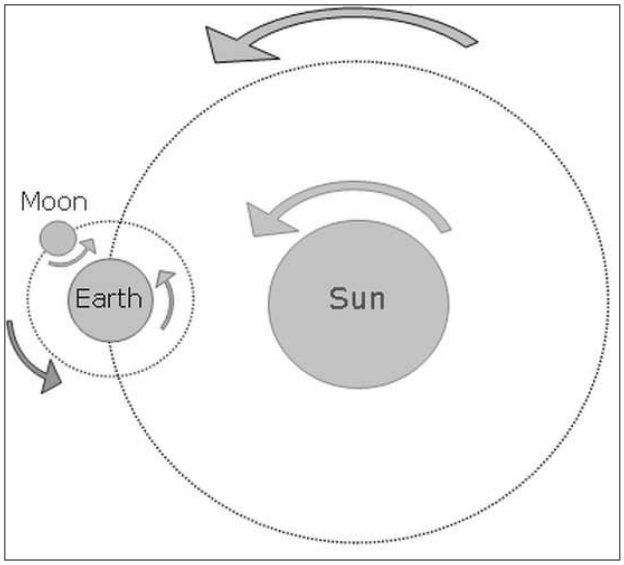
5. Make a judgment about the quality of evidence, reasoning, and other arguments.

The evidence presented is good because it is based on scientific facts and personal observation. The reasoning that ties the evidence to the claim is logical.

6. State why you accept or reject the claim.

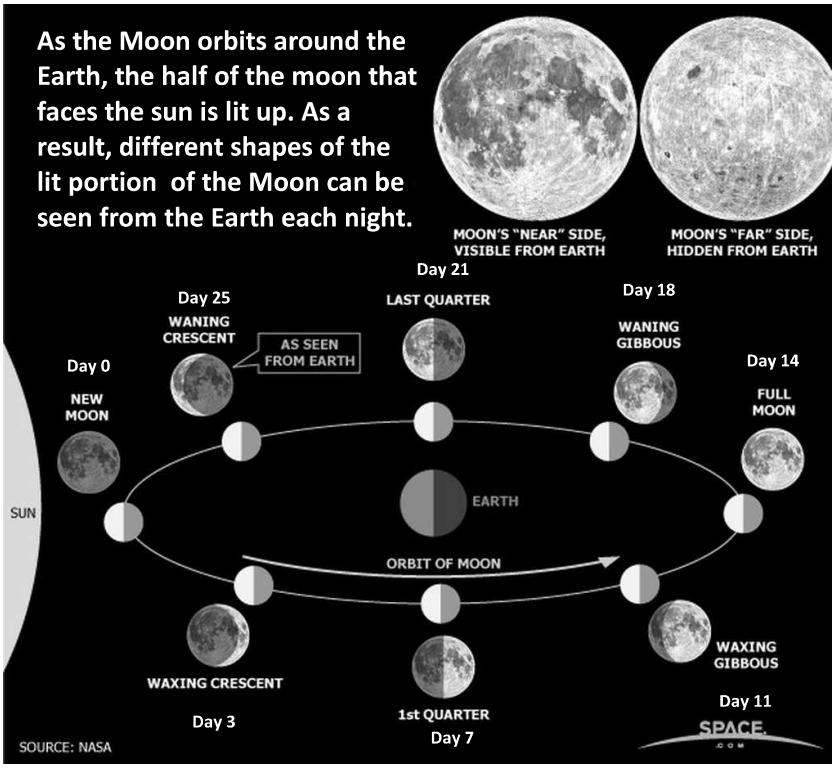
I accept this claim because the evidence is based on scientific facts, the reasoning is logical, and I have observed it myself.

Use these models of the Sun-Earth-Moon system to respond to the claim on the previous page "The cyclic pattern of lunar phases can be observed and predicted."



Model 1. Motion of the Earth-Moon-Sun System

- **Earth rotates (spins) on its axis in about 24 hours.**
- **Moon revolves (orbits) around the Earth in about 29.5 days.**
- **The Earth-Moon System revolves around the Sun.**



Model 2. Lunar Phases