

Name _____

Moons of Planets: Celestial Companions in the Night Sky

Open-Ended Response Answer Key

1. As an astronaut on an irregular moon, you might encounter a moon with an eccentric orbit and a unique surface. Irregular moons often have diverse geological features and are of interest to scientists because they provide insights into the capture and formation processes of moons, as well as the broader dynamics of the solar system.
2. Tidal locking is significant because it means that one side of the moon always faces its parent planet, while the other side remains hidden. This influences the way we study these bodies because it affects their rotation and surface conditions. Scientists study the differences between the near and far sides of tidally locked moons to understand their geological and thermal properties.
3. Tides created by moons are important for our understanding of planetary systems. They influence a planet's surface and climate. By studying tides, scientists can learn about a planet's internal structure and the dynamics of its moon-planet relationship, providing insights into the history and evolution of planetary systems.
4. Regular moons have relatively stable, often nearly circular orbits and are usually formed during the planet's early history. Examples include Earth's moon and Phobos (a moon of Mars). Irregular moons have eccentric orbits and are often captured objects from space. Examples include Himalia (a moon of Jupiter) and Phoebe (a moon of Saturn). Irregular moons have more complex, unpredictable behaviors due to their captured origins.

