

Name _____

Moon Marvels: Our Closest Celestial Companion

Open-Ended Response Answer Key

1. Answers may vary but could include preparations such as astronaut training, spacecraft design, and mission planning. Challenges may involve radiation exposure, surface conditions, and communication delays. Scientific goals may include studying the moon's geology, atmosphere, and potential for life.
2. Studying moons provides insights into planetary formation, evolution, and dynamics. This knowledge can inform space exploration, planetary science, and the search for extraterrestrial life. It also helps us understand the broader context of our solar system.
3. Earth's moon has had a profound cultural and historical impact, influencing myths, folklore, and calendars. It has inspired art, literature, and scientific discoveries, such as Galileo's telescopic observations.
4. Synchronous rotation occurs because gravitational interactions between the moon and its parent planet gradually slow the moon's rotation until it matches its orbital period. As a result, one side of the moon always faces the planet, while the other remains in perpetual darkness. Diagrams can illustrate this process.

