

Name _____

Exploring the Mysteries of the Oort Cloud and Comets

Open-Ended Response Answer Key

1. Answers may vary, but students may suggest using telescopes to observe comets, sending spacecraft to study them up close, and analyzing the composition of comet tails and nuclei. Methods could include spectroscopy to analyze the chemical composition, as well as capturing comet samples for detailed analysis.
2. The gravitational pull of other stars could potentially disturb the orbits of objects in the Oort Cloud, sending them on trajectories toward the inner solar system. A nearby star passing through the Oort Cloud could significantly increase the number of comets entering the inner solar system, potentially posing a threat to Earth and other planets.
3. Possible answers could include advancements in space exploration and technology, resource mining from comets for space missions, and gaining a better understanding of the potential hazards posed by comets to Earth.
4. The Oort Cloud and comets are considered mysterious because they are located at extreme distances from Earth, making direct observation and study challenging. Additionally, comets' orbits and behaviors can vary greatly, and their unpredictable appearances make them difficult to predict and study consistently.

