Name _____

The Silent Journey: Can You Hear Meteors as They Pass Through the Atmosphere?

Short Answer Key

1. As a meteoroid enters Earth's atmosphere and encounters atmospheric drag, its kinetic energy is converted into thermal energy. This causes the meteoroid to heat up and glow, creating a visible streak of light known as a meteor.
2. The speed of sound in Earth's atmosphere is relevant because it determines the maximum speed at which sound can travel through the air. Since meteoroids move much faster than the speed of sound, they outpace any sound they could potentially produce.
3. Even if a meteoroid could produce sound, it would remain inaudible to us on the ground because it moves faster than the speed of sound. By the time any sound reached us, the meteoroid would have already moved on or disintegrated.
4. Whether a meteoroid creates a sonic boom depends on its size, speed, and angle of entry into the atmosphere. Larger and faster meteoroids are more likely to generate sonic booms, but this is a relatively rare occurrence.
5. Spacecraft do not produce sound in space because sound requires a medium through which to travel, such as air or water. Space is a vacuum with no air, so there is no medium for sound waves to propagate.