

Name \_\_\_\_\_

## Cosmic Collisions: Can Comets Collide with Earth?

### Open-Ended Response Answer Key

1. Answers will vary but may include the deployment of spacecraft to intercept the comet, the use of nuclear or kinetic impactors to alter its course, and evacuation plans for areas in the comet's potential impact zone. International cooperation would be crucial to coordinate efforts.
2. The Tunguska event caused a massive explosion in Earth's atmosphere, flattening around 2,000 square kilometers of Siberian forest. It released energy estimated to be equivalent to 10-15 megatons of TNT. This event highlighted the need for tracking and studying NEOs and raised awareness about potential catastrophic collisions.
3. International space agencies, such as NASA and ESA, collaborate on NEO detection and tracking. They share data and research findings to assess the potential risks posed by NEOs. Cooperation ensures a global response to mitigate potential threats.
4. Planetary defense strategies may involve spacecraft equipped with kinetic impactors to alter an NEO's trajectory or nuclear deflection devices. Research into these technologies aims to protect Earth from future cosmic collisions.

