

Name \_\_\_\_\_

## The Moon's Pockmarked Past: Why Does Our Moon Have Craters?

### Open-Ended Response Answer Key

1. Studying lunar craters allows scientists to estimate the ages of lunar regions based on crater density. Older regions have more craters, providing insights into the history of the Moon and the solar system. Additionally, the size and distribution of craters offer clues about the Moon's geological evolution and past environmental conditions.
2. Lunar maria are large, dark plains formed by ancient volcanic activity, while highlands are mountainous regions. These surface features interact with craters by serving as locations for impacts and influencing their shapes. The study of these features helps scientists understand the Moon's geological history and the forces that shaped it.
3. Lunar missions, especially the Apollo program, played a crucial role in advancing our knowledge of lunar craters. Astronauts collected samples from various lunar regions, providing valuable data for crater dating and geological studies. These missions also deployed seismometers to record moonquakes and impact events, further enhancing our understanding of lunar surface dynamics.
4. The Moon's lack of atmosphere prevents weathering and erosion, allowing craters to remain well-preserved over time. On Earth, craters are gradually erased by weathering processes such as wind and water erosion. This preservation on the Moon makes it a unique laboratory for studying ancient impact events and understanding their role in shaping planetary surfaces.

