

Name _____

The Mystery of Falling Objects: What Causes Things to Drop to Earth?

Open-Ended Response Answer Key

1. The greater mass of the planet would result in a stronger gravitational pull, causing objects to fall faster and with more force than on Earth.
2. Our understanding of gravity is crucial for space exploration because it helps us calculate trajectories, orbits, and the behavior of objects in space. It's essential for spacecraft to navigate and function properly. For example, spacecraft need to account for the gravitational pull of celestial bodies to accurately reach their destinations.
3. Weight varies on different celestial bodies because it depends on the strength of gravity, which is different on each body. Mass remains the same because it's a measure of the amount of matter and is independent of location. Mass is an intrinsic property of an object, while weight depends on the gravitational field strength.
4. If gravity were weaker, objects would weigh less, and it might be challenging to stay grounded. Movement and physical activities would be affected, potentially leading to differences in the development of life forms. If gravity were stronger, everything would weigh more, making daily activities more physically demanding. Organisms would likely have evolved differently to cope with the increased gravitational forces.

