

Name _____

Galaxies' Influence On The Motion of Stars and Planets

Open-Ended Response Answer Key

1. Answers will vary but may include descriptions of using telescopes to observe stars' positions, studying their velocities to map their orbits, and analyzing their spectral characteristics to determine their properties. The goal is to gain insights into the dynamics and interactions of stars in the central bulge.
2. Interactions between galaxies can lead to changes in stellar and planetary orbits, potentially causing stars to be expelled from their original galaxies or leading to new mergers and formations. These interactions can create complex celestial dances and alter the overall dynamics of the galaxies involved.
3. Stars in a spiral galaxy's central bulge often follow more elliptical and crowded orbits, while those in the outer regions have relatively circular and less crowded orbits. These differences can be explained by the stronger gravitational forces in the central bulge, leading to more dynamic and eccentric orbits.
4. Studying the influence of galaxies on the motion of stars and planets is challenging due to the vast distances involved, limited direct observations, and the need for precise measurements. Additionally, the presence of dark matter, which cannot be directly observed, adds complexity to understanding gravitational dynamics within galaxies.

