

Name \_\_\_\_\_

## Gravity's Mysteries: Theoretical Challenges in Understanding the Force of Attraction

### Open-Ended Response Questions

1. Imagine you are a scientist tasked with finding a way to combine the theories of quantum mechanics and general relativity into a single theory of quantum gravity. What challenges would you anticipate, and how might you approach this monumental task?
2. Discuss the evidence for the existence of dark matter and why it remains one of the most significant unsolved mysteries in astrophysics.
3. Explore the potential consequences of a breakthrough in understanding the nature of dark energy and its role in the expansion of the universe.
4. What are some of the most promising avenues of research for addressing the challenges posed by black hole singularities and their implications for our understanding of gravity?

