

Name \_\_\_\_\_

## Exploring the Secrets of the Universe: How Astronomers Detect and Study Black Holes

### Short Answer

1. Explain the role of binary star systems in detecting black holes. Provide an example of how a black hole's presence can be inferred from the motion of its companion star.
2. Describe the process of gravitational wave detection and how it has revolutionized our ability to study black holes.
3. What is an accretion disk, and how does it contribute to the study of black holes? Provide examples of the emissions produced by accretion disks.
4. Discuss the significance of the Event Horizon Telescope's achievement in capturing the first image of a black hole. How was this image created, and what did it reveal about the black hole?

