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Activities

Hunting for Black Holes

Name: _____ Date: _____

Black holes are black, but they're anything but empty. In fact, matter is more concentrated in a black hole than anywhere in the universe. In this Planet Diary activity, you'll search the virtual skies hunting these mysterious objects.

Directions

- Go to black holes at NASA's Space Place. Read *What are Black Holes Anyway?* Use the information to answer Workspace questions 1 through 4.
- Visit NASA's Hubble Space Telescope for a Journey to a Black Hole. Click *Start Activity* and read the introduction. Drag the Visible Light viewer around the screen to hunt for black holes. Keep hunting until you find a stellar-mass and supermassive black hole. Make sure you find the one in the center of the Milky Way.
- You can find locations of black holes with the Visible Light viewer, but you can't see them. Review your answer to question 1 if you're not sure why. Select *X-Ray* below *See the Sky in Different Ways*. View the black holes you found earlier. Then select *Radio Waves* and look at them again. Toggle all three views and compare. Answer question 5.
- Click *Journey to a Black Hole* at the lower right. Choose the stellar-mass black hole in Cygnus X-1 or the supermassive black hole in Andromeda. Then answer the last question.
- Return to the Space Place black holes and try the Black Hole Rescue game.

Workspace

1. Why are black holes black?

2. What happens to matter that gets too close to a black hole?

3. How does a stellar-mass black hole form?

4. Where might a supermassive black hole be found?

5. Why do black holes become visible only with X-rays and radio waves?

6. Which black hole did you visit? Summarize the highlights of your journey.

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