Name _____ Black Holes

Date _____

Seeing the Invisible

Black holes are not really holes at all!

Black holes are the darkest spots in the universe. Would you believe that a black hole can begin as a gigantic shining star? Once that huge star uses all its fuel, it dies out. Then the star collapses inward because of the pull of its own gravity. This creates a black hole. The gravity of a black hole is so strong that it swallows everything that gets close to it. Any matter that falls into the black hole disappears from sight. Even light cannot escape from a black hole. This is why we cannot see a black hole.

So how do scientists know black holes exist? Dust, gases, and stars that are pulled toward a black hole become very hot. Scientists use instruments that detect this heat to locate a black hole. They also use the Hubble Space Telescope to find black holes. Gases near the black hole get pulled and swirl down to the black hole. This is like water swirling down a bathtub drain. Instruments on the telescope measure the speed of the swirling gases. Then scientists identify the black hole.

There is much more to learn about black holes. Most astronomers believe that millions of them lurk inside our galaxy.

Answer the questions. For questions 1–5, use the colors in parentheses to underline the text evidence above.

1. Why does a black hole trap everything near it? (green) _____
2. What can escape from a black hole? (yellow) _____
3. Why do scientists measure the heat given off by falling dust, gases, and stars? (blue) _____
4. How do gases near a black hole act? (orange) _____
5. What is one way the Hubble Space Telescope helps scientists? (purple) _____
6. Do you think our sun will ever turn into a black hole? Why or why not? _____