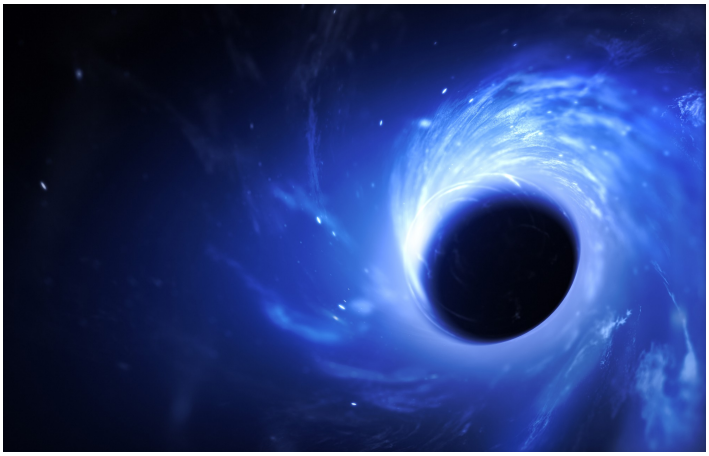
Name: _____

The Mystery of Black Holes

By Lydia Lukidis



Black holes are one of the most mysterious and powerful forces in the universe. But what exactly are they? Are they simply holes that are black? Well, there's more to it than that. A black hole is not a regular object with a surface area, like a planet. Instead, it's an area in space where matter has literally collapsed onto itself.

Black holes are formed when giant stars run out of energy. They end their life cycle and explode. This massive explosion is called

What happens to an object that gets sucked into a black hole? It will be literally stretched to its breaking point. Luckily, we don't have to worry about black holes swallowing up our solar system. That's because the nearest black hole is about 27,000 light-years away!

Here's a strange fact: black holes cannot actually be seen. That's because they don't deflect light. So how can we be certain they exist? Scientists discovered them by observing light and objects around them. They noticed that black holes affected their surroundings like nearby dust, stars, and galaxies. Two different scientists from the 18th century named John Michell and Pierre-Simon Laplace first observed them. Then in 1967, a physicist named John Archibald Wheeler came up with the term "black hole".

Black holes come in different sizes. Some are about the mass of one star. These are called "stellar" black holes. Others can grow and become huge. They may continue to absorb light, mass, and even stars around them. These are called "super-massive black holes." They can be one million times more massive than our sun. Many scientists believe these super-massive black holes often exist right at the center of galaxies. In fact, we have one right in the middle of our very own Milky Way.

Strange things seem to happen around black holes. For example, the intense gravity affects time. It behaves in strange ways. Imagine if an astronaut could investigate a black

a few decades or even centuries have passed. Imagine being gone for a few weeks, and then seeing what life on Earth would be like in 200 years? Now that would be the trip of a lifetime!

About the Author

Lydia Lukidis is a published children's author with a multi-disciplinary background that spans the fields of literature, theater, and puppetry.

Lydia's picture book, *Gerbs in the House: The Dilly Dally Bedtime Routine*, is now available. Find out if Mocha will ever get his silly son to sleep!

Lukidis, Lydia. *Gerbs in the House: The Dilly Dally Bedtime Routine*

ISBN: 978-0-9917402-7-7

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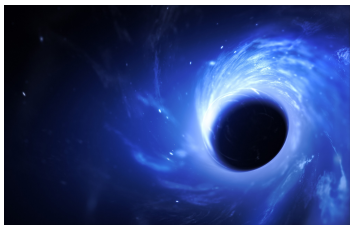

1. Based on the information in the article, what is a black hole?

_____

2. Who first discovered the existence of black holes?

_____

_____

5. Are all black holes the same size? Explain.

_____

_____

_____

6. How do black holes affect time?

_____

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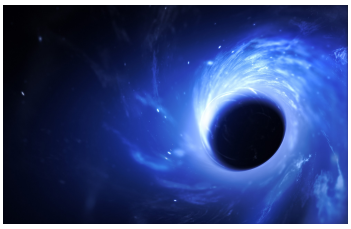

Match each vocabulary word from the article with the correct definition.

_____ **1.** universe	**a.** a person who is trained to travel in a spacecraft
_____ **2.** matter	**b.** a tightly compact substance
_____ **3.** supernova	**c.** all matter and space in existence

_____ **6.** dense	**f.** a physical substance that occupies space
_____ **7.** Milky Way	**g.** a celestial body that orbits around a star
_____ **8.** gravity	**h.** cause something to change direction
_____ **9.** planet	**i.** the galaxy that contains our solar system
_____ **10.** star	**j.** the explosion of a star

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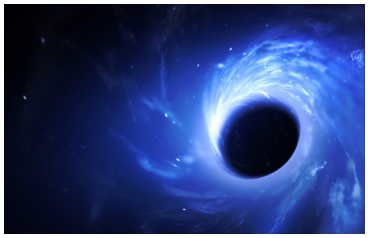


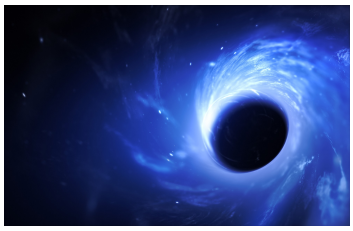
In the article, "The Mystery of Black Holes," you learned what the term "black hole" means and several reasons why scientists consider them so mysterious. In fact, black holes have been the subject of many science fiction books and films over the years. In some of these fictional tales, black holes have been used as methods of time travel, or portals into another universe.

On the lines below, explain whether you think black holes could be used for time travel or as windows to another universe. Use information from the article to support your claim.

ANSWER KEY

The Mystery of Black Holes

By Lydia Lukidis



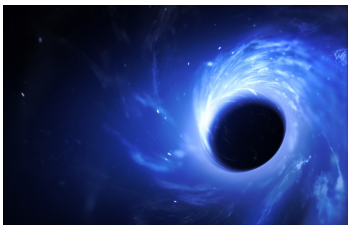
1. Based on the information in the article, what is a black hole?

Time slows down the closer an object gets to a black hole.

ANSWER KEY

The Mystery of Black Holes

By Lydia Lukidis



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c **1.** universe

a. a person who is trained to travel in a spacecraft

f **2.** matter

b. a tightly compact substance

e **10.** star

j. the explosion of a star

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