



Scientists Record Black Hole Heartbeat

How are black holes made?

- When some stars come to the end of their lives, they collapse in on themselves in a spectacular explosion. This is called a supernova.
- All of the material of the star then falls into an **infinitely** small point creating huge amounts of gravity. The gravity is so strong in the black hole that it sucks everything nearby into it.

An international team of scientists have confirmed that the strange rhythm given off by a supermassive black hole has continued like a heartbeat for more than a decade.

Initially spotted in 2007, the pulse was lost when the satellite's view of it was blocked by our Sun.

To the scientists' amazement, in 2018, it was still going strong.

Even across our almost infinite universe, you're unlikely to find anything as mysterious as a black hole! And certainly nothing darker.

After forming, black holes have such immense gravity that they suck everything towards them. Even light. Because no light can bounce off or escape a black hole, they are invisible. The only way we know about them is by studying the light and objects near them.

The scientists believe that the pulse they've spotted is made when **matter** falls into the black hole. As it sucks matter towards it, a huge burst of energy is released.

This burst of energy is repeating every hour, which begs the question... what is it eating?

The team is hoping that they can use the information to work out what is near the black hole. They also want to see how it compares to

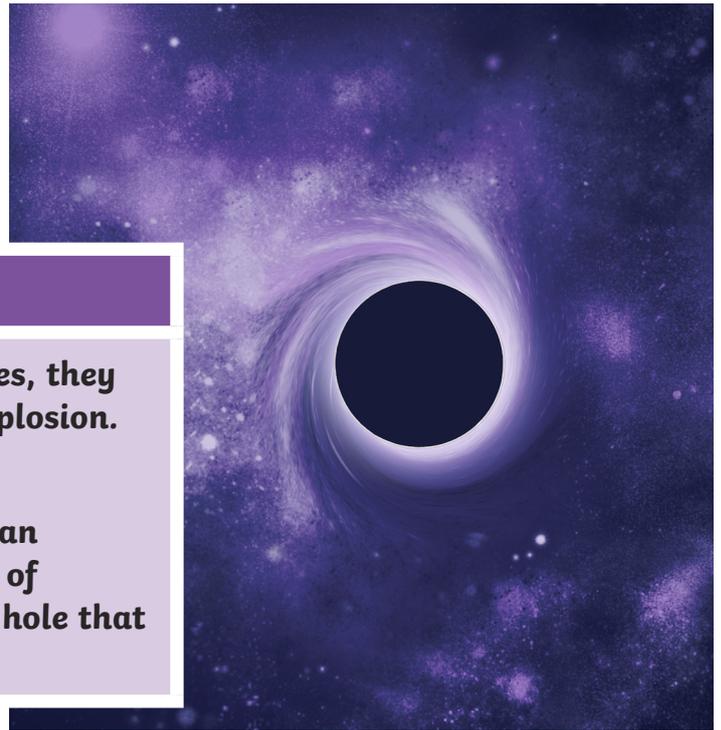


Illustration: A black hole.

other black holes closer to home.

Luckily for them, the closest ever black hole to Earth was only discovered a few weeks ago.

It is 1000 **light-years** from Earth. Although this sounds far away, it dances with two stars that can be seen from Earth without a telescope.

This new black hole has a mass four times that of the Sun. However, that's tiny compared to supermassive black holes like the one **emitting** a heartbeat. Mind-bogglingly, they can have a mass many billions of times that of our Sun!

Glossary

infinitely	Without limit or end.
matter	Everything that has mass and takes up space, such as solids, liquids and gasses.
light-years	The distance that light travels in one year (nearly 6 million million miles).
emitting	Giving off or sending out.

Questions

1. What do the scientists believe is causing the pulse from the supermassive black hole?

2. In the paragraph beginning “Even across our almost infinite universe,” Which word means strange, puzzling or hard to explain?

3. In the sentence, “Although this sounds far away, it dances with two stars that can be seen from Earth without a telescope.” why do you think the author chose to use the word “dances”?

- It suggests the 3 objects are stationary.
- It suggests the 3 objects are performing to music.
- It suggests the 3 objects are jumping up and down.
- It suggests the 3 objects are moving gracefully around each other.

4. Tick to show whether each statement is true or false.

	True	False
The supermassive black hole with a ‘heartbeat’ is 1000 light-years from Earth.		
The closest black hole to Earth is 1000 light-years away.		
The gravity is so strong in a black hole that even light gets sucked in.		
The scientists working on the study were from different countries.		

5. Locate in the story one example of what the scientists are hoping to find next.

6. Summarise the key information in this article using 15 words or fewer.

Answers

1. What do the scientists believe is causing the pulse from the supermassive black hole?
matter falling into the black hole
2. In the paragraph beginning “Even across our almost infinite universe,” Which word means strange, puzzling or hard to explain?
Mysterious
3. In the sentence, “Although this sounds far away, it dances with two stars that can be seen from Earth without a telescope.” why do you think the author chose to use the word “dances”?
 - It suggests the 3 objects are stationary.
 - It suggests the 3 objects are performing to music.
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 - It suggests the 3 objects are moving gracefully around each other.**

4. Tick to show whether each statement is true or false.

	True	False
The supermassive black hole with a ‘heartbeat’ is 1000 light-years from Earth.		✓
The closest black hole to Earth is 1000 light-years away.	✓	
The gravity is so strong in a black hole that even light gets sucked in.	✓	
The scientists working on the study were from different countries.	✓	

5. Locate in the story one example of what the scientists are hoping to find next.
Accept an answer which refers to working out what is near the supermassive black hole or seeing how it compares to other black holes closer to home. e.g. They want to find out how it compares to black holes near us.
6. Summarise the key information in this article using 15 words or fewer.
Accept a reasonable answer which includes the story’s key information in 15 words or fewer, e.g Scientists have found a supermassive black hole which is giving off a pulse.