

## Astronomers release first ever photo of black hole

13th April, 2019



Astronomers have taken the first ever photograph of a black hole. It is located in a far, distant galaxy called M87, which is 500 million trillion km from Earth. That gargantuan number is a five followed by twenty zeroes.

Scientists estimate the black hole to have a diameter of 40 billion km and to be three million times larger than our planet. Lead astronomer Professor Heino Falcke spoke to the BBC about the black hole. He said: "What we see is larger than the size of our entire Solar System. It has a mass 6.5 billion times that of the Sun. And it is one of the heaviest black holes that we think exists. It is an absolute monster - the heavyweight champion of black holes in the Universe."

The image of the black hole was captured by an array of eight linked telescopes called the Event Horizon Telescope (EHT). No single telescope exists that is powerful enough to capture the image. Each of the EHT telescopes is located high up on volcanoes in Hawaii and Mexico, mountains in the USA and Spain, a desert in Chile, and in Antarctica. A team of 200 scientists pointed the networked telescopes towards the M87 galaxy and scanned it over a period of 10 days. The data they gathered was stored on hundreds of hard drives. It was then collated and processed to produce the image that is now a landmark in space exploration. Professor Sheperd Doleman called it "an extraordinary scientific feat".

Sources: [bbc.com](http://bbc.com) / [sciencenews.org](http://sciencenews.org) / [cnn.com](http://cnn.com)

### Writing

It is very important we understand black holes. Discuss.

### Chat

Talk about these words from the article.

astronomer / black hole / galaxy / trillion / planet / solar system / champion / monster image / telescope / powerful / volcano / desert / hard drives / landmark / exploration

### True / False

- a) The black hole is in a galaxy very near to us called M87. T / F
- b) The black hole has a diameter of 40 billion km. T / F
- c) The black hole is slightly smaller than our solar system. T / F
- d) An astronomer called the black hole a "heavyweight champion". T / F
- e) Scientists used 80 telescopes to capture the image of the black hole. T / F
- f) A telescope in Antarctica helped to capture the image of the black hole. T / F
- g) It took 10 days for the telescopes to provide the image. T / F
- h) A professor said the black hole would be made into a landmark on Earth. T / F

### Synonym Match

(The words in **bold** are from the news article.)

- |                      |                      |
|----------------------|----------------------|
| 1. <b>located</b>    | a. whole             |
| 2. <b>gargantuan</b> | b. achievement       |
| 3. <b>estimate</b>   | c. complete          |
| 4. <b>entire</b>     | d. situated          |
| 5. <b>absolute</b>   | e. strong            |
| 6. <b>array</b>      | f. roughly calculate |
| 7. <b>powerful</b>   | g. gathered          |
| 8. <b>pointed</b>    | h. enormous          |
| 9. <b>collated</b>   | i. aimed             |
| 10. <b>feat</b>      | j. formation         |

### Discussion – Student A

- a) What do you know about black holes?
- b) What do you think of the name 'M87' for a galaxy?
- c) How can scientists get an image from 500 million trillion km away?
- d) What do you think of astronomy?
- e) Why is it important to explore space?
- f) What is a black hole?
- g) What would you like to know about space?
- h) Where would you like to travel in space?

## Phrase Match

1. It is located in a far,
  2. That gargantuan number is a five followed
  3. have a diameter
  4. larger than the size of our entire solar
  5. the heavyweight champion
  6. captured by an array of eight
  7. No single telescope exists that
  8. scientists pointed the networked telescopes
  9. stored on hundreds of
  10. a landmark in space
- a. is powerful enough
  - b. of 40 billion km
  - c. hard drives
  - d. linked telescopes
  - e. distant galaxy
  - f. towards the M87 galaxy
  - g. system
  - h. of black holes
  - i. exploration
  - j. by twenty zeroes

## Discussion – Student B

- a) What do you think about what you read?
- b) Would you like to be an astronaut?
- c) What experiences do you have with telescopes?
- d) How did the universe begin?
- e) Are there other planets that support life?
- f) What do you know about our galaxy?
- g) Should governments spend a lot more on space exploration?
- h) What questions would you like to ask the professors?

## Spelling

1. located in a far, distant xaylga
2. That ragatnagu number
3. Scientists smieetta the black hole to have...
4. our etneir Solar System
5. that we think teisxs
6. It is an aboelust monster
7. an ayarr of eight linked telescopes
8. located high up on seanoocvl in Hawaii
9. over a direpo of 10 days
10. It was then ldaetocl and processed
11. space rtiopaexonl
12. an rerntaidxraoy scientific feat

### Answers – Synonym Match

1. d	2. h	3. f	4. a	5. c
6. j	7. e	8. i	9. g	10. b

## Role Play

### Role A – Earth

You think Earth is the most interesting space object. Tell the others three reasons why. Tell them why their objects aren't as interesting. Also, tell the others which is the least interesting of these (and why): the moon, Mars or the Sun.

### Role B – The Moon

You think the moon is the most interesting space object. Tell the others three reasons why. Tell them why their objects aren't as interesting. Also, tell the others which is the least interesting of these (and why): Earth, Mars or the Sun.

### Role C – Mars

You think Mars is the most interesting space object. Tell the others three reasons why. Tell them why their objects aren't as interesting. Also, tell the others which is the least interesting of these (and why): the moon, Earth or the Sun.

### Role D – The Sun

You think the Sun is the most interesting space object. Tell the others three reasons why. Tell them why their objects aren't as interesting. Also, tell the others which is the least interesting of these (and why): the moon, Mars or Earth.

## Speaking – Space

Rank these with your partner. Put the best at the top. Change partners often and share your rankings.

- Earth
- The sun
- The moon
- Mars
- Saturn
- Pluto
- Mercury
- Venus

### Answers – True False

a	F	b	T	c	F	d	T	e	F	f	T	g	T	h	F
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Answers to Phrase Match and Spelling are in the text.