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# Unraveling the Mystery of an Eccentric Black Hole

## Description

A supermassive black hole is 300 million light-years away. This black hole is causing confusion for scientists.

It is at the center of a galaxy called SDSS1335+0728. Since 2019, researchers have watched it wake up from sleep. Now, it is shining brightly and creating bursts of light.

This behavior is normal for supermassive black holes, but this one, called Ansky, is very strange. "The bursts of X-rays from Ansky are much brighter and last longer than what we usually see," says astrophysicist Joheen Chakraborty from MIT.

Typically, black holes can be active or quiet. They can switch between these two states. Ansky is the first black hole seen waking up in real-time.

"Studying Ansky will help us understand black holes better," says astronomer Lorena Hernández-García from Chile.

The light from Ansky is bright across many types of light, like infrared and X-rays. This is exciting, but we need more data.

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## Vocabulary List:

1. **Supermassive** /,su:.pər'mæs.ɪv/ (adjective): Referring to a black hole with a mass that is millions or billions of times that of the Sun.
2. **Galaxies** /'gæl.ə.kɪz/ (noun): Large systems of stars gas and dust bound together by gravity.
3. **Bursts** /bɜrst/ (noun): Sudden occurrences of something such as light or energy happening briefly and intensely.
4. **Astrophysicist** /,æs.trəʊ'fɪz.ɪs.ɪst/ (noun): A scientist who studies the physical properties and processes of celestial bodies and the universe.
5. **Understanding** /,ʌn.dər'stæn.dɪŋ/ (noun): The ability to comprehend or grasp the nature of a subject.
6. **Data** /'deɪ.tə/ (noun): Facts and statistics collected for reference or analysis.

## Comprehension Questions

### Multiple Choice



1. Where is the supermassive black hole located?
  - Option: In the Milky Way galaxy
  - Option: 300 million light-years away
  - Option: Next to our solar system
  - Option: In a different galaxy
  
2. What is the name of the galaxy where the black hole is located?
  - Option: Andromeda
  - Option: SDSS1335+0728
  - Option: Orion
  - Option: Triangulum
  
3. Why is Ansky known to be strange according to Joheen Chakraborty?
  - Option: It emits visible light
  - Option: Its X-ray bursts are brighter and longer than usual
  - Option: It is a quiet black hole
  - Option: It is located very close to Earth
  
4. What is significant about Ansky in terms of black hole behavior?
  - Option: It is the smallest black hole discovered
  - Option: It is the first black hole seen waking up in real-time
  - Option: It has been dormant for centuries
  - Option: It emits only gamma rays
  
5. Who believes studying Ansky will help in understanding black holes better?
  - Option: Joheen Chakraborty
  - Option: Lorena Hernández-García
  - Option: Ansky himself
  - Option: Researchers from NASA
  
6. Which types of light does Ansky emit brightly across?
  - Option: Ultraviolet and radio waves
  - Option: Infrared and radio waves
  - Option: Visible light and microwaves
  - Option: Infrared and X-rays

## True-False



7. The black hole in the center of SDSS1335+0728 has been active for millions of years.
8. Black holes can only be active and never quiet.
9. Ansky is the official name given to the black hole by astronomers.
10. The behavior of Ansky is considered abnormal by researchers.
11. The study about Ansky is published in Astronomy News.
12. More data is not required to further understand Ansky.

### Gap-Fill

13. Ansky is causing confusion for scientists because it is much \_\_\_\_\_ than usual black holes.
14. Researchers have been observing the behavior of Ansky since the year \_\_\_\_\_.
15. Astronomer Lorena Hernández-García is from \_\_\_\_\_.
16. The light emitted by Ansky is bright across a wide range of types, including infrared and \_\_\_\_\_.
17. The black hole in the galaxy SDSS1335+0728 is named \_\_\_\_\_.
18. The behavior of Ansky is considered normal for supermassive black holes, but this one is very \_\_\_\_\_.

### Answer

**Multiple Choice:** 1. 300 million light-years away 2. SDSS1335+0728 3. Its X-ray bursts are brighter and longer than usual 4. It is the first black hole seen waking up in real-time 5. Lorena Hernández-García 6. Infrared and X-rays

**True-False:** 7. False 8. False 9. True 10. True 11. False 12. False

**Gap-Fill:** 13. stranger 14. 2019 15. Chile 16. X-rays 17. Ansky 18. strange



## Vocabulary quizzes

### Multiple Choice ( Select the Correct answer for each question. )

1. Which brain structure plays a key role in memory formation?  
Option: Amygdala  
Option: Corpus Callosum  
Option: Hippocampus  
Option: Frontal Lobe
2. Who studies the physical properties and phenomena of celestial bodies?  
Option: Astronomer  
Option: Biologist  
Option: Geologist  
Option: Astrophysicist
3. Who are individuals known for their physical prowess and participation in sports?  
Option: Artists  
Option: Athletes  
Option: Scholars  
Option: Politicians
4. What is the course of action taken to combat a disease or medical condition?  
Option: Diagnosis  
Option: Exacerbation  
Option: Treatment  
Option: Prognosis
5. What type of black hole is found at the center of most galaxies?  
Option: Miniature  
Option: Supermassive  
Option: Stellar  
Option: Intermediate
6. What term refers to a gradual deterioration or decrease in quality or quantity?  
Option: Growth  
Option: Progress  
Option: Stagnation  
Option: Decline
7. What structure is used to regulate temperature for plants in colder climates?



- Option: Greenhouse
- Option: Conservatory
- Option: Warehouse
- Option: Stable

8. Which rapid eye movement helps adjust the direction of gaze?

- Option: Saccades
- Option: Nystagmus
- Option: Diplopia
- Option: Strabismus

9. What is the beginning or creation of something known as?

- Option: Conclusion
- Option: Termination
- Option: Initiation
- Option: Origination

10. What term describes the ability to withstand or overcome adverse conditions?

- Option: Fragility
- Option: Durability
- Option: Flexibility
- Option: Robustness

**Gap-Fill ( Fill in the blanks with the correct word from the vocabulary list. )**

11. \_\_\_\_\_ is a neurodegenerative disease that causes memory loss and cognitive decline.
12. Understanding the \_\_\_\_\_ nature of the human brain is a challenge for neuroscientists.
13. The engineers developed a \_\_\_\_\_ model to test the new technology.
14. Scientists collected and analyzed the research \_\_\_\_\_ to draw conclusions.
15. Exploring the \_\_\_\_\_ of the universe is a key objective in astrophysics.
16. Finding \_\_\_\_\_ planets outside our solar system is a goal of exoplanet research.



17. The robot moved \_\_\_\_\_ across the surface avoiding obstacles.
18. Her extensive academic \_\_\_\_\_ in physics prepared her for the research project.
19. The archer aimed carefully at the \_\_\_\_\_ before releasing the arrow.
20. The study of \_\_\_\_\_ in physics involves analyzing the movement of objects.

**Matching Sentences ( Match each definition to the correct word from the vocabulary list. )**

21. The magician made the rabbit vanish into thin air during the show.
22. The fireworks display in the night sky was filled with colorful explosions of light.
23. The scientist outlined a systematic approach to test the hypothesis.
24. The team embarked on a journey of discovery to uncover ancient ruins.
25. The player threw the and scored a bullseye in the game.
26. The surgeon used a precise beam of light from the to perform the operation.
27. Each in the study group had unique characteristics that affected the results.
28. During the eye exam the doctor observed rapid in the patient's gaze.
29. Astronomers study the formation and evolution of in the universe.
30. The professor emphasized the importance of gaining a deep of the subject matter.

**Answer**

- Multiple Choice:** 1. Hippocampus 2. Astrophysicist 3. Athletes 4. Treatment 5. Supermassive 6. Decline  
7. Greenhouse 8. Saccades 9. Origination 10. Robustness
- Gap-Fill:** 11. Alzheimer 12. Complex 13. Prototype 14. Data 15. Mystery 16. Habitable 17. Smoothly  
18. Background 19. Target 20. Motion
- Matching sentence:** 1. Disappearing 2. Bursts 3. Method 4. Exploration 5. Dart 6. Laser 7. Individual 8.  
Saccades 9. Galaxies 10. Understanding

**CATEGORY**

1. Health - LEVEL1



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