

## Earth's core may hold ancient pre-Big Bang gas

17th March 2025



Our planet contains mysteries that are yet to be unravelled. Many of them focus on how the Earth formed, and what is at the centre of our planet. A recent study provides clues as to what shaped Earth at the beginnings of our solar system. Scientists say they have

discovered evidence that vast amounts of a rare, primordial form of the gas helium may be trapped inside Earth's core. It is called helium-3. Scientists from universities in Japan and Taiwan believe the helium-3 is from a giant cloud of gas and dust that amalgamated to create different planets. The gas has remained locked inside Earth's mantle for billions of years, but is occasionally released in volcanic eruptions.

The research paper has created considerable excitement among planetary geologists. They believe the presence of large amounts of helium-3 could unlock more secrets of the Big Bang. In particular, the scientists are speculating that there being so much helium-3 under the Earth's mantle could mean that Earth was created much more quickly than previously thought. Dr Peter Olson, a geophysicist at the University of New Mexico, shed light on the possible speed of Earth's creation. He said: "There is evidence that has been interpreted to say the Earth formed very slowly, requiring 100 million years. [However], you wouldn't get much helium deep in the Earth if the Earth formed that slowly."

Sources: [scitechdaily.com](http://scitechdaily.com) / [msn.com](http://msn.com) / [chemistryworld.com](http://chemistryworld.com)

### Writing

It is very important to know how Earth formed. Discuss.

### Chat

Talk about these words from the article.

planet / focus / Earth / solar system / evidence / helium / universities / eruptions / research paper / excitement / geologists / secrets / geophysicist / speed / creation

### True / False

- 1) The article says there are many unrivalled mysteries about our planet. T / F
- 2) A study conclusively found out what shaped the solar system. T / F
- 3) Helium-3 is a medieval form of the gas helium-4. T / F
- 4) Helium-3 is occasionally released when a volcano erupts. T / F
- 5) Planetary geophysicists are paying scant regard to the new research. T / F
- 6) There could be more helium-3 beneath our feet than we thought. T / F
- 7) A geophysicist helped us know more about the speed of Earth's creation. T / F
- 8) The geophysicist said Earth would form faster with more helium-3. T / F

### Synonym Match

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

- |                         |                  |
|-------------------------|------------------|
| 1. <b>mysteries</b>     | a. proof         |
| 2. <b>unravelled</b>    | b. made clearer  |
| 3. <b>clues</b>         | c. merged        |
| 4. <b>evidence</b>      | d. theorizing    |
| 5. <b>amalgamated</b>   | e. solved        |
| 6. <b>considerable</b>  | f. formation     |
| 7. <b>speculating</b>   | g. pointers      |
| 8. <b>shed light on</b> | h. necessitating |
| 9. <b>creation</b>      | i. secrets       |
| 10. <b>requiring</b>    | j. sizeable      |

### Discussion – Student A

- a) What do you think about what you read?
- b) What do you know about helium?
- c) How do you think the Earth was created?
- d) What do you think is in the centre of the Earth?
- e) Will it ever be possible to journey to the Earth's core?
- f) Which of Earth's mysteries would you like scientists to unravel?
- g) What will Earth be like in 100 million years from now?
- h) What questions would you like to ask the scientists?

## Phrase Match

- |  |                      |
|--|----------------------|
| 1. Our planet contains mysteries that are yet  | a. amalgamated       |
| 2. vast amounts of a rare, primordial          | b. mantle            |
| 3. a giant cloud of gas and dust that          | c. deep in the Earth |
| 4. The gas has remained locked inside Earth's  | d. eruptions         |
| 5. occasionally released in volcanic           | e. excitement        |
| 6. The research paper has created considerable | f. of the Big Bang   |
| 7. planetary                                   | g. light on          |
| 8. unlock more secrets                         | h. to be unravelled  |
| 9. shed  | i. geologists        |
| 10. you wouldn't get much helium               | j. form of the gas   |

## Discussion – Student B

- What do you know about the Big Bang?
- What other ideas do people have about how earth was created?
- How important is it to know about the creation of earth?
- What do you know about our solar system?
- Do you think there are other life forms out there?
- What did Earth look like 100 million years ago?
- What is your favourite planet?
- What do you know about volcanoes?

## Spelling

- mysteries that are yet to be dleurvanle
- the beginnings of our srola mysets
- they have discovered ecedvine
- a rare, aoridmplir form of the gas helium
- gas and dust that gmatlamaade
- released in volcanic unotripse
- created oedcnsiraelb excitement
- among planetary sgilogetso
- scientists are tgilpaesunc
- under the Earth's tnlame
- a ihpsecogyist at the University of New Mexico
- that has been terdnepteri

### Answers – Synonym Match

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

## Comprehension Questions

Listen to / read the news article. Answer these questions. (Answers are on p. 27 of the 27-page PDF.)

1.	What does Earth contain that hasn't been unravelled yet?
2.	How much helium-3 do scientists believe they have discovered?
3.	Where is the helium-3 trapped?
4.	What mixed with gas to form planets?
5.	How is helium-3 released from the Earth's core?
6.	Who is particularly excited about the discovery of the helium-3?
7.	What could the helium-3 unlock secrets of?
8.	What did do scientists say about the speed with which Earth formed?
9.	What is Peter Olson's job?
10.	How long did scientists think it took Earth to form?

## Speaking – Mysteries

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

- |                |                        |
|----------------|------------------------|
| • The Big Bang | • The sixth sense      |
| • Aliens       | • The Pyramids         |
| • Ghosts       | • Life                 |
| • The Yeti     | • The Bermuda Triangle |

### Answers – True False

1	F	2	F	3	F	4	T	5	F	6	T	7	T	8	T
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Answers to Phrase Match and Spelling are in the text.