

## Scientists discover new water purification microbes

14th April 2025



Scientists have unearthed a previously unknown species of microbes in the earth beneath us. Researchers at Michigan State University have been exploring an area just below and above the Earth's surface called the Critical Zone. This zone is

essential to providing the conditions that sustain life. The researchers called the microbes CSP1-3. The microorganisms could be a key part of the process of purifying our water. Microbiologist James Tiedje said that while layers of soil are responsible for much of the filtration of rainwater, CSP1-3 are also indispensable. He said: "CSP1-3 are the scavengers cleaning up what got through the surface layer of soil." They have a job to do to purify our drinking water.

Dr Tiedje and his team focused on the microbes living in the deep soil, up to 200 metres beneath our feet. He said the CSP1-3 microbes remove harmful contaminants and detritus from the water supply. He now wants to cultivate CSP1-3 in his lab to find out more about their properties. He believes they could be utilized to clean up pollution in the soil. He said: "We don't know their capacities for metabolizing tough pollutants and, if we could learn that, we can help solve one of the Earth's most pressing problems." The *scitechdaily.com* website said: "Understanding this newly found group could boost conservation efforts and help address climate change."

Sources: *scitechdaily.com* / *sci-news* / *earth.com*

### Writing

We need to worry about how safe our water is to drink. Discuss.

### Chat

Talk about these words from the article.

scientists / species / microbes / Earth / purification / water / microbiologist / soil / beneath our feet / contaminant / detritus / lab / pollution / problems / climate change

### True / False

- 1) The new species of microbes are largely found in rain and waterfalls. T / F
- 2) The researchers looked at an area called the Crucial Zone. T / F
- 3) A researcher said the microbes could be a key part of water filtration. T / F
- 4) The researcher called the microbes scavengers. T / F
- 5) The microbes can be found 200 metres beneath our feet. T / F
- 6) The researcher wants to grow the new microbes in his laboratory. T / F
- 7) The researcher said the microbes could help our metabolism. T / F
- 8) The researcher says the microbes will reverse climate change. T / F

### Synonym Match

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

- |                         |                 |
|-------------------------|-----------------|
| 1. <b>unearthed</b>     | a. concentrated |
| 2. <b>exploring</b>     | b. put to use   |
| 3. <b>sustain</b>       | c. cleanse      |
| 4. <b>indispensable</b> | d. looking into |
| 5. <b>purify</b>        | e. ability      |
| 6. <b>focused</b>       | f. discovered   |
| 7. <b>detritus</b>      | g. urgent       |
| 8. <b>utilize</b>       | h. waste        |
| 9. <b>capacity</b>      | i. essential    |
| 10. <b>pressing</b>     | j. support      |

### Discussion – Student A

- a) What do you think about what you read?
- b) What do you know about water purification?
- c) What do you think of bottled water?
- d) What do you know about what lives 200 metres below ground?
- e) What are Earth's most pressing problems?
- f) In what ways can we boost conservation efforts?
- g) How can we address climate change?
- h) What questions would you like to ask the researchers?

## Phrase Match

1. Scientists have unearthed a previously
  2. just below and above the
  3. providing the conditions
  4. the process of
  5. the filtration
  6. He now wants to
  7. they could be utilized
  8. solve one of the Earth's most pressing
  9. boost conservation
  10. help address
- a. efforts
  - b. purifying our water
  - c. problems
  - d. of rainwater
  - e. unknown species
  - f. climate change
  - g. cultivate CSP1-3 in his lab
  - h. Earth's surface
  - i. to clean up pollution
  - j. that sustain life

## Discussion – Student B

- a) What do you know about microbes?
- b) What do you think of tap water?
- c) Do you ever think about the quality of the water you drink?
- d) What do you know about Earth's Critical Zone?
- e) What are the conditions that sustain life?
- f) Do you drink enough water?
- g) How might pollution be affecting the quality of drinking water?
- h) How does water compare to other drinks?

## Spelling

1. nuetrahed a previously unknown species
2. aommrniricsosg could be a key part
3. the afiltlonr of rainwater
4. CSP1-3 are also liaiedepnbss
5. CSP1-3 are the eagsnservc cleaning up
6. rpfyiu our drinking water
7. harmful actsnamotnin
8. rdtetusi from the water supply
9. utcetiavl CSP1-3 in his lab
10. their capacities for ianoztibemg
11. tough sulopattnl
12. boost sercvtnonaio efforts

### Answers – Synonym Match

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

## Comprehension Questions

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

1.	What university are the researchers from?
2.	What area of the Earth did the researchers look at?
3.	What is the area essential in providing conditions for?
4.	What role did a microbiologist say the CSP1-3 microbes have?
5.	What job do the microbes have to do with our drinking water?
6.	How far beneath the earth do the microbes live?
7.	What do the CSP1-3 microbes remove from our water supply?
8.	What does the microbiologist want to do to the microbes in his lab?
9.	What does the microbiologist think the microbes can solve?
10.	What could the microbes help to address?

## Speaking – Pollutants

Rank these with your partner. Put the most worrying water pollutants at the top. Change partners often and share your rankings.

- Organic waste
- Fertilizers
- Oil
- Microplastics
- Industrial waste
- Radiation
- Toxic waste
- Sewage

### Answers – True False

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