

THE ARTICLE

From <https://breakingnewsenglish.com/2104/210424-biodegradable-plastic.html>

Plastic has been a blight on the landscape and a deadly threat to wildlife for decades. Environmentalists have issued many pleas for us to reduce the amount of plastic we use or switch to biodegradable alternatives. One solution to this problem may be at hand. Scientists have developed a form of biodegradable plastic. This means that the billions of plastic bags, cups, straws and utensils that we dispose of each day could be "compostable" - they could decompose and break down as naturally as organic waste. The scientists are from the University of California, Berkeley. They say they have invented a plastic that could break down within a few weeks, rather than centuries, using just heat and water.

The new, biodegradable product involves embedding polyester-eating enzymes into the plastic during the production process. When these enzymes are exposed to heat and water, they eat away at the plastic and reduce it to lactic acid. This provides nutrients for the soil when composted. Professor Ting Xu said up to 98 per cent of the plastic her team made degraded into small molecules. She said: "We are basically saying that we are on the right track. We can solve this continuing problem of single-use plastics." She added: "Look at all the wasted stuff we throw away - clothing, shoes, electronics like cellphones and computers. We are taking things from the earth at a faster rate than we can return them."

Sources: <https://phys.org/news/2021-04-biodegradable-plastics-compostable.html>
<https://www.sciencenews.org/article/plastic-compost-new-enzyme-technique-biodegradable>
<https://www.abc.net.au/news/science/2021-04-22/biodegradable-plastic-compost-enzymes-environment-soil-green/100082958>

WARM-UPS

1. BIODEGRADABLE PLASTIC: Students walk around the class and talk to other students about biodegradable plastic. Change partners often and share your findings.

2. CHAT: In pairs / groups, talk about these topics or words from the article. What will the article say about them? What can you say about these words and your life?

plastic / blight / landscape / environmentalist / alternatives / straw / organic / heat / product / polyester / enzymes / nutrients / molecules / single-use plastics / electronics

Have a chat about the topics you liked. Change topics and partners frequently.

3. PLASTIC TAX: Students A **strongly** believe there should be a heavy tax on plastic; Students B **strongly** believe the opposite. Change partners again and talk about your conversations.

4. ALTERNATIVES: What could we use instead of plastic for these things? Would this be better? Complete this table with your partner(s). Change partners often and share what you wrote.

	Alternative	Better?
Bags		
Straws		
Bottles		
Utensils		
Pens		
Furniture		

5. WILDLIFE: Spend one minute writing down all of the different words you associate with the word "wildlife". Share your words with your partner(s) and talk about them. Together, put the words into different categories.

6. WASTED STUFF: Rank these with your partner. Put the things we should never throw away at the top. Change partners often and share your rankings.

- Clothing
- Shoes
- Cellphones
- Computers
- Books
- Bicycles
- Carpets
- Newspapers

VOCABULARY MATCHING

Paragraph 1

- | | |
|----------------|--|
| 1. blight | a. A period of ten years. |
| 2. decade | b. One or more things available as another possibility. |
| 3. plea | c. Material that is not wanted. |
| 4. alternative | d. A request made in an urgent and emotional manner. |
| 5. utensils | e. Make or become rotten; decay or cause to decay. |
| 6. decompose | f. A thing that spoils or damages something. |
| 7. waste | g. A thing, container, or other article, especially for household use. |

Paragraph 2

- | | |
|------------------------|--|
| 8. polyester | h. A substance produced by a living organisms which bring about a specific biochemical reaction. |
| 9. enzyme | i. Leave something uncovered or unprotected, especially from the weather. |
| 10. exposed | j. Things we use that have transistors or microchips in them. |
| 11. nutrients | k. The upper layer of earth in which plants grow. |
| 12. soil | l. Substances that provide nourishment essential for growth and life. |
| 13. on the right track | m. A synthetic resin used to make plastic. |
| 14. electronics | n. Going in the right direction or doing the right things to be successful. |

BEFORE READING / LISTENING

From <https://breakingnewsenglish.com/2104/210424-biodegradable-plastic.html>

1. TRUE / FALSE: Read the headline. Guess if a-h below are true (T) or false (F).

- a. The article says plastic is very bright in the landscape. **T / F**
- b. The article says scientists have several solutions for plastic. **T / F**
- c. The scientists said the plastic they created could be compostable. **T / F**
- d. The new biodegradable plastic could take weeks to decompose. **T / F**
- e. The new plastic contains enzyme-eating polyester. **T / F**
- f. The new plastic biodegrades into lactic acid and feeds the soil. **T / F**
- g. A professor said her team are on the left track. **T / F**
- h. A professor said we are taking things from Earth at a slower rate. **T / F**

2. SYNONYM MATCH:

Match the following synonyms. The words in **bold** are from the news article.

- | | |
|----------------------|---------------|
| 1. blight | a. figure out |
| 2. pleas | b. throw away |
| 3. switch | c. implanting |
| 4. dispose of | d. requests |
| 5. break down | e. pace |
| 6. embedding | f. nuisance |
| 7. exposed | g. squandered |
| 8. solve | h. decompose |
| 9. wasted | i. change |
| 10. rate | j. introduced |

3. PHRASE MATCH: (Sometimes more than one choice is possible.)

- | | |
|---|-------------------------|
| 1. Plastic has been a blight | a. enzymes |
| 2. a deadly threat to | b. waste |
| 3. switch to biodegradable | c. track |
| 4. the billions of plastic bags, cups, straws | d. wildlife for decades |
| 5. break down as naturally as organic | e. to heat and water |
| 6. embedding polyester-eating | f. on the landscape |
| 7. When these enzymes are exposed | g. stuff we throw away |
| 8. This provides nutrients | h. and utensils |
| 9. we are on the right | i. for the soil |
| 10. all the wasted | j. alternatives |

COMPREHENSION QUESTIONS

From <https://breakingnewsenglish.com/2104/210424-biodegradable-plastic.html>

1. What does the article say plastic has been a blight on?
2. What does the article say we could switch to?
3. What could the new plastic break down as naturally as?
4. Where are the scientists from?
5. How long might the plastic take to biodegrade?
6. What has been embedded in the new plastic?
7. What does the new plastic become after it decomposes?
8. How much of the teams plastic degraded into small molecules?
9. What kind of track did a professor say her team was on?
10. Where did a professor say we are taking things from?

AFTER READING / LISTENING

From <https://breakingnewsenglish.com/2104/210424-biodegradable-plastic.html>

1. WORD SEARCH: Look in your dictionary / computer to find collocates, other meanings, information, synonyms ... for the words 'biodegradable' and 'plastic'.

biodegradable	plastic

- Share your findings with your partners.
- Make questions using the words you found.
- Ask your partner / group your questions.

2. ARTICLE QUESTIONS: Look back at the article and write down some questions you would like to ask the class about the text.

- Share your questions with other classmates / groups.
- Ask your partner / group your questions.

3. GAP FILL: In pairs / groups, compare your answers to this exercise. Check your answers. Talk about the words from the activity. Were they new, interesting, worth learning...?

4. VOCABULARY: Circle any words you do not understand. In groups, pool unknown words and use dictionaries to find their meanings.

5. TEST EACH OTHER: Look at the words below. With your partner, try to recall how they were used in the text:

<ul style="list-style-type: none">• blight• switch• form• billions• waste• weeks	<ul style="list-style-type: none">• involves• exposed• soil• small• solve• rate
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BIODEGRADABLE PLASTIC DISCUSSION

STUDENT A's QUESTIONS (Do not show these to student B)

1. What did you think when you read the headline?
2. What images are in your mind when you hear the word 'biodegradable'?
3. What do you think of plastic?
4. How do you feel when you see plastic waste in the countryside?
5. What damage is plastic doing to Earth?
6. How do you dispose of plastic?
7. How could you switch to alternatives to plastic?
8. What do you think of compostable plastic?
9. Do we need the plastic stuff around us right now to be made of plastic?
10. How good are you at recycling?

Scientists make biodegradable plastic – 24th April, 2021
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BIODEGRADABLE PLASTIC DISCUSSION

STUDENT B's QUESTIONS (Do not show these to student A)

11. Did you like reading this article? Why/not?
12. What do you think of when you hear the word 'plastic'?
13. What do you think about what you read?
14. How beneficial would biodegradable plastic be?
15. How is plastic made?
16. What do you think of single-use plastics?
17. How can we get all governments to focus on reducing plastic use?
18. What photos have you seen of plastic harming wildlife?
19. Should governments introduce a plastic tax?
20. What questions would you like to ask the scientists?