

Scientists make biodegradable plastic

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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: phys.org / sciencenews.org / abc.net.au

Writing

We should all pay a big tax for products made of plastic. Discuss.

Chat

Talk about these words from the article.

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

True / False

- 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

Synonym Match

(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 |

Discussion – Student A

- a) What do you think of plastic?
- b) How do you feel when you see plastic waste in the countryside?
- c) What damage is plastic doing to Earth?
- d) How do you dispose of plastic?
- e) How could you switch to alternatives to plastic?
- f) What do you think of compostable plastic?
- g) Do we need the plastic stuff around us right now to be made of plastic?
- h) How good are you at recycling?

Phrase Match

- | | |
|---|-------------------------|
| 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 |

Discussion – Student B

- What do you think about what you read?
- How beneficial would biodegradable plastic be?
- How is plastic made?
- What do you think of single-use plastics?
- How can we get all governments to focus on reducing plastic use?
- What photos have you seen of plastic harming wildlife?
- Should governments introduce a plastic tax?
- What questions would you like to ask the scientists?

Spelling

- Plastic has been a ilhbtg on the landscape
- switch to biodegradable arenltiteavs
- plastic bags, cups, straws and iesstnl
- could be copmlbsoeta
- they could mcopodees and break down
- a few weeks, rather than uestcrein
- involves embedding polyester-eating yneemsz
- during the production ceporss
- eedsoxp to heat and water
- This provides nitteusnr for the soil
- degraded into small loelmuecs
- srnceiloet like cellphones and computers

Answers – Synonym Match

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

Role Play

Role A – Clothing

You think clothing is top of the list of things never to throw away. Tell the others three reasons why. Tell them why it is OK to throw their things away. Also, tell the others which of these is top of the list of things that can be disposed of (and why): computers, books or bicycles.

Role B – Computers

You think computers are top of the list of things never to throw away. Tell the others three reasons why. Tell them why it is OK to throw their things away. Also, tell the others which of these is top of the list of things that can be disposed of (and why): clothing, books or bicycles.

Role C – Books

You think books are top of the list of things never to throw away. Tell the others three reasons why. Tell them why it is OK to throw their things away. Also, tell the others which of these is top of the list of things that can be disposed of (and why): computers, clothing or bicycles.

Role D – Bicycles

You think bicycles are top of the list of things never to throw away. Tell the others three reasons why. Tell them why it is OK to throw their things away. Also, tell the others which of these is top of the list of things that can be disposed of (and why): computers, books or clothing.

Speaking – 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.

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

Answers – True False

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