

## Bacteria-filled concrete to end holes in roads

5th December, 2014



Drivers the world over may soon have respite from potholes and cracks in the road. Scientists from the universities of Bath, Cambridge

and Cardiff have come up with a novel and innovative solution to plugging gaps and holes in roads and highways. They have created a bacteria-filled concrete to prevent cracks in a road from becoming larger. The concrete is full of bacteria that open when water seeps into a crack. The bacteria burst open and inject limestone into the crack, thus filling and repairing it to avert more serious damage. The scientists believe their discovery could considerably increase the lifespan of roads, reduce repairs, and lower roadwork costs by up to 50 per cent.

The new concrete could be good news for the environment. Scientists estimate that over seven per cent of the world's CO2 emissions come from the production of cement. If less cement is needed to repair roads, there will be fewer pollutants entering the atmosphere. Another benefit of the new cement is a reduction in accidents, injuries and deaths that result from potholes. Thousands of motorists and pedestrians worldwide are killed because drivers swerve to avoid holes in roads. There is also good news for local governments. In Britain alone, at least 40,000 drivers a year claim compensation for damages to their car caused by potholes. The concrete could be put to use in the next 20 years.

Sources: [Telegraph.co.uk](http://www.telegraph.co.uk) / [DailyMail.co.uk](http://www.dailymail.co.uk) / [theiet.org](http://www.theiet.org)

### Writing

There should be fewer roads and more cycle paths. Discuss.

### Chat

Talk about these words from the article.

*drivers / respite / innovative / solution / bacteria / serious damage / lifespan / repairs / concrete / CO2 / emissions / pollutants / pedestrians / governments / compensation*

### True / False

- Only drivers in British university cities will get the new roads. T / F
- Scientists have developed a bacteria that is sprayed on top of roads. T / F
- The bacteria open to release gap-plugging limestone. T / F
- Scientists estimate the new concrete will reduce repair costs by 20%. T / F
- Seven per cent of CO2 emissions is from the production of concrete. T / F
- The new concrete could lead to a reduction in levels of pollution. T / F
- Around 40,000 motorists in the UK die each year because of potholes. T / F
- The new concrete could be in use in the next two decades. T / F

### Synonym Match

- |             |                     |
|-------------|---------------------|
| 1. drivers  | a. leaks            |
| 2. respite  | b. change direction |
| 3. novel    | c. reduce           |
| 4. seeps    | d. original         |
| 5. lower    | e. guess            |
| 6. estimate | f. not less than    |
| 7. benefit  | g. motorists        |
| 8. swerve   | h. ask for          |
| 9. at least | i. advantage        |
| 10. claim   | j. relief           |

### Discussion – Student A

- How can we reduce CO2 emissions from roads and cars?
- How can we reduce accidents on roads?
- Should there be more space for pedestrians and less space for cars?
- Do people in your country drive well?
- What are the biggest causes of traffic accidents?
- Have you ever been in a traffic accident?
- How excited are you about this new concrete?
- What questions would you like to ask the researchers?

# BreakingNewsEnglish - The Mini Lesson

## Phrase Match

1. a novel and innovative
  2. when water seeps
  3. repairing it to avert
  4. considerably increase the lifespan
  5. lower roadwork costs by up
  6. The new concrete could be good
  7. CO2
  8. there will be fewer pollutants
  9. motorists and
  10. The concrete could be
- a. entering the atmosphere
  - b. to 50 per cent
  - c. pedestrians
  - d. news
  - e. more serious damage
  - f. solution
  - g. put to use
  - h. of roads
  - i. into a crack
  - j. emissions

## Discussion – Student B

- a) What is the condition of roads like in your country?
- b) What do you think about what you read?
- c) Should there be more roads or fewer roads?
- d) How can city planners make roads better?
- e) How serious a problem are potholes?
- f) What do you think of the 'self-repairing' concrete?
- g) What problems do potholes cause?
- h) How great is this new innovation?

## Spelling

1. have espeitr from potholes
2. a novel and ntaoivivne solution
3. vrtepen cracks in a road
4. njitec limestone into the crack
5. rtvae more serious damage
6. ryanslbcideo increase the lifespan of roads
7. good news for the tmvnenroine
8. CO2 siossneim
9. fewer tostalunp| entering the atmosphere
10. motorists and dsitaenrpse
11. drivers esewvr to avoid holes
12. claim esaopocinnmt for damages

### Answers – Synonym Match

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

## Role Play

### Role A – Roads

You think the government needs to spend more money on roads. Tell the others three reasons why. Tell them why their things aren't so good. Also, tell the others which is the least important of these (and why): trains, airports or cycle paths.

### Role B – Trains

You think the government needs to spend more money on trains. Tell the others three reasons why. Tell them why their things aren't so good. Also, tell the others which is the least important of these (and why): roads, airports or cycle paths.

### Role C – Airports

You think the government needs to spend more money on airports. Tell the others three reasons why. Tell them why their things aren't so good. Also, tell the others which is the least important of these (and why): trains, roads or cycle paths.

### Role D – Cycle paths

You think the government needs to spend more money on cycle paths. Tell the others three reasons why. Tell them why their things aren't so good. Also, tell the others which is the least important of these (and why): trains, airports or roads.

## Speaking – Road dangers

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

- holes
- pedestrians
- speeding
- cyclists
- poor signs
- speed limits
- animals
- trucks

### Answers – True False

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