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## **Level 5**

### **Mathematicians work out the perfect cup of coffee**

**17th November, 2016**

<http://www.breakingnewsenglish.com/1611/161117-coffee-machine-5.html>

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**Please try Levels 4 and 6. They are (a little) harder.**

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# THE READING

From <http://www.breakingnewsenglish.com/1611/161117-coffee-machine-5.html>

Mathematicians are using their skills to make the perfect cup of coffee. It is odd that mathematicians are trying to find what is behind the perfect cup of coffee, but coffee consists of 1,800 chemical components. If you combine these with the different ways of brewing coffee, there are many numbers involved. The mathematicians used some complex calculations to find out how to make an ideal cuppa. Researchers Dr William Lee and Dr Kevin Moroney focused on what happens to coffee as it goes through different filter coffee machines.

The scientists hope their research will change the way coffee machines are made. Dr Lee said: "Our overall idea is to have a complete mathematical model of coffee brewing that you could use to design coffee machines, rather like we use a theory...to design racing cars." Coffee lovers might soon be able to adjust the things that affect the taste of the coffee as it is filtered and brewed. These include how hot the water is and how fast it flows, the size of the ground coffee, the length of time it is brewed, and more. The research is published in an Applied Mathematics journal.

Sources: <http://www.bbc.com/news/science-environment-37989169>  
<http://phys.org/news/2016-11-mathematics-coffee-ideal-brew.html>  
<http://dailycoffeenews.com/2016/11/15/extraction-in-drip-filter-machines-science-asks-whats-up-with-that/>  
<http://epubs.siam.org/doi/pdf/10.1137/15M1036658>

# PHRASE MATCHING

From <http://www.breakingnewsenglish.com/1611/161117-coffee-machine-5.html>

## PARAGRAPH ONE:

- |                                     |                           |
|-------------------------------------|---------------------------|
| 1. using their skills to make       | a. cuppa                  |
| 2. find what is                     | b. brewing coffee         |
| 3. coffee consists of 1,800         | c. filter coffee machines |
| 4. the different ways of            | d. chemical components    |
| 5. mathematicians used some complex | e. the perfect cup        |
| 6. how to make an ideal             | f. to coffee              |
| 7. focused on what happens          | g. calculations           |
| 8. it goes through different        | h. behind the perfect cup |

## PARAGRAPH TWO:

- |   |                |
|---|----------------|
| 1. change the way coffee machines       | a. of coffee   |
| 2. a complete mathematical model        | b. taste       |
| 3. we use a theory to design            | c. journal     |
| 4. Coffee                               | d. brewed      |
| 5. adjust the things that affect the    | e. lovers      |
| 6. how hot the water is and how fast it | f. are made    |
| 7. the length of time it is             | g. racing cars |
| 8. published in an Applied Mathematics  | h. flows       |

# LISTEN AND FILL IN THE GAPS

From <http://www.breakingnewsenglish.com/1611/161117-coffee-machine-5.html>

Mathematicians are using their (1) \_\_\_\_\_ the perfect cup of coffee. It is odd that mathematicians are (2) \_\_\_\_\_ what is behind the perfect cup of coffee, but coffee (3) \_\_\_\_\_ chemical components. If you (4) \_\_\_\_\_ with the different ways of brewing coffee, there are many numbers involved. The mathematicians used some (5) \_\_\_\_\_ to find out how to make an ideal cuppa. Researchers Dr William Lee and Dr Kevin Moroney focused on what happens to coffee (6) \_\_\_\_\_ different filter coffee machines.

The scientists hope their research will (7) \_\_\_\_\_ coffee machines are made. Dr Lee said: "Our (8) \_\_\_\_\_ to have a complete mathematical model of coffee brewing that you could use to design coffee machines, (9) \_\_\_\_\_ a theory...to design racing cars." Coffee lovers might soon be (10) \_\_\_\_\_ the things that affect the taste of the coffee as it is filtered and brewed. These include how hot the water (11) \_\_\_\_\_ it flows, the size of the ground coffee, the length of time (12) \_\_\_\_\_ more. The research is published in an Applied Mathematics journal.

# PUT A SLASH ( / ) WHERE THE SPACES ARE

From <http://www.breakingnewsenglish.com/1611/161117-coffee-machine-5.html>

Mathematicians are using their skills to make the perfect cup of coffee. It is so odd that mathematicians are trying to find what is behind the perfect cup of coffee, but coffee consists of 1,800 chemical components. If you combine these with the different ways of brewing coffee, there are many numbers involved. The mathematicians used some complex calculations to find out how to make an ideal cuppa. Researchers Dr William Lee and Dr Kevin Moroney focused on what happens to coffee as it goes through different filters in coffee machines. The scientists hope their research will change the way coffee machines are made. Dr Lee said: "Our overall idea is to have a complete mathematical model of coffee brewing that you could use to design coffee machines, rather like we use at theory... to design racing cars." Coffee lovers might soon be able to adjust the things that affect the taste of the coffee as it is filtered and brewed. These include how hot the water is and how fast it flows, the size of the ground coffee, the length of time it is brewed, and more. The research is published in an Applied Mathematics journal.

# COFFEE SURVEY

From <http://www.breakingnewsenglish.com/1611/161117-coffee-machine-4.html>

Write five GOOD questions about coffee in the table. Do this in pairs. Each student must write the questions on his / her own paper. When you have finished, interview other students. Write down their answers.

	STUDENT 1 _____	STUDENT 2 _____	STUDENT 3 _____
Q.1.			
Q.2.			
Q.3.			
Q.4.			
Q.5.			

- Now return to your original partner and share and talk about what you found out. Change partners often.
- Make mini-presentations to other groups on your findings.

## WRITE QUESTIONS & ASK YOUR PARTNER(S)

Student A: Do not show these to your speaking partner(s).

a) \_\_\_\_\_

b) \_\_\_\_\_

c) \_\_\_\_\_

d) \_\_\_\_\_

e) \_\_\_\_\_

f) \_\_\_\_\_

*Mathematicians work out the perfect cup of coffee – 17th November, 2016*  
More free lessons at [www.BreakingNewsEnglish.com](http://www.BreakingNewsEnglish.com)

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## WRITE QUESTIONS & ASK YOUR PARTNER(S)

Student B: Do not show these to your speaking partner(s).

a) \_\_\_\_\_

b) \_\_\_\_\_

c) \_\_\_\_\_

d) \_\_\_\_\_

e) \_\_\_\_\_

f) \_\_\_\_\_

