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Level 4

Mathematicians work out the perfect cup of coffee

17th November, 2016

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

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Please try Levels 5 and 6. They are (a little) harder.

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THE READING

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

Mathematicians are trying to make the perfect cup of coffee. It might seem strange that mathematicians are trying to do this, but coffee has 1,800 chemical components. If you combine these with the different ways of making coffee, there are a lot of numbers. The mathematicians had to use many complex calculations to find the perfect method. Researchers focused on what happens to coffee as it goes through coffee machines.

The research could change the way coffee machines are made. A researcher said he wanted, "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 change the taste of the coffee as they filter and brew it. They could change the water temperature, the size of the ground coffee, the length of time needed to make it, and more.

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-4.html>

PARAGRAPH ONE:

- | | |
|--------------------------------------|----------------------------|
| 1. It might seem | a. making coffee |
| 2. mathematicians are trying to | b. method |
| 3. 1,800 chemical | c. strange |
| 4. different ways of | d. through coffee machines |
| 5. there are a lot | e. do this |
| 6. use many complex | f. components |
| 7. find the perfect | g. of numbers |
| 8. what happens to coffee as it goes | h. calculations |

PARAGRAPH TWO:

- | | |
|-----------------------------------|------------------------|
| 1. change the way coffee machines | a. brew it |
| 2. mathematical model of coffee | b. ground coffee |
| 3. coffee | c. are made |
| 4. change the | d. to make it |
| 5. they filter and | e. brewing |
| 6. They could change the water | f. lovers |
| 7. the size of the | g. temperature |
| 8. the length of time needed | h. taste of the coffee |

LISTEN AND FILL IN THE GAPS

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

Mathematicians are trying to (1) _____ cup of coffee. It might (2) _____ mathematicians are trying to do this, but coffee (3) _____ components. If you combine these with the different ways of making coffee, there are (4) _____.

The mathematicians had to use many (5) _____ to find the perfect method. Researchers focused on what happens to coffee (6) _____ coffee machines.

The research could (7) _____ coffee machines are made. A researcher said he wanted, "a complete (8) _____ coffee brewing that you could (9) _____ coffee machines, rather like (10) _____...to design racing cars". Coffee lovers might soon be able change the taste of the coffee (11) _____ and brew it. They could change the water temperature, the size of the ground coffee, (12) _____ needed to make it, and more.

PUT A SLASH (/) WHERE THE SPACES ARE

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

Mathematicians are trying to make the perfect cup of coffee. It might seem so strange that mathematicians are trying to do this, but coffee has 1,800 chemical components. If you combine these with the different ways of making coffee, there are a lot of numbers. The mathematicians had to use many complex calculations to find the perfect method. Researchers focus on what happens to coffee as it goes through coffee machines. These researchers could change the way coffee machines are made. A researcher said he wanted, "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 change the taste of the coffee as they filter and brew it. They could change the water temperature, the size of the ground coffee, the length of time needed to make it, and more.

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) _____

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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) _____

