Collect Them All

# Scenario

Your uncle owns a café. In a bit to increase sales he decides to run a promotion where for every hot beverage purchased, customers are given a mystery token. The tokens have the letters ‘C’, ‘O’,’F’ and ‘E’ on them. When customers can spell out the word ‘coffee’ with their tokens they get a free cup of coffee with the muffin of their choice. You want to know how many hot beverages (on average) you would need to buy to get a free cup of coffee and a muffin.

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| *You can assume that you have an equal chance of getting a c, o, f and e* |

Write a program to model the competition. Your program should…

* Randomly choose a letter
* Continue to choose letters until the word ‘coffee’ can be spelled out
* Display all the letters that have been chosen and state how many attempts were needed to get all of the required letters

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| Extension (optional) Generalise your program so that…   * Users can state what letters (or items) are available and what letters (or items) are needed * The program can be run multiple times ‘in one go’ where…   + The number of attempts for each time is recorded   + The program records the least, most and average number of times needed to win the prize * The program allows users to enter the typical price of the item being bought and it then works out how much needs to be spent to win a prize. |

## Task

1. Decompose the problem (write down the decomposition on the template supplied)
2. For each part of the problem, write (and test) each piece of code. Before you write a piece of code, you should generate a quick test plan so that you can confirm that the code works correctly.
3. Combine your code into a fully working program
4. Test and debug your program to ensure that it works for expected, boundary and unexpected values
5. Ask a friend / parent to play your game. Watch them as they do this and make note of any changes that could be made to make the game easier to use
6. Make the changes identified in the previous step
7. Retest your game to ensure that it still works correctly