

GCSE Computer Science

Example lesson plan for introducing variables and constants

Component 2 – specification content section 3.1.1

This lesson plan can be used in conjunction with AQA's [Example Scheme of Work](#)

Length of Lesson

1 hour

Context

Introduction to variables and constants – Lesson one

Resources

- A collection of paper cups, small sweets, eg Jelly babies
- Cling film, marker/whiteboard pens
- An interpreted language such as Python

Lesson Objectives

1. Understand what a variable is
2. Understand what a constant is

Teaching and Learning Activities

5 mins Register and other admin

- 10 mins
- Get 4 students at the front of the class and give them each a paper cup
 - Ask them to write their initials on the cup and the teacher writes the initials on the whiteboard
 - Assign a number of sweets to the first 2 cups, eg cup 1 = 3 sweets, cup 2 = 2 sweets
 - Assign an expression to the other 2 cups, eg cup 3 = cup 1 + cup 2, cup 4 = cup 2 / 2 (ensure all expressions chosen result in an integer answer at this stage)
 - Ask the "owners" of cups 1 and 2 to put the correct number of sweets in their cup
 - Now ask the "owner" of cups 1, 2 and 3 how they will make sure cup 3 will contain the correct number of sweets. A number of responses could be given but the teacher needs to use them to explain that the value in cup 1 would be inspected and an identical number of sweets added to cup 3 without altering the sweets in cup 1 etc

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| 20 mins | <ul style="list-style-type: none">• Introduce the pseudocode (for assignment and set exercises) involving the cups• Show students how to declare integer variables and assign values using an interpreter for their language. (If an interpreter does not exist then frame these in a simple program.) Ensure all expressions chosen result in an integer answer at this stage |
| 10 mins | <ul style="list-style-type: none">• Introduce the concept of a constant as an “unchanging variable”. Place some sweets in a cup and cover it with cling film so the contents can still be inspected. Explain that the value is there and can be inspected but it cannot be changed• In pairs ask the students to identify several constants and several variables in their everyday life and justify why they have categorised them in that way |
| 10 mins | Peer evaluation – each group presents their list of constants and variables to the class and explains what they have learnt. The groups are marked using a teacher provided peer assessment sheet |
| 5 mins | Issue and explain homework: Teacher provides and explains a sheet containing “correct” definitions of a variable and constant along with several “problems” in pseudocode format that students must categorise as either variables or constants in the context of the problem. Ensure all expressions chosen result in an integer answer at this stage |