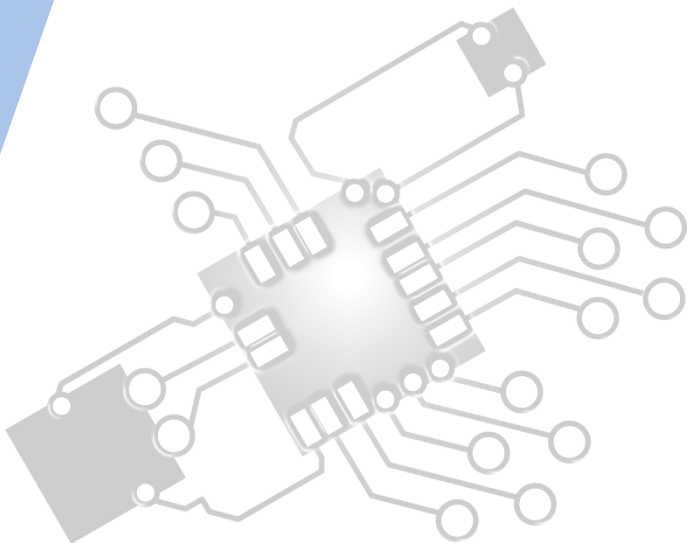# *Computational thinking, problem-solving and programming:*

Connecting computational thinking and program design
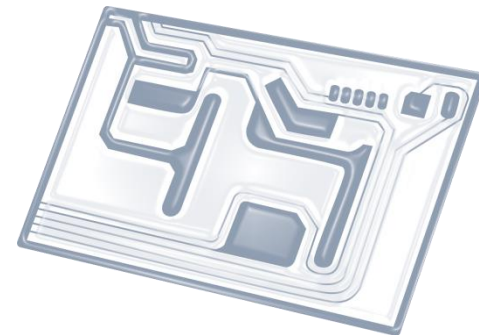
IB Computer Science

Content developed by
Dartford Grammar School
Computer Science Department

HL Topics 1-7, D1-4

1: System design

2: Computer Organisation

3: Networks
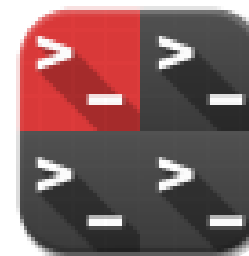
4: Computational thinking

5: Abstract data structures

6: Resource management

7: Control

D: OOP

HL & SL 4.2 Overview

4.2.1 Describe the characteristics of standard algorithms on linear arrays

4.2.2 Outline the standard operations of collections

4.2.3 Discuss an algorithm to solve a specific problem

4.2.4 Analyse an algorithm presented as a flow chart

4.2.5 Analyse an algorithm presented as pseudocode

4.2.6 Construct pseudocode to represent an algorithm

4.2.7 Suggest suitable algorithms to solve a specific problem

4.2.8 Deduce the efficiency of an algorithm in the context of its use

4.2.9 Determine the number of times a step in an algorithm will be performed for given input data

1: System design

2: Computer Organisation

3: Networks

4: Computational thinking
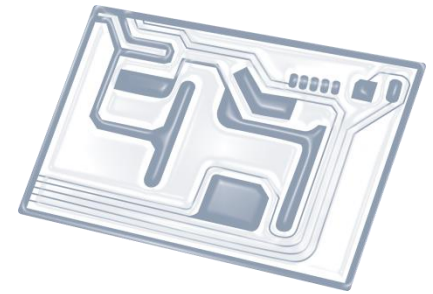
5: Abstract data structures

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D: OOP

Topic 4.2.6

Construct pseudocode to represent an algorithm
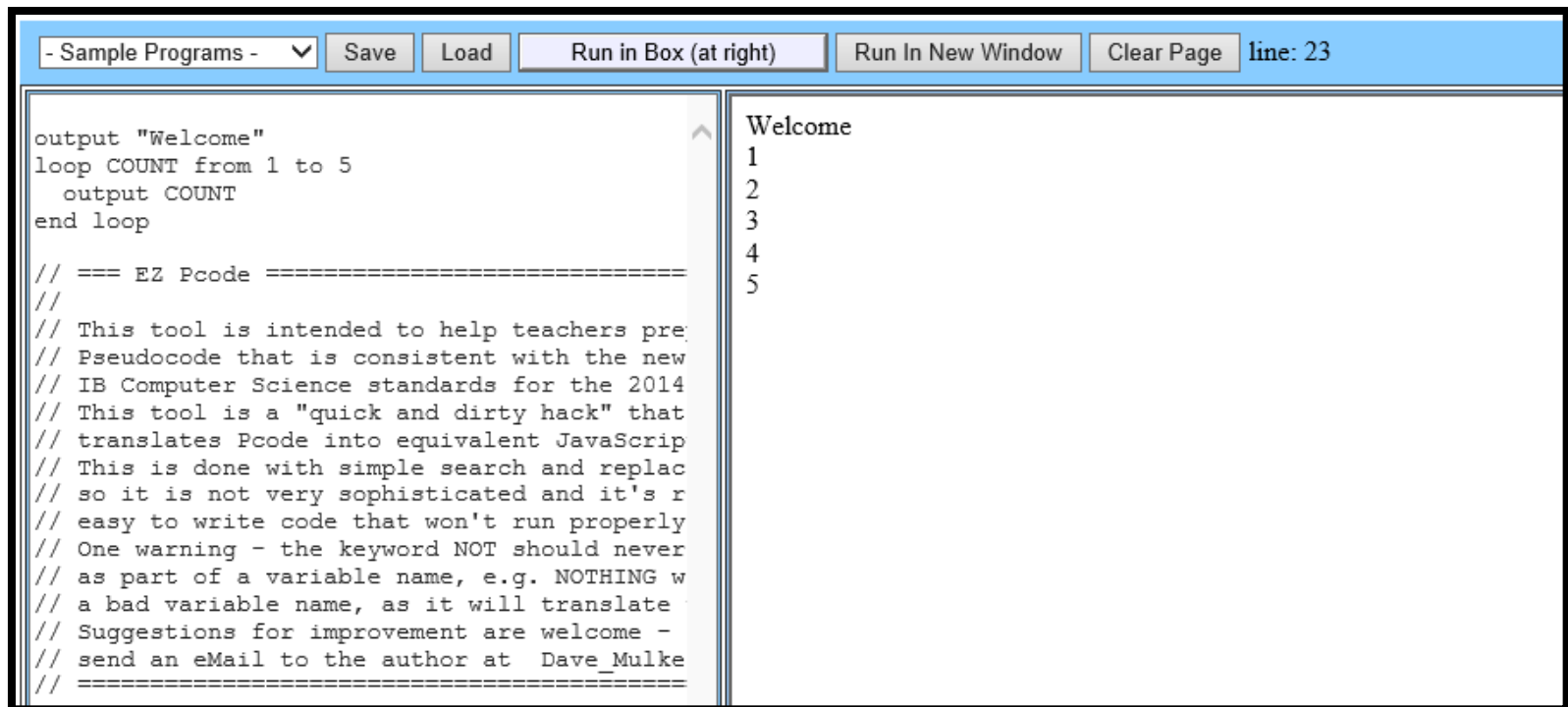
Teacher's notes:

- *Examination questions may involve **variables, calculations, simple** and **nested loops**, simple **conditionals** and **multiple** or **nested conditionals**.*

- *This would include **tracing an algorithm** as well as assessing its **correctness.***

Best method: PRACTICE THIS!

Use the *D. Mulkey's* **ONLINE PSEUDO CODE GENERATOR**:

https://dl.dropboxusercontent.com/u/275979/ibcomp/pseduocode/pcode.html