# *Computational thinking, problem-solving and programming:*
## *General Principals*
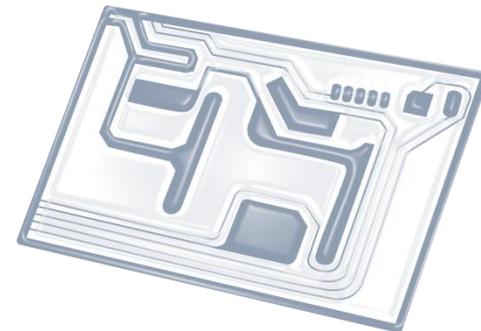
## IB Computer Science
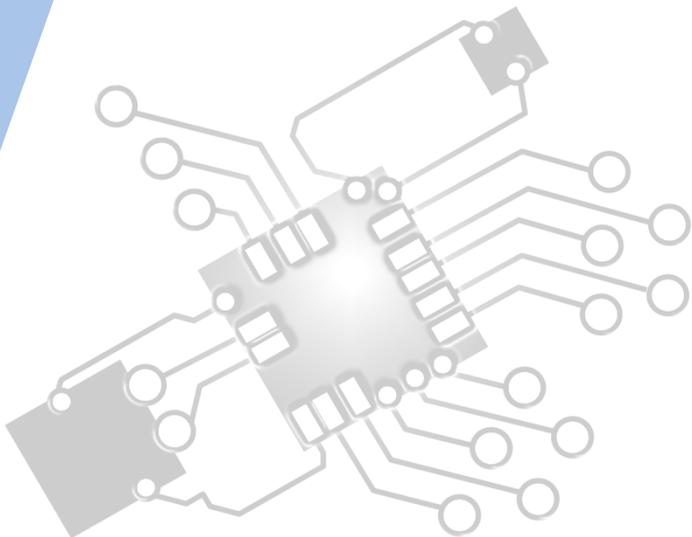
# HL Topics 1-7, D1-4

1: System design

2: Computer Organisation

3: Networks

4: Computational thinking

5: Abstract data structures

6: Resource management

7: Control

D: OOP

# HL & SL 4.1 Overview


**1: System design**


**2: Computer Organisation**


**3: Networks**


**4: Computational thinking**


**5: Abstract data structures**


**6: Resource management**


**7: Control**


**D: OOP**

**Thinking procedurally**

4.1.1 Identify the procedure appropriate to solving a problem

4.1.2 Evaluate whether the order in which activities are undertaken will result in the required outcome

4.1.3 Explain the role of sub-procedures in solving a problem

**Thinking logically**

4.1.4 Identify when decision-making is required in a specified situation

4.1.5 Identify the decisions required for the solution to a specified problem

4.1.6 Identify the condition associated with a given decision in a specified problem

4.1.7 Explain the relationship between the decisions and conditions of a system

4.1.8 Deduce logical rules for real-world situations

**Thinking ahead**

4.1.9 Identify the inputs and outputs required in a solution

4.1.10 Identify pre-planning in a suggested problem and solution

4.1.11 Explain the need for pre-conditions when executing an algorithm

4.1.12 Outline the pre- and post-conditions to a specified problem

4.1.13 Identify exceptions that need to be considered in a specified problem solution

**Thinking concurrently**

4.1.14 Identify the parts of a solution that could be implemented concurrently

4.1.15 Describe how concurrent processing can be used to solve a problem

4.1.16 Evaluate the decision to use concurrent processing in solving a problem

**Thinking abstractly**

4.1.17 Identify examples of abstraction

4.1.18 Explain why abstraction is required in the derivation of computational solutions for a specified situation

4.1.19 Construct an abstraction from a specified situation

4.1.20 Distinguish between a real-world entity and its abstraction
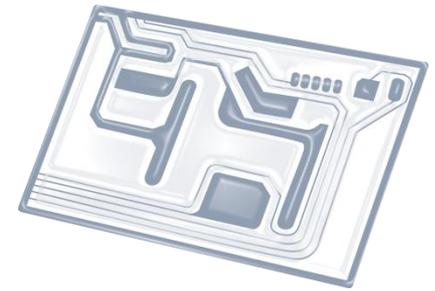
# Topic 4.1.2

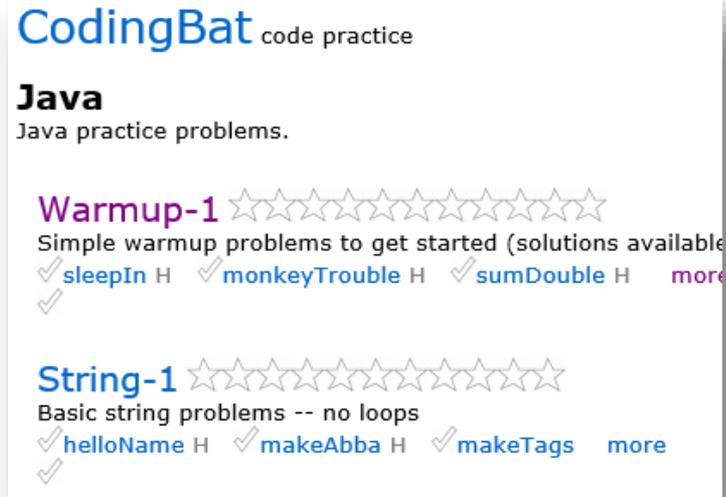Evaluate whether the **order** in which activities are undertaken will result in the required outcome

# Best practice for this?
# Do some Java problems!



https://www.codechef.com/problems/school



http://codingbat.com/java