# Year 12 Computer Science
## Component 1

### TOPIC 6: PROGRAMMING LANGUAGES

- I can explain the need for and characteristics of a range of programming paradigms.
- I can answer questions using LMC assembly language.
- I understand the features and benefits of OOP, and can code using OOP.

On to Year 13!

### TOPIC 5: SOFTWARE DEVELOPMENT

- I can produce effective algorithms to aid software development.
- I can explain the features of extreme programming, spiral and RAD methodologies.
- I can explain the features of the waterfall and agile methodologies.
- I can explain the role of linkers and loaders, and can explain the importance of libraries.
- I can describe and justify a range of test strategies for a range of given situations.

### TOPIC 4: APPLICATION GENERATION

- I can name the 4 stages of compilation and can explain what happens at each.
- I can explain the role, similarities and differences of different forms of translator.
- I can give examples of a range of applications, including open- and closed-source apps.

### TOPIC 3: SYSTEMS SOFTWARE

- I can describe the features, pros and cons of different approaches to scheduling in an operating system.
- I can explain the role of BIOS, device drivers and virtual machines.
- I can explain the role of interrupts and Interrupt Service routines in the FDR cycle.
- I can describe the features, pros and cons of different forms of memory management.

### TOPIC 2: INPUT, OUTPUT, STORAGE

- I can explain the features of, and need for, RAM, ROM and virtual storage.
- I can explain the features of magnetic, flash and optical storage devices, and can give examples of each.
- I can related different devices to different problems which need to be solved.

### TOPIC 1: THE PROCESSOR

- I understand the process of pipelining to improve efficiency.
- I can explain factors affecting CPU performance in different CPU architectures.
- I can describe the Fetch, Decode and Execute Cycle, including the impacts on registers.
- I can name the components of a CPU (ALU, CU, MDR, etc), and explain the role of each.

**Note: The topics of programming, data types and Booleans will be taught throughout this timeline.**

The Marlborough Science Academy
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