



PLUME ACADEMY - LEARNING OVERVIEW

Year	10
Course	Computer Science
Specification Number/Exam Board	OCR
End of course assessment and weightings	Computer Systems: 50% Computational Thinking, Algorithms and Programming: 50%

Prior Learning

The GCSE Computer Science course builds on your child's Key Stage 3 experience by using their understanding of procedural programming techniques including sequence, selection and iteration. Key Stage 3 students also have a clear understanding of how algorithms are used in technology and how algorithms are used with data sets. Furthermore, students will have been taught about the components inside a computer and the binary number system.

Curriculum Intent – What are the curriculum aims?

GCSE Computer Science aims to develop a student's procedural programming skill so they are proficient in using programming techniques to solve problems. Programming techniques will be used in both an in class extended programming project as well as writing solutions to a given problem in the exam. Students need to be able to identify sorting and searching algorithms as well as be able to use these on a provided set of data. The course will develop the student's understanding of how computer hardware components work, which includes memory, storage, networking. This progresses on to how computing hardware is managed using an operating system and utility software. Finally, students will have explored the ethical, legal, cultural and environmental impact of technology, which includes the legislation relevant to the subject.

Curriculum Implementation – What my child will be learning?

Term 1	Half Term 1	Memory and storage Programming fundamentals
	Half Term 2	Memory and storage Programming fundamentals
Term 2	Half Term 3	Memory and storage Computer networks, connections and protocols Programming fundamentals
	Half Term 4	Computer networks, connections and protocols Producing robust programs
Term 3	Half Term 5	Computer networks, connections and protocols Producing robust programs Practical programming
	Half Term 6	Systems architecture Revision and in-class mock exams



Curriculum Impact – How will progress be assessed as I learn?

Lessons are grouped into topics and each of these will have their own assessment. Assessments take the format of past exam questions. Each end of topic assessment will also contain questions from topics taught previously. At the end of the year students will complete an in-class mock exam on the content taught up to the end of Year 10.

Super-Curricular Opportunities – Support and Extending Learning

Useful study resources	If a student is really passionate about this subject...	As a parent/carer, I can assist my child in this subject by:
OCR course website page Craig 'n' Dave revision videos W3Schools Python programming practice	Follow and subscribe to various YouTube channels for both Computer Science: • Computerphile • Tech with Tim Develop your own programming projects using object-oriented programming. Visit the National Museum of Computing. Enquire about continuing to study Computer Science at A-level at Plume College.	Encouraging them to attend the after-school revision session. Purchasing our recommended revision guide (OCR GCSE 9-1 Computer Science by Collins). Encouraging them to practice programming skills at home. Support your child's development of Computer Science specific keywords and terminology.

Recall

Students could recall previous lessons in learning through starter tasks in lessons, end-of-lesson Kahoot's which usually include questions from previous parts of the curriculum, and 'no hands-up' questions by the Teacher. Additionally, students can engage in various other recall activities such as:

- **Low-stakes quizzes:** Short, frequent quizzes (paper-based or digital) that focus on recently covered material, designed more for checking understanding than for grading.
- **Think-Pair-Share:** Students first think individually about a question, then discuss their thoughts with a partner, and finally share with the class. This encourages individual recall and peer discussion.
- **Peer teaching/explaining:** Students explain a concept to a classmate, which forces them to retrieve and articulate their understanding.
- **Exam Questions:** Students regularly start lessons with exams questions from previous topics to support learning



Assessment: Formal end of topic assessments will contain questions from previous learnt topics

Subject-specific terminology

1. **Module (Programming):** A self-contained block of code designed to perform a specific task, often used to organize larger programs.
2. **Parameter:** A special variable used in a function or subroutine definition to accept values passed into it.
3. **Bus (Architecture):** A communication system that transfers data between different components within a computer, such as the CPU and memory.
4. **Register (CPU):** A small, very fast storage location directly within the Central Processing Unit that holds data being actively processed.
5. **Hub (Networking):** A basic network device that connects multiple devices together, broadcasting all received data to every connected device.
6. **Switch (Networking):** A more intelligent network device than a hub, which connects devices and sends data only to the specific device it's intended for.
7. **Bit:** The smallest unit of data in a computer, represented as either a 0 or a 1.
8. **Byte:** A unit of digital information that consists of eight bits.
9. **High-level Language:** A programming language that uses English-like commands and is easier for humans to understand and write code in.
10. **Server:** A computer program or device that provides services or data to other computers (clients) over a network.