

CAMBRIDGE IGCSE

Computer Science 0478

Syllabus Overview

Examinations 2026, 2027 and 2028

Understanding the whole syllabus

The subject connects how digital systems work with how useful solutions are designed and evaluated. Knowing a term is only the starting point: you need to explain a system, apply a method and judge whether a solution meets its requirements. The assessment route determines whether those skills are demonstrated on paper or at a computer.

For Computer Science 0478, the content map below follows the approved subject briefing and the official syllabus. Labels group related areas for orientation; the detailed syllabus remains the authority for individual learning requirements.

Content map

Syllabus area or component	What the area covers
Two connected syllabus strands	The syllabus is divided into two connected sections.
1-4: Representation, transmission, hardware and software	Computer Systems begins with data representation and transmission. You will study binary and hexadecimal systems, images, sound, data storage, transmission methods and error detection. You will then examine computer hardware, software, operating systems and translators.
5-6: Internet and emerging technologies	This section also covers the internet, cybersecurity, automated systems, robotics, artificial intelligence and other emerging technologies.
7-10: Algorithms, programming, databases and logic	Algorithms, Programming and Logic develops practical computational thinking. You will design algorithms, use flowcharts and pseudocode, write and test programs, work with variables, arrays, procedures, functions and files, and learn how to identify and correct errors. You will also study databases, query design and Boolean logic.
Computational skills	Assessment measures your knowledge of computing principles, your ability to apply them to unfamiliar situations, and your skill in designing and evaluating solutions.

These areas should be read as a connected course. Begin with the foundational knowledge identified in the first part of the map, then build towards the applications and explanations that depend on it. Alternate explanation with application. Keep an organised record of commands, algorithms or procedures and the errors they resolve. Practise the assessed mode, including written reasoning when an examination is paper-based. Where a row describes a choice of topics or components, study the selection required by your agreed route rather than treating all alternatives as compulsory.

Qualification and component choices

All candidates follow the component structure shown in the Assessment Overview. There is no separate Core/Extended route in this syllabus.

Computer Science 0478 uses written examinations. It must not be confused with the separate digital Computer Science 0265 syllabus.

The assessed skills

Assessment objectives describe the abilities Cambridge looks for across the qualification. The following explanations paraphrase the syllabus objectives; they are not additional topics or separate orientation tasks.

Assessment objective	Meaning for the learner
AO1: Knowledge and understanding	Explain the principles and concepts of computer science accurately.
AO2: Application	Apply concepts to a given context, including analysis and design of computational problems.
AO3: Solutions and evaluation	Evaluate systems and solutions, make reasoned judgements and communicate conclusions.

These abilities work together in an answer. Accurate knowledge supports application, while a clear explanation shows how the evidence or method leads to a conclusion. The balance varies by component, so the next lesson connects these abilities with the actual assessment formats.

Key pointers: Follow the stated examination-year syllabus, cover the required areas for your route and develop skills alongside knowledge. **Next:** Open **Assessment Overview**.