

Pearson Edexcel International GCSE (9–1)

May–June 2022 Assessment Window

Syllabus
reference

4CPO

Computer Science Advance Information

You are not permitted to take this notice into the examination.
This document is valid if downloaded from the [Pearson Qualifications website](#).

Instructions

- Please ensure that you have read this notice before the examination.

Information

- This notice covers Component 01 only.
- There is no advance information for Component 02.
- The format/structure of the assessments remains unchanged.
- This advance information notice details the focus of the content of the exams in the May–June 2022 assessments.
- There are no restrictions on who can use this notice.
- This notice is meant to help students to focus their revision time.
- Students and teachers can discuss the advance information.
- This document has 5 pages.

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General advice

- In addition to covering the content outlined in the advance information, students and teachers should consider how to:
 - manage their revision of parts of the specification which may be assessed in areas not covered by the advance information
 - manage their revision of other parts of the specification which may provide knowledge that helps with understanding the areas being tested in 2022.
- For specifications with synoptic questions, topics not explicitly given in the advance information may appear, e.g. where students are asked to bring together knowledge, skills and understanding from across the specification.
- For specifications with NEA, advance information does not cover any NEA components.

A link to the Joint Council for Qualifications guidance document on advance information can be found on the Joint Council for Qualifications website or [here](#).

Advance Information

Subject specific section

- For our Pearson Edexcel International GCSE Computer Science Specification, for the Component 01 examination paper, questions within this paper will sample content only from the areas specified in this notice.
- The advance information content is presented in numerical order as set out in the specification, and not reflecting the question order of the examination papers.
- Some questions may cover more than one area of specified content.
- Any content listed may appear in the examination papers in any question style, from short response questions through to higher tariff extended response questions.

Specification reference		Students should:
1.1 Algorithms	1.1.1	Understand what an algorithm is, what algorithms are used for and be able to interpret algorithms (flowcharts, pseudocode, written descriptions).
	1.1.2	Understand how to create an algorithm to solve a particular problem, making use of programming constructs (sequence, selection, iteration) and using appropriate conventions (pseudocode).
	1.1.5	Understand how to identify and correct errors in algorithms, including using trace tables.
1.2 Decomposition and abstraction	1.2.1	Be able to analyse a problem, investigate requirements (inputs, outputs, processing, initialisation) and design solutions.
3.1 Binary	3.1.1	Understand that computers use binary to represent data (numbers, text, sound, graphics) and program instructions.
	3.1.2	Understand how computers represent and manipulate numbers (sign and magnitude).
	3.1.3	Be able to convert between binary and denary whole numbers (0–255).
	3.1.4	Understand how to perform binary arithmetic (add).
3.2 Data representation	3.2.1	Understand how computers encode characters using ASCII and Unicode.
	3.2.2	Understand how bitmap images are represented in binary (pixels, resolution, colour depth).
	3.2.3	Understand how sound, an analogue signal, is represented in binary.
3.3 Data storage and compression	3.3.2	Understand the need for data compression and methods of compressing data (lossless, lossy).
	3.3.4	Understand that file storage is measured in bytes and be able to calculate file sizes.
4.1 Machines and computational modelling	4.1.2	Understand that there is a range of computational models (sequential, parallel, multi-agent).

Specification reference		Students should:
4.2 Hardware	4.2.2	Understand the function of different types of memory (random-access memory (RAM), read-only memory (ROM)).
	4.2.3	Understand the concept of a stored program and the role of components of the CPU (registers, clock) in the fetch-decode-execute cycle (the Von Neumann model).
	4.2.4	Understand the factors that affect the performance of the CPU (clock speed).
	4.2.5	Understand how data is stored on physical devices (magnetic, optical, solid state).
	4.2.6	Understand the concept of storing data in the 'cloud'.
4.5 Programming languages	4.5.1	Understand what is meant by a low-level programming language and its suitability for a particular task.
	4.5.2	Understand what is meant by an assembler, a compiler and an interpreter when translating programming languages.
5.1 Networks	5.1.2	Understand the different types of networks (local area network (LAN), wide area network (WAN), personal area network (PAN)).
	5.1.7	Understand characteristics of network topologies (ring, mesh).
5.2 Network security	5.2.2	Understand security issues associated with the 'cloud'.
	5.2.3	Understand different forms of cyber attack (based on technical weaknesses and behaviour), including social engineering (phishing, shoulder surfing, pharming), unpatched software, USB devices, digital devices and eavesdropping.
	5.2.4	Understand methods of identifying vulnerabilities, including penetration testing, ethical hacking, commercial analysis tools and review of network and user policies.
	5.2.5	Understand how to protect software systems from cyber attacks using audit trails.
5.3 The internet and the world wide web	5.3.1	Understand what is meant by the internet and how the internet is structured (IP addressing, domain name service (DNS)).
	5.3.2	Understand what is meant by the world wide web (WWW) and components of the WWW (web server URLs, ISP, HTTP, HTTPS, HTML).
6.1 Emerging trends, issues and impact	6.1.2	Understand the ethical impact of using technology (privacy, inclusion) on society.
	6.1.4	Be aware of current and emerging trends in computing technology (artificial intelligence (AI)).

END OF ADVANCE INFORMATION