

Pearson Edexcel Level 1/Level 2 GCSE

May–June 2022 Assessment Window

Syllabus
reference

1CP2

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 1 only.
- There is no advance information for Component 2.
- The format/structure of the assessments remains unchanged.
- This advance information 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 outline in the advance information, students and teachers should consider how to:
 - manage their revision of parts of the specification that may be assessed in areas not covered by the advance information
 - manage their revision of other parts of the specification that may provide knowledge which helps with understanding the areas being tested in 2022.
- For specifications with synoptic assessments, 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 optional papers/topics/content, students should only refer to the advance information for components for which they intend to sit examinations.
- 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 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 be answerable using 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.

Paper 1: Principles of Computer Science

Subject Content	Content Reference	Students should
1.1 Decomposition and abstraction	1.1.1	understand the benefit of using decomposition and abstraction to model aspects of the real world and analyse, understand and solve problems
1.2 Algorithms	1.2.1	be able to follow and write algorithms (flowcharts) that use sequence, selection, and input, processing and output to solve problems
	1.2.2	be able to follow algorithms that use variables and constants and one-dimensional data structures (strings, records, arrays)
	1.2.4	be able to use a trace table to determine what value a variable will hold at a given point in an algorithm
	1.2.6	Understand how standard algorithms (linear search) work.
	1.2.7	be able to use logical reasoning to evaluate an algorithm's fitness for purpose and efficiency (number of compares, number of passes through a loop)
2.1 Binary	2.1.2	understand how computers represent and manipulate two's complement signed integers
	2.1.3	be able to convert between denary and 8-bit binary numbers (0 to 255)
	2.1.5	understand the concept of overflow in relation to the number of bits available to store a value
	2.1.6	be able to convert between hexadecimal and binary
2.2 Data representation	2.2.1	understand how computers encode characters using 7-bit ASCII
	2.2.2	understand how bitmap images are represented in binary (pixels, resolution, colour depth)
2.3 Data storage and compression	2.3.1	understand that data storage is measured in binary multiples (bit, nibble, byte, kibibyte, mebibyte) and be able to construct expressions to calculate file sizes and data capacity requirements
	2.3.2	understand the need for data compression and methods of compressing data (lossless, lossy)
3.1 Hardware	3.1.1	understand the von Neumann stored program concept
	3.1.2	understand the role of secondary storage and the ways in which data is stored on devices (magnetic, optical, solid state)
	3.1.3	understand the concept of an embedded system and what embedded systems are used for

3.2 Software	3.2.1	understand the purpose and functionality of an operating system (user management)
	3.2.2	understand the purpose and functionality of utility software (data compression)
	3.2.3	understand the importance of developing robust software
3.3 Programming languages	3.3.1	understand the characteristics and purposes of low-level and high-level programming languages
	3.3.2	understand how an interpreter differs from a compiler in the way it translates high-level code into machine code
4.1 Networks	4.1.1	understand why computers are connected in a network
	4.1.2	understand different types of network (LAN, WAN)
	4.1.3	understand how the internet is structured (IP addressing)
	4.1.4	understand how the characteristics of wired and wireless connectivity impact on performance (speed, latency)
	4.1.5	understand that network speeds are measured in bits per second (kilobit, megabit, gigabit)
	4.1.6	understand the role of and need for email protocols (POP3, SMTP, IMAP)
	4.1.7	understand how the 4-layer (application, transport, internet, link) TCP/IP model handles data transmission over a network
	4.1.8	understand characteristics of network topologies (star)
4.2 Network security	4.2.1	understand methods of protecting networks (firewalls)
5.2 Ethical and legal	5.2.1	understand legal issues associated with the collection and use of personal data (consent, data protection)
	5.2.2	understand ethical and legal issues associated with the use of artificial intelligence, machine learning and robotics (algorithmic bias)
5.3 Cybersecurity	5.3.2	understand methods of protecting digital systems and data (backup and recovery procedures)

END OF ADVANCE INFORMATION