

GCSE (9-1)

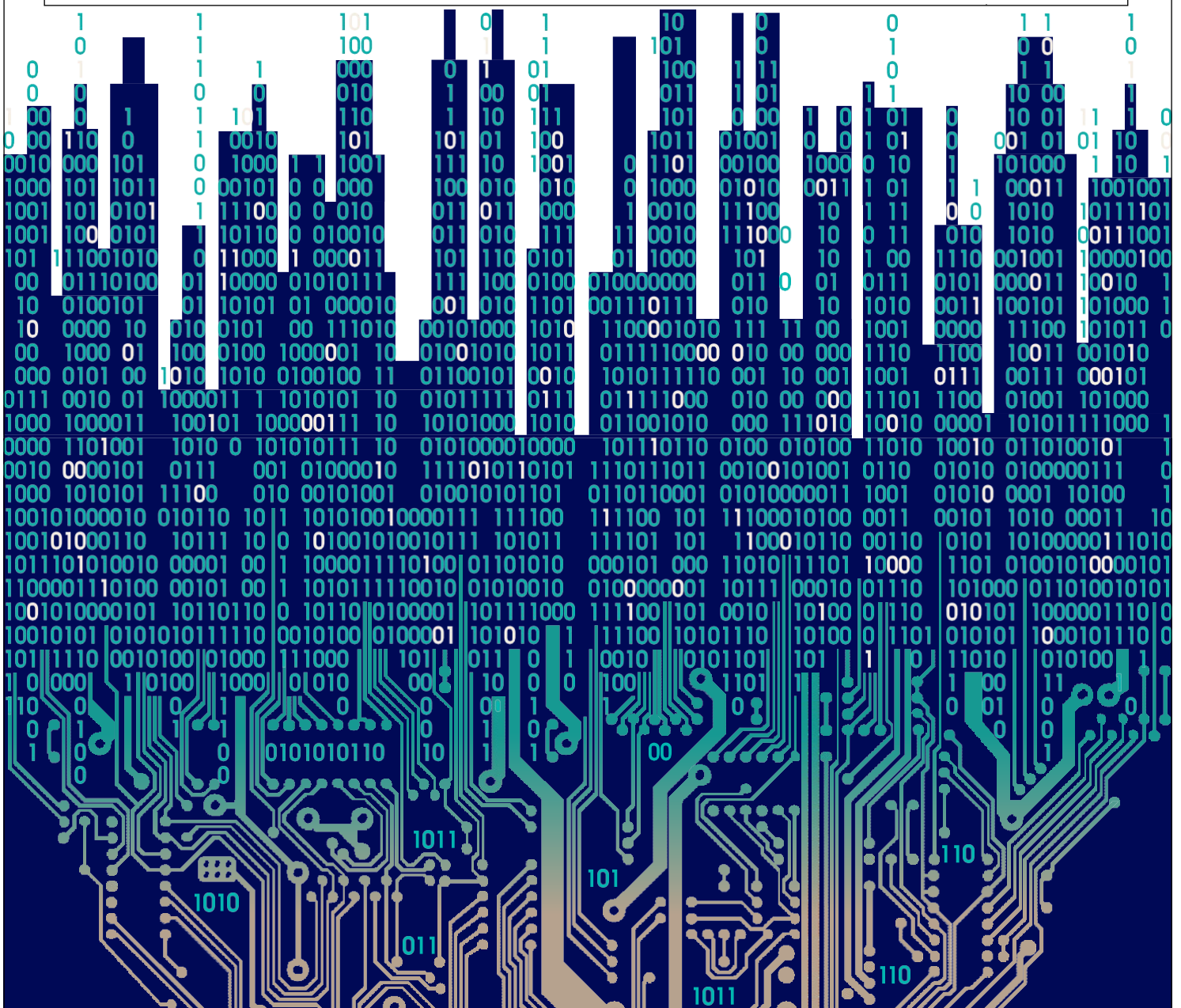
Computer Science

Progression: GCSE Computer Science to Level 3 Qualifications

Pearson Edexcel Level 1/Level 2 GCSE (9-1) in Computer Science (1CP2)

First teaching September 2020

First certification 2022



Edexcel, BTEC and LCCI qualifications

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Progression to Level 3

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Progression to Level 3

1. Purpose of this document

The Pearson Edexcel Computer Science GCSE 2020 is an excellent qualification to enable learners to progress to further study at Level 3. Successful students will be well equipped to access A levels as well as the Level 3 Vocational or Applied General options mentioned here.

This document provides teacher written explanations designed to help you identify the opportunities for student progression from the 2020 Edexcel GCSE Computer Science specification (1CP2) onto the next stage of study and learning, either an A Level, BTEC or T-Level pathway.

2. OCR A-Level

The OCR A Level has 2 examinations and one project-based unit. The content for the first examination includes; computer hardware; types of processors; input and output devices; system software; software development; networks; web technologies; data structures; Boolean algebra; the law; and a range of moral issues. The first examination has defined content for the A Level that draws out some of the more technical content on the course.

For students to succeed at GCE, teachers will need to give students a broad base of knowledge at KS4. The breadth that is included in the GCSE Computer Science course provides this in an accessible way. Topics 3 through to 5 of the specification provide a strong grounding across the topics on this first GCE examination, with the Boolean logic in Topic 2 providing a very accessible introduction to the further depth expected for this section of the GCE course.

The second examination from the OCR GCE course is designed to test the student's ability to think programmatically. It tests the student's ability to abstract concepts, identify inputs and outputs, break down problems, and determine how to effectively solve these problems. Both Topic 1 and the practical approach to the second examination, in the Pearson/Edexcel specification, are an excellent practical and accessible grounding to the second examination.

The on-screen test and the focus on Python as the underlying language on this examination is exactly what students will learn through the GCSE Computer Science course. The assessment approach pushes the students to focus on programming and help students to learn the skills that they need to be able to build a range of functional and effective solutions to problems. This is ideal preparation for the OCR GCE coursework where students must independently solve a real-life problem and apply the skills they have learnt at GCSE within the GCE project framework.

3. AQA A-Level

The AQA A-Level comprises of 13 taught components, with an additional component dedicated to a large-scale programming project/investigation. The course has predefined AS and A2 level content.

The additions made to the 2020 GCSE Computer Science course content (compared to other exam boards) introduce certain topic matter that were previously introduced later at AS Level with AQA.

Some examples of these include:

Edexcel GCSE	AQA Level
2.1.1 - 4.7	2.1 The meaning of the stored program concept
3.1.2 - 4.7	3.2 The Fetch-Execute cycle and the role of registers within it
2.3.1 - 4.5	3.2 Units
2.1.2 - 4.5	4.3 Signed binary using two's complement

There are a total of 16 individual specification points that do not appear within comparable GCSE Computer Science course, that are considered as a stepping stone to the study of A Level AQA Computer Science.

The inclusion of an on-screen programming test using skeleton programs can be considered the closest experience to what students can expect to complete in Paper 1 at A-Level, which is a 2-hour 30-minute exam testing the student's ability to program smaller programs/subroutines from scratch before adapting a larger skeleton program based on questions set within the exam paper.

4. BTEC Nationals Computing (Applied General Level 3)

The Btec National Computing level 3 applied general qualification comprises of several units and varies in size from one half A Level equivalent to the full 3 A-Level equivalent of 1080 guided learning hours. In all of its varied sizes, at least 40% of the subject content is externally assessed.

Where the core individual units provide relatable content from the GCSE Computer Science course include:

Unit of Work	Related content from the Pearson GCSE
Unit 1 Principles of Computer Science	Topics 1 through 5 in the GCSE are all directly relatable to this unit, which is 120 guided learning hours and externally assessed through an examination.
Unit 2 Fundamentals of Computer Systems	This unit aligns closely in content with the GCSE subject content of Topics 3, 4 & 5, and represents a significant 90 guided learning hours, and is also externally assessed.
Unit 3 Planning and Management of Computing Projects	This unit is more closely related to the Component 1 content from the BTEC Tech Award in Digital Information Technology, and not to the Pearson GCSE course content.
Unit 4 Software Design and Development Project	This unit is closely related to Paper 2 and Topic 6 from the Pearson GCSE.

Many of the externally assessed units in the suite of this Btec Qualification pathway are directly relatable to the GCSE Computer Science course content. The following table outlines where the optional unit content is relatable to the GCSE course:

Unit 7 IT systems Security and Encryption	Topic 4, Topic 5
Unit 9 Impact of Computing	Topic 3, Topic 5

Unit 14 Computer games Development	Topic 1, Topic 6
Unit 16 Object-oriented Programming	Students can use Python knowledge and build on it by using the OOP capabilities of a language that is familiar
Unit 17 Mobile Apps Development	Topic 6, Topic 1
Unit 19 Computer Networking	Topic 4, Topic

5. BTEC Nationals IT (Applied General Level 3)

This suite has a similar structure to the Btec National Computing qualification suite, with matching size variations in equivalent GCE qualifications from one half A-Level through to 3 full A-Levels. The qualifications at all sizes have 40% externally assessed content. This qualification has less overlap with the subject content of the new GCSE, with the added benefit that it can be considered to have relevance to both the externally and the internally assessed units of work, as follows:

Externally assessed

- Unit 11 Cyber Security and Incident Management – Topic 5, Topic 4

Internally assessed

- Unit 4 Programming – Topic 6, Topic 1
- Unit 7 Mobile Apps Development - Topic 6, Topic 1
- Unit 8 Computer Games Development - Topic 6, Topic 1
- Unit 13 Software testing

6. T-Level - Digital (Digital Production Design and Development)

The T-Level in Digital Production, Design and Development is a two-year Level 3 qualification designed to prepare high achieving learners for higher education or employment. There are elements of the T-Level that are directly addressed by the subject knowledge and experience of the GCSE Computer Science course.

The T-Level core has two written examinations, one of which has a large programming component, which must be completed in Python. The GCSE Computer Science will prepare students well to undertake this assessment.

Furthermore, the "Employer Set Project" is also a Python based programming project, which is directly relatable to the subject content and experience of the GCSE Computer Science course.

The final year "Occupational Specialism" is a large project, which requires students to conduct software development that will draw on all of the skills and knowledge of the GCSE Computer Science course, as well as the first years study.

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