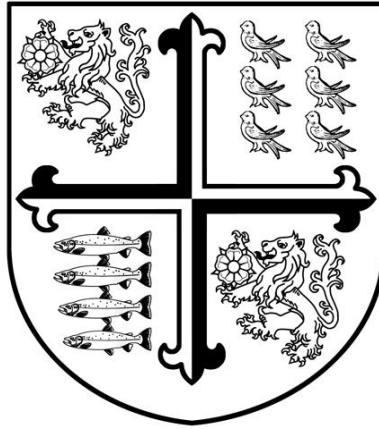




A Level Computer Science Exam Preparation

Exam Board: Cambridge OCR

Specification: H446

<https://www.ocr.org.uk/Images/170844-specification-accredited-a-level-gce-computer-science-h446.pdf>

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Year 12 Strand 1

	Week 1-4	Week 5-10	Week 11-12	Week 13-16	Week 18-35	Week 36-40
Topic	Transition – Programming Fundamentals	2.2 Programming Techniques	2.1 Computational Thinking	1.4.1 Data Types	1.4.2 Data Structures	2.3.1 Algorithms (continued in Year 13)
Learning Objectives	To introduce C# programming. To learn the fundamentals of programming.	To gain an in depth understanding of C# programming. To introduce the idea of GUI development.	To build upon and extend knowledge of computational thinking covered in KS3 & KS4.	To learn how to carry out conversion & calculations using binary.	To learn how data structures work and how to code them.	To learn about key algorithms including how to program these.
Knowledge/skills to be gained	Understanding of key programming concepts such as sequence, selection and iteration	The ability to perform more advanced features such as subroutines, file handling, recursion and OOP. To develop programs that use a simple GUI.	Knowledge of computational thinking skills, including abstraction, decomposition and procedures.	The ability to convert between binary, denary and hexadecimal. Understanding of floating point and normalisation. How to perform binary arithmetic.	The key concepts of data structures. How the algorithms for data structures work. How to code the key data structures.	The ability to understand the theory and methodology behind key searching and sorting algorithms. The ability to understand the theory and methodology behind key path-finding algorithms. How to compare algorithmic efficiency using Big O notation.
Assessment	Summative assessment using past papers. EAD 14/09	Summative assessment using past papers. EAD 2/11	Summative assessment using past papers. EAD 11/01	Summative assessment using past papers. EAD 11/01	Summative assessment using past papers. EAD 07/06	Summative assessment using past papers. EAD 05/07
Revision	C# programming	C# programming	Computational Thinking	Data Types	Data Structures	Algorithms
Link with prior/subsequent learning	Builds upon KS4 programming and programming. Links to future units	Builds upon KS4 programming and programming. Links to future units.	Builds upon KS3 knowledge. Links to 2.2 Computational Methods	Builds upon KS4 knowledge.	Builds upon programming knowledge from KS4 & KS5.	Builds upon KS3 knowledge from 2.1 Computational Thinking.

Y12 Strand 2

	Week 1-4	Week 5-10	Week 11-16	Week 18-21	Week 22-34	Week 35-40
Topic	Transition – Programming Fundamentals	2.2 Programming Techniques	1.1 Processors, Input, Output and Storage	2.2.2 Computational Methods	1.2 Software and Software Development	1.3 Exchanging Data (continued in Year 13)
Learning Objectives	To introduce C# programming. To learn the fundamentals of programming.	To gain an in depth understanding of C# programming. To introduce the idea of GUI development.	To build upon and extend knowledge of computer architecture from Ks 4.	To introduce the concepts of key computational methods.	To learn how to carry out conversion & calculations using binary.	To learn about how data is exchanged between computer systems.
Knowledge/skills to be gained	Understanding of key programming concepts such as sequence, selection and iteration	The ability to perform more advanced features such as subroutines, file handling, recursion and OOP. To develop programs that use a simple GUI.	Knowledge of computer architecture.	An understanding of how methods such as backtracking, data mining, heuristics, pipelining and data visualisation work and can be applied to both computational and real-world problems.	The ability to convert between binary, denary and hexadecimal. Understanding of floating point and normalisation. How to perform binary arithmetic.	Understanding of encryption, compressing and hashing. Understanding of databases and database management systems.
Assessment	Summative assessment using past papers. EAD 14/09	Summative assessment using past papers. EAD 2/11	Summative assessment using past papers. EAD 11/01	Summative assessment using past papers. EAD 08/02	Summative assessment using past papers. EAD 07/06	Summative assessment using past papers. EAD 05/07
Revision	C# programming	C# programming	Processors, Input, Output and Storage	Computational Methods	Software and Software Development	Exchanging Data
Link with prior/subsequent learning	Builds upon KS4 programming and programming. Links to future units	Builds upon KS4 programming and programming. Links to future units.	Builds upon KS4 knowledge.	Builds upon KS3 knowledge from 2.1 Computational Thinking.	Builds upon KS4 knowledge.	Links to KS4 knowledge.

Online Revision Resources (all units):

- Ada Computer Science - <https://adacomputerscience.org/>
- Seneca - <https://senecalearning.com/en-GB/>
- W3 Schools C# <https://www.w3schools.com/cs/index.php>
- Time2Code C# <https://time2code.today/csharp-course>