A-level Computer Science

Examination Board	OCR
Specification Number	H446
Specification Document	OCR H446 Specification document

What makes up the course?

The course is an optional subject where students learn how computer systems work and the use of algorithms and problem-solving techniques to overcome a situation. This includes the independent learning and development of a personal programming project.

Unit 1

40%

2hr 30 mins Exam

Computer Systems

Students learn about how computers function/operate, how data is stored and the impact of using computers

- System Architecture
- Memory and Storage
- Computer Networks, connections, and protocols
- Network Security
- System Software
- Ethical, legal, cultural and environmental impacts of digital technology

Unit 2

40%

2hr 30 mins Exam

Algorithms and programming

Students learn about different algorithms and problem-solving techniques, including the application of these using python program code

- Algorithms
- Programming Fundamentals
- Producing Robust Programs
- Boolean Logic
- Programming Languages and Integrated Development Environments

Unit 3

20%

Coursework

Programming Practice

Students design and develop their own project to solve a problem of their own design/choice.

- Definition, investigation and analysis
- Design
- Software development and testing
- Documentation
- Evaluation
- The written report

Students are given the opportunity to apply skills and knowledge developed across Unit 1 and Unit 2 to help them develop and produce their own programming project from start to finish

Assessment

Units 1 and 2 are externally assessed examinations at the end of year 13 and are non-calculator papers. Although Unit 2 has a focus on algorithms and problem-solving, students will undertake questions relating to algorithms in Unit 1 as well. Unit 3 requires students to develop their own project to solve a problem of their choosing and detail the progression through coursework.

Practice your programming ability by:

- **Using python/java at home to write your own programs**
- **Completing programming challenges available on google classroom**
- **Working through the programming tasks from lessons**
- **Trying to improve past programs with more advanced features**

You are advised to have an IDE downloaded onto your computer, not only to practice but to help you complete the Unit 3 Programming Project. Recommended software:

- *Eclipse*
- *NetBeans*
- *IntelliJ*

Review lesson content and topics by:

- **Watching Craig n Dave videos and making notes in your flip learning booklet**
- **Going through the lesson PowerPoints available on google classroom**
- **Review lesson notes and purple pen exams and feedback/follow on tasks**
- **Keeping lesson notes organised**

Links to useful sources of information:
https://student.craigndave.org/a-level-videos

Unit 3 Programming Project

Use the guides to help you identify all elements you need to include in the project and attempt every and all sections.

Meet deadlines to get the most effective/useful feedback to improve

Regularly work on the project little and often instead of trying to do large amounts in one go

How to revise Computer Science

In lessons students will regularly complete tasks and make notes to help them develop their knowledge and skills for the subject. All notes from lessons should be completed to help students prepare for examinations, even when absent.

Students are regularly assessed in lessons through exam question practice and smaller topic-based assessments

At home students should be regularly revising by:

Practice Programming **Reviewing lesson content**
Creating revision material **Practicing exam questions**

Create revision material by:

- **Watching Craig n Dave videos and making notes in your flip learning booklet**
- **Re-writing your notes in different formats e.g. flash cards and mind maps**
- **Writing questions (using assessment and follow-on tasks) and test on them with a friend**

Practice exam questions by:

- **Completing exam questions in lessons, including purple pen review**
- **Look back at exam questions from past assessments**
- **Independently complete questions from past papers and check answers using mark schemes**
- **Use online practice questions such as SENECA**