Subject Director: Mrs H Clare

Exam Specifications: OCR J277 Computing

This subject:

• gives learners a real, in-depth understanding of how computer technology works

• provides excellent preparation for higher study and employment in Computing Science

• develops critical thinking, analysis and problem-solving skills.

Will this course suit me?

The GCSE Computing Science course is perfect for students who have a keen interest in

Computing and programming. This course is not based around Microsoft Office packages but,

if you have enjoyed working with programmes such as Python in KS3, you will enjoy GCSE

Computing Science.

The course is particularly maths-heavy, and it is recommended that students who find Maths

difficult should not choose this course. The course involves converting between different bases

e.g., Binary and Hexadecimal and logical thinking processes which come with programming.

How will I be assessed?

The Computing Science course is based around 3 units which are spread over the two years of

study. These 3 units are as follows:

Unit 1: Computer systems

This component will introduce students to the Central Processing Unit (CPU), computer memory

and storage, wired and wireless networks, network topologies, system security and system

software. It is expected that students will become familiar with the impact of Computing Science

in a global context through the study of the ethical, legal, cultural, and environmental concerns

associated with Computing Science.

Students complete a 1 hour 30-minute written exam worth 80 marks. This exam counts for 50%

of their overall GCSE grade.

Unit 2: Computational thinking, algorithms, and programming

This component incorporates and builds on the knowledge and understanding gained in Unit 1,

encouraging students to apply this knowledge, and understanding using computational

thinking. Students will be introduced to algorithms and programming, learning about

programming techniques, how to produce robust programmes, computational logic, translators

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and facilities of computing languages and data representation. Students will become familiar

with computing-related mathematics.

Students complete a 1 hour 30-minute written exam worth 80 marks. This exam counts for 50%

of their overall GCSE grade.

Unit 3: Programming Project

Students will complete a programming task. They will design, develop, and test a solution to a

problem. The assessment does not accrue marks towards a final grade however, it is a

compulsory requirement.

What skills will I develop?

GCSE specifications in Computing Science should encourage candidates to be inspired,

moved, and challenged by following a coherent, satisfying, and worthwhile course of study.

They should help candidates to gain an insight into related sectors as well as preparing

candidates to make informed decisions about further learning opportunities and career choices.

GCSE specifications in Computing Science must enable candidates to:

• develop their understanding of current and emerging technologies, understanding of

how they work and apply this knowledge and understanding in a range of contexts

• acquire and apply some knowledge, some technical skills, and an understanding of the

use of algorithms in computer programmes to solve problems using programming

• use their knowledge and understanding of computer technology to become independent

and discerning users of IT, be able to make informed decisions about the use and be

aware of the implications of different technologies

• acquire and apply creative and technical skills, knowledge and understanding of IT in a

range of contexts

• develop computer programmes to solve problems

• develop the skills to work collaboratively

• evaluate the effectiveness of computer programmes/solutions and the impact of, and

issues related to, the use of computer technology in society.

Teaching Structure

Year 10

In Year 10, students will initially study Unit 2, focusing on developing their programming skills.

They will then complete Unit 3, the Programming Project. The students then start Unit 1,

working through the theory knowledge.

Year 11

Students continue completing the remaining Unit 1 theory units. Once these are finished, the

rest of the year will be spent revising and building upon the knowledge from Units 1 and 2.