

SUBJECT: Computer Science

Year: 10 GCSE (9-1) OCR J277

Topic(s) to be covered

This is a new course that will enable learners to develop computational thinking skills built on a sound base of conceptual learning and understanding. In two years, students will study 2 units:

- **Computer systems** (50%) – examination in Year 11
- **Computational thinking, algorithms and programming** (50%) – examination in Year 11

Each term, different topics will be covered from each unit. Below is a brief break down for the spring/Summer term:

Logic and language

Why data is represented in computer systems in binary form?

- Simple logic diagrams using the operations AND, OR and NOT
- Truth Tables
- Combining Boolean operators using AND, OR and NOT to two levels
- Applying logical operators in appropriate truth tables to solve problems
- Applying Computing related mathematics:
 - +
 - –
 - /
 - *
 - Exponentiation (^)
 - MOD
 - DIV

Programming

- The use of variables, constants, operators, inputs, outputs and assignments
- The use of three basic programming constructs used to control the flow of a program:
 - Sequence
 - Selection
 - Iteration (Count and condition-controlled loops)
- The use of basic string manipulation
- The use of basic file handling operation:
 - Open
 - Read
 - Write
 - Close
- The use of records to store data
- The use of SQL to search for data
- The use of arrays when solving problems, including both one- and two-dimensional arrays
- How to use sub-programs (functions and procedures) to produce structured code
- The use of data types:
 - Integer
 - Real
 - Boolean
 - Character and string
 - Casting
- The common arithmetic operators
- The common Boolean operators

Assessment Procedures

Ongoing feedback from teacher is provided as well as self and peer assessment during theory lessons. At the end of each topic pupils are given a test and a grade relating to the course. They are guided to reflect on their marks and to identify areas for improvement, then to complete work to improve their skills and knowledge.

Homework guidance

Homework will be set at least once a fortnight. Details of individual homework can be found on the department website and on Insight.

Please Note: If pupils do not have the software at home, they can use Secure Gateway to log onto a school PC – as long as you have internet connection on your home PC. There are also some ICT rooms (including the LRC) that can be used before school, break, lunch and after school.

How can you help?

Encourage your child to look through notes from class and extend on these by doing further research on the web, as well as revise thoroughly for tests.

Textbooks:

Our scheme of work follows PG Online (Endorsed by OCR)

Year 10 uses: OCR GCSE (9-1) PG online Computer Science book

([Resources > Computer Science > Gcse Ocr > Gcse Ocr Computer Science J277 | PG Online](#))

For the exams in the summer of Year 11, the following revision guide is recommended:

([New GCSE Computer Science OCR Revision Guide | CGP Books](#))