

**SUBJECT: Computer Science**

**Year: 11 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.

### **Textbook**

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](#))