Computer Science – Subject topics – Spring 1

Year 9

2.4.1 Boolean Logic

Simple logic diagrams using the operators AND, OR and NOT.

Truth tables

Working through PowerPoints and worksheets in the school shared area. Tests on BBC Bitesize.

1.6.1 Ethical and Legal

Researching into ethical, legal, cultural, privacy and environmental issues relating to the computing industry and the technology used in it.

Legislation relevant to computer science

Computer Misuse Act

Copyright Designs and Patents Act

Software Licensing

Data Protection Act / GDPR

J277 Specification Link here for more detail (https://www.ocr.org.uk/Images/558027-specification-gcse-computer-science-j277.pdf)

Year 10

2.1 Algorithms

Computational thinking – Understanding the principles of Abstraction, Decomposition and algorithmic thinking.

Designing, creating and refining algorithms

Identify inputs, processes and outputs for a problem

Create, interpret, correct, complete, and refine algorithms using pseudocode, flowcharts and python.

Searching and sorting algorithms

Standard searching algorithms- Binary and Search

Standard sorting algorithms- Bubble, merge and insertion

J277 Specification Link here for more detail (https://www.ocr.org.uk/Images/558027-specification-gcse-computer-science-j277.pdf)

Computer Science – Subject topics – Spring 1

Year 11

Revision from Paper 2 content- Contents of Computational thinking, algorithms and programming (J276/02)

PowerPoints and worksheets in the school shared area, tests on BBC Bitesize.

2.1 Algorithms

Principles of computational thinking

Searching and sorting algorithms

Producing algorithms using pseudocode and flowcharts

2.2 Programming techniques

The use of the 3 programming constructs – Sequence, selection and iteration

Variables, constants, data types.

File handling, records, SQL, arrays, sub programs

2.3 Producing robust programs

Defensive design, maintainability, testing, errors.

2.4 Computational Logic

Logic diagrams (AND, OR and NOT)

Truth tables

2.5 Translators and facilities of languages

High and low level languages

The purpose of translators, assemblers, IDEs

2.6 Data representation

Binary, hexadecimal

Character sets (ASCII and Unicode

Binary as images and sound

Lossy and lossless Compression

J276 Specification Link here for more detail (https://www.ocr.org.uk/Images/225975-specification-accredited-gcse-computer-science-j276.pdf)

Year 12

Working through PowerPoints and worksheets in the school shared area.

1.4 – Data Types & Structures

Computer Science – Subject topics – Spring 1

Data types

Positive and negative numbers in binary

Converting between binary and hexadecimal

Representation and normalisation of floating point numbers in binary

Bitwise manipulation and masks

Character sets (ASCII and Unicode)

2.2.1 – Programming Techniques

Programming constructs

Recursion

Global and local variables

Modularity, functions and procedures, parameter passing

Use of an IDE

Object oriented techniques

Specification link here (https://www.ocr.org.uk/Images/170844-specification-accredited-a-level-gce-computer-science-h446.pdf)

Year 13

Continue with Final year project

Analysis, Design, Developing the coded solution, Testing, Evaluation

Supporting documents in the school shared area

Working through the Pygame tutorials in repl to create a game using object orientated programming

Revising all areas of specification link here (https://www.ocr.org.uk/Images/170844-specification-accredited-a-level-gce-computer-science-h446.pdf)