

Curriculum Overview

YEAR 10

Term 1.1

- Introduction to Computer Science- baseline testing
- Hardware
- Logical operators

Assessment 1.1 Exam questions based on hardware and logical operators

Term 1.2

- Organisation and structure
- Programming practical using Greenfoot

Assessment 1.2 exam questions based on communication, organisation and structure

Term 2.1

- Python programming
- Algorithms- bubble and merge sort, binary and linear search
- HTML
- Theory of programming

Assessment 2.1 producing a programming report based on a solution students will need to solve using python.

Term 2.2

- Operating systems
- Communications
- Security and data management

Assessment 2.2 exam questions based on operating systems, communications and security/ data management

Term 3.1

- Security and data management
- Ethical, legal and environmental impacts of digital technology

Assessment 3.1 exam questions on security and data management and ethical

Term 3.2

- Revision
- Python project ready for NEA

Assesment- Mock exam based on component 1 and 2

YEAR 11

Term 1.2

- Python programming practical

Assessment- Controlled assessment component 3

Term 1.2

- Greenfoot programming

- Principals of programming theory

Assessment 1- mock on greenfoot programming paper 2

Term 2.1

- Operating system
- Hardware
- Software engineering

Assessment- exam questions based on operating systems, hardware and software engineering

Term 2.2

- Organisation and structure of data
- Communication
- Logical operators

Assessment- exam questions based on organisation and structure of data, communication and logical operators

Term 3.1

- HTML
- Greenfoot
- Theory re-cap

Assessment- mock exam paper for paper 1 and paper 2

Term 3.2

Theory re-cap and **examinations for paper 1 and paper 2**

Subject Specific Skills

Computer Science encourages learners to: Understand and apply the fundamental principles and concepts of computer science, including abstraction, decomposition, logic, algorithms, and data representation

- analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs to do so
- think creatively, innovatively, analytically, logically and critically
- understand the components that make up digital systems, and how they communicate with one another and with other systems
- understand the impacts of digital technology to the individual and to wider society
- apply mathematical skills relevant to computer science.

Computers are widely used in all aspects of business, industry, government, education, leisure and the home. In this technological age, a study of computer science, and particularly how computers are used in the solution of a variety of problems, is essential to learners.

Computer science integrates well with subjects across the curriculum. It demands both logical discipline and imaginative creativity in the selection and design of algorithms and the writing, testing and debugging of programs; it relies on an understanding of the rules of language at a fundamental level; it encourages an

awareness of the management and organisation of computer systems; it extends learners' horizons beyond the school or college environment in the appreciation of the effects of computer science on society and individuals.

Methods of Assessment and Exam Structure

Component 1: Understanding

Written examination: 1 hour 45 minutes

62.5% of the qualification

This component investigates hardware, logical operations, communication, data representation and data types, operating systems, principles of programming, software engineering, program construction, security and data management and the impacts of digital technology on wider society.

Component 2: Computational Thinking and Programming

On-screen examination: 2 hours

37.5% of the qualification

This component investigates problem solving, algorithms and programming constructs, programming languages, data structures and data types and security and authentication.

Component 3: Software Development

Non-exam assessment: 20 hours

This component requires learners to produce a programmed solution to a problem. They must analyse the problem, design a solution to the problem, develop a final programmed solution, test the solution and give suggestions for further development of the solution. Throughout the production of the solution learners are required to produce a refinement log that evidences the development of the solution.

The Business, Art and Culture Faculty

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How parents and carers can help

GCSE Computer Science help websites:

<http://www.bbc.co.uk/education/subjects/z34k7ty>

<http://www.teach-ict.com/>