

Year 11 - GCSE Computing

In year 11 students will focus on developing their understanding of programming in preparation for paper 2. This will go alongside continuing weekly practical lessons developing programming skills on Python. This will build on the skills and knowledge developed in years 7-9. Recall will be tested through Brain in gear activities which will test knowledge of key concepts and programming terms. Alongside this students will produce their programming project. Time will then be given to prepare for their two exams

Year 11 Curriculum	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topics	<p>Algorithms</p> <ul style="list-style-type: none"> Principles of computational thinking Designing, creating and refining algorithms <ul style="list-style-type: none"> Identify parts of an algorithm Structure diagrams Create, interpret, correct, complete and refine algorithms using pseudocode, flowcharts and programming languages Identify common errors Trace tables 	<p>Searching and Sorting Algorithms</p> <ul style="list-style-type: none"> Standard searching algorithms (binary/linear) Standard sorting algorithms (bubble/merge/insertion) <p>Programming Fundamentals</p> <ul style="list-style-type: none"> Use of variables, constants, operators, inputs, outputs and assignments Sequence/Selection/Iteration to control program flow Common arithmetic operators Common Boolean operators 	<p>Producing Robust Programs</p> <ul style="list-style-type: none"> Defensive design considerations Input validation Maintainability The purpose of testing Types of testing Identifying logic and syntax errors Selecting and using suitable test data Refining algorithms <p>Boolean Logic</p> <ul style="list-style-type: none"> Simple logic diagrams Truth tables Combining boolean operators Applying logical operators to solve problems 	<p>Programming Languages and Integrated Development Environments</p> <ul style="list-style-type: none"> Characteristics and purpose of different levels of programming language (low-level/high-level) The purpose of translators Characteristics of a compiler and an interpreter Common tools and facilities available in an IDE (editors/error diagnostics/run-time environment/translators) 	<p>Exam Revision</p> <p>Revision guides, practice exam questions and mock papers in preparation for both Paper 1 and Paper 2</p>	N/A

Assessment	<p>Python Programming Skills - One lesson a week to develop programming skills</p>	<p>Data types</p> <ul style="list-style-type: none"> • The use of data types <p>Additional Programming Techniques</p> <ul style="list-style-type: none"> • String manipulation • File handling • Storing data using records • Using SQL to search for data • Arrays • Functions • Random number generation <p>Python Programming Skills - One lesson a week to develop programming skills</p>	<p>Programming Project - to develop programming skills that will be used in paper 2</p>	<p>Programming Project - to develop programming skills that will be used in paper 2</p>		
	<p>End of unit assessment, based on exam style questions for each topic. Whole class feedback given on each end of unit assessment.</p>	<p>End of unit assessment, based on exam style questions for each topic. Whole class feedback given on each end of unit assessment.</p> <p>Mock Exams</p>	<p>End of unit assessment, based on exam style questions for each topic. Whole class feedback given on each end of unit assessment.</p>	<p>End of unit assessment, based on exam style questions for each topic. Whole class feedback given on each end of unit assessment.</p> <p>Programming project to be internally assessed and given feedback in relation to paper 2 skills.</p>	<p>Exam questions in lessons, mock exam papers in build up to exams.</p> <p>External GCSE papers.</p>	

Independent Work

Independent work is provided each week, with either one or two worksheets. Worksheets will be a mixture of recall and exam practice to develop technique in answering exam questions. Students are given a week to complete these worksheets and are then marked at the beginning of the lesson using a green pen, thus allowing students to correct their answers as necessary. All homework scores are recorded in order to check progress and look for issues with a particular topic. Students will be expected to develop revision resources for assessments and use these for their mock and external GCSE exams.