




## YEAR 10 GCSE COMPUTER SCIENCE SPRING TERM 2 – PAPER 2

‘An ambitious curriculum that meets the needs of all’

### Medium Term Planning – Practical Python Programming

Curriculum Intent	Pupils will be taught the following National Curriculum guidelines this term:
Skills/Assessment Objective Links	<p><b>Learning Outcomes for the unit</b></p> <p><b>At the end of this Unit all students should be able to:</b></p> <ul style="list-style-type: none"><li>• Understand decomposition</li><li>• Understand procedures and how to call a function</li><li>• Understand functions and how to pass parameters and call a function</li><li>• Use a regular expression to validate an input</li><li>• Create, manipulate and interrogate lists</li></ul> <p><b>Most students will be able to:</b></p> <ul style="list-style-type: none"><li>• Write error-free, well-documented programs</li><li>• Use modular programming techniques to break down a problem into its component parts and write well-structured programs using separate functions called from a main program</li></ul> <p><b>Some students will be able to:</b></p> <ul style="list-style-type: none"><li>• Write error-free programs that extend advanced techniques (using arrays and validation)</li></ul>
Numeracy	Arithmetic, BIDMAS, Comparison operators
Literacy	<p><b>Vocabulary Tier 3:</b> Regular expression, IDE, syntax error, logic error, debug, procedure, function, Arrays, lists, sorting, Validation</p> <p><b>Vocabulary Tier 2:</b> lists, number, integer, string</p> <p><b>Reading:</b> Worksheets, presentations, answer sheets, exam questions, mark scheme, further reading for homework</p> <p><b>Writing:</b> Answer on the worksheet via word</p> <p><b>Oracy:</b> listening and using tier 3 words</p>
Becoming future ready	<p><b>Careers/Employability:</b></p> <ul style="list-style-type: none"><li>▪ Software Architect.</li><li>▪ Data Scientist.</li><li>▪ Machine Learning Engineer.</li><li>▪ Blockchain Developer</li><li>▪ Cybersecurity Engineer.</li><li>▪ Cloud Solutions Architect.</li><li>▪ AI Research Scientist.</li><li>▪ Full-Stack Developer.</li></ul>
Adaptation	Throughout this topic, quality first teaching will provide differentiation:
QFT/SEND Provision	<p><b>By product:</b> Learners are asked to present outcomes writing different code, not all code will be equal in style and sophistication, all code will work with teachers input, top end programmers will be set challenges on how to extend code and be expected to conduct a level of independent research</p> <p><b>By resource:</b> Worksheets are well presented and accessible. Instructions are clearly outlined and separate from the information so that pupils know where to begin and end. Handouts are differentiated by outcome. Resources used will appeal to the range of preferred learning styles of pupils e.g. visual, auditory or kinesthetic learners. Scaffolding of tasks – word frames.</p> <p><b>By Intervention:</b> By providing different levels of supervision and support depending on coding ability</p> <p><b>By Progressive Questioning:</b> Exploring pupils’ understanding of programming by setting adaptive challenges</p> <p><b>By Grouping:</b> According to coding ability, prior attainment, gender, social preference, preferred learning style.</p>

	<p><b>By Task:</b> Pupils identify targets which are meaningful via level of coding ability</p> <p><b>By Offering Optional Activities:</b> In class or as homework, to extend learning.</p> <p>This QFT/SEND provision will be explicit within the lesson by lesson schemes of work.</p>	
<b>Implementation Curriculum Delivery</b>	To be able to:	
<b>Learning Outcomes (Knowledge)</b>	<p><b>Topic 1 Procedures</b></p> <p>Be able to use decomposition to help solve a larger problem</p> <p>Be able to use subroutines (procedures) to help make your programs easier to create and more efficient</p> <p><b>Topic 2 Functions</b></p> <p>Be able to use decomposition to help solve a larger problem</p> <p>Be able to use subroutines (functions) to help make your programs easier to create and more efficient</p> <p><b>Topic 3 Regular Expressions</b></p> <p>Review the purpose of validation, one of the programming techniques that may be helpful to complete the controlled assessment tasks</p> <p>Understand the purpose of a regular expression</p> <p>Be able to use a regular expression to validate an input</p> <p><b>Topic 4 Using lists</b></p> <p>Understand why lists and arrays are useful</p> <p>Be able to read and edit data in a list</p> <p>Know how to declare and append to a list</p> <p>Programing end of unit assessment</p>	
<b>Current learning to be developed in the future within:</b>	Sorting lists, 2D lists creating, outputting and sorting.	
<b>Assessment</b>	See assessment maps for formative and summative assessment opportunities.	
<b>Impact</b>	<p>Review assessment results and target pupils that require further support via:-</p> <ul style="list-style-type: none"> <li>• Learning conversation</li> <li>• Changing seating plan</li> <li>• Plan lessons to address areas of concern in assessment</li> <li>• Targeted homework based on low performance areas identified in the assessment and marked pieces</li> <li>• Stretch and challenge high ability pupils by identifying ambitious next steps to expand knowledge</li> </ul> <p>Create a feedback sheet for each student</p> <p>Each student identifies areas of Green, Amber and Red using Mark Assessment on their feedback sheet</p> <p>Complete NOW task on areas identified as Amber and Red</p>	