Northampton Academy
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Part of United Learning

Curriculum Intent:

The Computer Science curriculum at Northampton Academy looks to inspire and engage students in the different areas of using technology. In year 11, students have chosen this subject as a GCSE option. We follow the Edexcel GCSE specification which includes topics on data representation, hardware and software, networks, issues and impact and programming concepts. Throughout the 2 years studying this GCSE, we intend to provide the students not only with skills to be able to complete the written and computer assessment in the summer but also with knowledge of different careers and pathways they can take using their computing skills.

'Why This, Why Now?'

- At the start of the year, we continue to look at the computational thinking chapter, looking at reading and writing algorithms. We continue to develop our programming skills by looking at the final skill which is 'subprograms'.
- For the rest of the year, we revise topics from the specification with a focus on answering exam questions.

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The Medium Term Planning document below is designed to show the journey that every student takes through our curriculum. Some elements of the curriculum may be taught over several lessons, others in a single lesson.

Computer Science	Year 11 – Half Term 1		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
Networks and programming with subprograms	Packet switching Programming: recap	Mini whiteboards Bell work recap questions Home learning quizzes	https://classroom.thenational.academy/lessons/what-are-networks-70r6cd
	TCP/IP Programming: recap		https://classroom.thenational.academy/lessons/network-speed-and-performance-c8r38t
	Identifying vulnerabilities and encryption Programming: subprograms no parameters		https://classroom.thenational.academy/lessons/the-ip-suite-and-packet-switching-6rrp6d
	Recap Programming: subprograms no parameters		
	End of topic assessment Programming: subprograms with parameters		
	Environmental issues Programming: subprograms with parameters		
	Ethical issues Programming: subprograms with parameters		
	Key Words: algorithm, flowchart, trace table, subprogram, parameter, function, argument		

Computer Science	Year 11 – Half Term 2		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**

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Issues and Impact and programming with Libraries	AI and algorithmic bias		
	Programming with libraries		
	Intellectual property, copyright		
	Programming with libraries		
	Cyber security – malware and social engineering		
	Programming with libraries	Mini whiteboards	
	Technical vulnerabilities and encryption	Bell work recap questions	
		Home learning quizzes	
	Programming practice		
	Acceptable use policies and backup procedures	Mid year assessment	
	6 mark exam questions		
	Programming practice		
	Recap and end of topic assessment		
	Programming practice		
	Key words: environment, AI, algorithmic bias, intellectual property, copyright, GDPR, CMA		

Summative Assessment:

Pupil Mid-Year Assessments will take place at the end of half term 2. These will cover all content taught in the first 2 half terms. This assessment will inform pupil Rank Order in the subject.

Computer Science	Year 11 – Half Term 3		
Topic	Content	Formative Assessments?	Link(s) to an example lesson

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Algorithms and programming practice	Reading algorithms Programming practice	Mini whiteboards Bell work recap questions Home learning quizzes Mini mocks	https://classroom.thenational.academy/lessons/flowcharts-cct3gt?from_query=flowhcarts
	Writing algorithms Programming practice		
	Trace tables Programming practice		https://classroom.thenational.academy/lessons/bubble-sort-ccwk0r?from_query=bubble+sort https://classroom.thenational.academy/lessons/merge-sort-6rr64c?from_query=merge+sort
	Sorting algorithms Programming practice		https://classroom.thenational.academy/lessons/binary-search-chjked?from_query=binary+search https://classroom.thenational.academy/lessons/linear-search-69hk6c?from_query=binary+search
	Searching algorithms Programming practice		https://classroom.thenational.academy/lessons/comparing-searching-algorithms-68r3ct?from_query=binary+search
	Truth tables Programming practice		
	Key Words: algorithm, bubble sort, binary search, linear search, merge sort, trace table, dry run, logic error, truth table, Boolean		

Computer Science	**Year 11 – Half Term 4**

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Topic	Content	Formative Assessments?	Link(s) to an example lesson
Revision and programming practice	Students will complete mini mocks on different topics They will also use the time to study independently	Mini whiteboards Bell work recap questions Home learning quizzes Mini mocks	

Computer Science	Year 11 – Half Term 5		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
Exam	Exam	Mini whiteboards Bell work recap questions Home learning quizzes	

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