

Curriculum Intent:

The Computer Science curriculum at Northampton Academy looks to inspire and engage students in the different areas of using technology. In year 7, it is important that students build their digital literacy skills by learning simple things such as creating folders and saving work so that they can competently use IT in any lesson and even after school as we know that IT skills are necessary in many jobs, if not all. Building on from this, students will learn how computers work and represent information, covering some of the basic concepts KS4 students learn at GCSE level. To get students into programming, we are going to introduce Microbits and then complete the year looking at designing and creating webpages for a specific target audience.

'Why This, Why Now?'

- Computer basics are taught first so that year 7 students can get used to the systems we have at Northampton Academy including logging on for the first time, creating and saving to folders and using Teams.
- Hardware, software and binary are the basic concepts and understanding of how computers work. In this topic, students will learn key terms and how computers function and represent data. This all links into what is taught at GCSE level.
- We move on looking into a cryptography which is a heavily numeracy-based topic, this is where students learn about encryption and decryption and analyse various ways, they could secretly communicate information using ceaser and substitution cipher.
- For the last term of the year, there is a focus on website design. We look at using image editing software and the importance of how to create something for a specific target audience.

Medium Term Planning Document: Computer Science Year 7

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 7 – Half Term 1	
Topic	Content	Formative Assessments?	Link(s) to an example lesson
Computer Basics	How to log on, create a folder and save a file. The difference between hardware and software.	Mini whiteboards Bell work recap questions Home learning quizzes	https://classroom.thenational.academy/lessons/account-security-68rkee
	Internal components of a computer and how they work.		https://classroom.thenational.academy/lessons/under-the-hood-60t36r
	Inputs and outputs		https://classroom.thenational.academy/lessons/under-the-hood-60t36r
	Key Words: Hardware, software, CPU, RAM, ROM, Input, output, storage		
Careers in the curriculum: Home learning quiz on Graphic designer roles and responsibilities Bell work: Find a job which interests you in computer science. What are the main roles of the job? What NA values are linked to the job? What skills do you need? Extension task for end of the term: research your chosen career and create a profile. Challenge: write a cover letter for a job you find on your chosen career. Careers booklet -Task 1 Game Artist & Task 2 Special effects technician.			

Computer Science		Year 7 – Half Term 2	
Topic	Content	Formative Assessments?	Link(s) to an example lesson
Binary	Converting binary to denary and vice versa	Mini whiteboards Bell work recap questions Home learning quizzes End of topic quiz /10	https://classroom.thenational.academy/lessons/what-is-representation-ccrpar
	Revision lesson		
	Mid year assessment		
	Key Words: binary, denary, data		

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	<p>Careers in the curriculum: Home learning quiz on bioinformatics Careers booklet -Task 3 Smash that interview and Task 4 Hobbies and careers</p>
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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 7 – Half Term 3		
Topic	Content	Formative Assessments?	Link(s) to an example lesson
Encryption	History of encryption The difference between plain text and cipher text	Mini whiteboards Bell work recap questions Home learning quizzes	The History of Cryptography IBM
	Applying a Caesar Cipher and understanding how a substitution cipher works.		Encryption, decryption, and cracking (article) Khan Academy
	Applying a Vigenere cipher.		Hour of Code: Simple Encryption - Code.org
	Key Words: cryptography, plain text, cipher text, keys, encryption, decryption		
<p>Careers in the curriculum: Careers booklet -Task 5 Meet the team and Task 6 Green careers</p>			

Computer Science	Year 7 – Half Term 4		
Topic	Content	Formative Assessments?	Link(s) to an example lesson
Encryption	The difference between symmetric and asymmetric encryption.	Mini whiteboards Bell work recap questions Home learning quizzes	Symmetric vs. Asymmetric Encryption - 101 Computing
	How is encryption used in the modern world and the ethics around using encryption.		
	Encryption project.		
	Key Words: cryptography, plain text, cipher text, keys, encryption, decryption		

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	Careers in the curriculum: Careers booklet –Task 7 Fastest growing jobs and Task 8 Seeking Apprenticeship
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Computer Science	Year 7 – Half Term 5		
Topic	Content	Formative Assessments?	Link(s) to an example lesson
Website design	What is a website? How can we tell who the target audience is?	Mini whiteboards	https://classroom.thenational.academy/lessons/what-makes-a-good-website-c9gkcc?from_query=website
	What makes a good website? Website design.	Bell work recap questions	
	Creating a logo.	Home learning quizzes	
	Key Words: design, logo, target audience, website, internet, world wide web		
Careers in the curriculum:			
Home learning quiz on web developer role			
Bell work research: What are the different skills are required when designing a website? Why are these skills required?			
Careers - Task 9 Web Designer vs Web Developer			

Summative Assessment:

Pupil End of Year Assessments will take place at the start of half term 6. These will cover all content taught in the first 5 half terms. This assessment will inform pupil Rank Order in the subject. As well as the content listed below, there is an expectation that staff will work with pupils to improve knowledge in areas of weakness identified in the summative assessments. This may include in school and out of school intervention, and collaborative and independent study.

Computer Science	Year 7 – Half Term 6		
Topic	Content	Formative Assessments?	Link(s) to an example lesson
Website design	Creating a website	Mini whiteboards	https://classroom.thenational.academy/lessons/website-building-blocks-68v66e
	Creating a website	Bell work recap questions	https://classroom.thenational.academy/lessons/words-are-not-enough-crv3jt
	Reviewing a website	Home learning quizzes	
	Key Words: target audience, white space, content		

	Careers in the curriculum:
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Home learning quiz on skills used when designing and creating web pages

SEND adaptations:

- Sentence starters and key terms for exam style questions.
- Bell work is made up of the 3 R's. Remember, Recap and Research. These are colour coded. Remember is green and consists of copying down a key term. It is an expectation that everyone can do this in the 5-10 minutes given.
- Staff with students who have yellow books change the background colour of the PowerPoint slides to yellow.
- Seating plans reflect the knowledge the teacher has on the different SEND students and where they should be positioned in the room.
- All main tasks in the lesson increase in difficulty and are colour coded.
- Making sure there is a practical element in every lesson to keep engagement up.