

Medium Term Planning Document: Computer Science Year 8

Curriculum Intent:

The Computer Science curriculum at Northampton Academy looks to inspire and engage students in the different areas of using technology. In the first term of year 8, we build on from topics taught in year 7, again teaching students information they would find on the GCSE specification. We think this is important to provide students with a realistic understanding of what would be required of them if they were to continue studying at KS4. To continue to increase engagement, we look to update the curriculum to reflect changes happening in the technological world which is why cyber security will be introduced this year.

'Why This, Why Now?'

- We look at how data is represented by recapping on binary basics and then focusing on bitmap images, how to work out file sizes of images and what different compression methods do to an image.
- After learning how to program with variables and data types in year 7, we move onto programming with selection (if statements). Students continue to use and develop their logical thinking skills.
- Cyber security teaches students how to stay safe online and the importance of security with relevant information about malware and networks.

Medium Term Planning Document: Computer Science Year 8

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 8 – Half Term 1			
Topic	Content	Formative Assessments?	Link(s) to an example lesson
Binary Images	How to log on, create a folder and save a file. The difference between hardware and software. Binary recap.	Mini whiteboards Bell work recap questions Home learning quizzes	https://classroom.thenational.academy/lessons/what-is-representation-ccrpar
	Images and how bitmap images are represented .		https://classroom.thenational.academy/lessons/binary-maths-68rkae
	Bitmap images, file size and compression		https://classroom.thenational.academy/lessons/representing-bitmap-images-6rr36e
	Key Words: Hardware, software, CPU, resolution, pixel, bitmap, colour depth, binary		
Careers in the curriculum: Home learning quiz on careers which involve working with images. Lesson task: write a letter giving advice on which type of compression to use. Think about skills involved in writing a letter, how to make it look professional and why this is important. Research task: chose a career in computer science and create a profile. Challenge: write a cover letter for a job you find on your chosen career. Careers-Task1 Sound engineer & Task 2 Cartographer			

Computer Science			
Year 8 – Half Term 2			
Topic	Content	Formative Assessments?	Link(s) to an example lesson
Binary Images	Piskel art project	Mini whiteboards Bell work recap questions Home learning quizzes End of topic quiz /10	https://classroom.thenational.academy/lessons/representing-bitmap-images-6rr36e
	Revision lesson		
	Mid year assessment		
	Key Words: bitmap, KiB, MiB, bits, bytes, compression, lossy, lossless		
Careers in the curriculum:			

Medium Term Planning Document: Computer Science Year 8

	<p>Home learning quiz on bioinformatics.</p> <p>Bell work research: What job involves manipulating images?</p> <p>Careers- Task 3 Smash the interview and Task 4 Hobbies and career</p>
--	---

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 8 – Half Term 3		
Topic	Content	Formative Assessments?	Link(s) to an example lesson
Programming	Variables, data types	Mini whiteboards	https://classroom.thenational.academy/lessons/input-60u66c
	Practice using variables and data types	Bell work recap questions	
	Practice using variables and data types	Home learning quizzes	
	Key Words: variable, data type, string, integer, input		
	Careers in the curriculum: Home learning quiz on software developer. Lesson task: choose a career which involves programming and write a job description, average salary and skills required for the job. Careers- Task 5 Meet the team and Task 6 Green careers		

Computer Science	Year 8 – Half Term 4		
Topic	Content	Formative Assessments?	Link(s) to an example lesson
Programming	Selection – what is it?	Mini whiteboards	https://classroom.thenational.academy/lessons/selection-65hk2c
	Selection – make your own quiz.	Bell work recap questions	
	Practice	Home learning quizzes	
	End of topic quiz /10		
	Key Words: syntax error, selection, if statement		
Careers in the curriculum:			

Medium Term Planning Document: Computer Science Year 8

	Home learning quiz on web developer role. Careers- Task 7 Fastest growing jobs and Task 8 Apprenticeship
--	---

Computer Science	Year 8 – Half Term 5		
Topic	Content	Formative Assessments?	Link(s) to an example lesson
Networks and Malware	What is a network? Create a home network.	Mini whiteboards Bell work recap questions Home learning quizzes	https://classroom.thenational.academy/lessons/what-are-networks-70r6cd?from_query=networks
	Malware – whats the difference between a virus worm and trojan.		https://classroom.thenational.academy/lessons/rise-of-the-bots-chk3ac?from_query=malware
	Cyber attacks		https://classroom.thenational.academy/lessons/theres-no-place-like-127001-6rt66t?from_query=malware
	Key Words: cyber security, malware, phishing, firewall, robotics, hacking		
	Careers in the curriculum: Home learning quiz on cyber security. Lesson task: include a page on your app about a career in computer science, specifically on networks/malware/cyber attacks/cyber security. Research information about a job in one of these areas and add it to your app. Careers- Task 9 Game designer vs Game 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 8 – Half Term 6
------------------	----------------------

Medium Term Planning Document: Computer Science Year 8

Topic	Content	Formative Assessments?	Link(s) to an example lesson
Cyber Security	Design and create an app on networks, malware and cybersecurity.	Mini whiteboards Bell work recap questions Home learning quizzes	https://appinventor.mit.edu/
	Design and create an app on networks, malware and cybersecurity.		
	Key Words: phishing, security, malware, application		
Careers in the curriculum: Home learning quiz on women in computing.			