KS3 Computing & IT Curriculum Overview

Intent

Statement of Intent

In Key Stage 3 students have the opportunity to experience an array of different subjects through a vast and varied curriculum. The topics students experience in the 3 years have been carefully considered and placed in an order that the faculty believe will develop learning as well as interest in the Key Stage 4 courses that are available to students, GCSE Computer Science, CNAT Information Technology and CNAT Creative iMedia. Each unit that students are taught contributes to at least one of the KS4 subjects listed and therefore prepares them for further learning. Students not only experience a varied curriculum but also a difference in the style of learning from practical topics such as Python Programming to topics that will develop students literacy skills such as Computing: Past Present and Future, whilst also developing numeracy skills through Binary and Computer Logic.

Timeline	Term 1 - 7 Weeks	Term 2 - 7 Weeks	Term 3 - 7 Weeks	Term 4 - 6 Weeks	Term 5 - 5 Weeks	Term 6 - 6 Weeks

Implementation (Year 7)

Year 7 Overview: Students start the year with the fundamental skills of logging in and accessing IT resources such as email and file directories. The curriculum is focused on providing students with skills that reflect the national curriculum of computer science and ensures students are provided with age specific E Safety; whilst also providing pathways into different KS4 courses available (GCSE Computer Science, CNAT Information Technology and CNAT Creative iMedia).

SOW	Getting Started	Computing: Past, Present and Future	E Safety	Introducing Spreadsheets	Programming in Scratch	Programming in Python: Sequence
Assessment Type & Unit Focus	Weekly topic assessments - self marked. Students will learn the process of logging in to the school network, reading, writing and organising files as well as learning the use of key applications such as email and the Microsoft packages. Students will also be introduced to internet safety (this is revisited later in the year)	Weekly topic assessments - self marked. Students will learn about important historical figures that pioneered computer science, as well as an understanding of Moore's Law and how technology has advanced. Students will also develop their word processing and presentation skills.	Weekly learning log produced by students and assessed by teachers. To tie in with National Safer Internet Day (07/02/2023), students will learn about the core principles of being safe on the internet and with their internet enabled devices.	Weekly topic assessments - self marked. Students will be developing their spreadsheet skills by using basic formula, relative and absolute cell referencing and some basic functions including SUM, AVERAGE, MAX, MIN, COUNT and IF. The use of spreadsheets is a key component in CNAT Information Technology.	Weekly topic assessments - self marked. Students will develop programs in scratch that utilise the core programming constructs of sequence, selection and iteration. Students will also have to solve a range of problems using Scratch.	Weekly topic assessments - self marked. This SoW has been placed here to provide a smooth transitioning from programming in Scratch to Python (from blocks to high level language). Students will primarily focus on learning the construct of sequence as well as input, output and storing data in variables. This is the high level language used at GCSE and A-Level and therefore provides the foundations of further study of Computer Science.

Implementation (Year 8)

Year 8 Overview: Students in year 8 develop new skills through new schemes of work such as sound and video editing, whilst developing their skills and knowledge from previously taught topics such as Python Programming. Students will continue to experience a varying curriculum that prepares them for the different KS4 courses available (GCSE Computer Science, CNAT Information Technology and CNAT Creative iMedia).

SOW	Computing Components	Binary and Computer Logic	Internet Safety, Cyber Security and Encryption	Algorithms	Programming in Python: Selection	Sound and Video Editing
Assessment Type & Unit Focus	Weekly topic assessments - self marked. Students first opportunity to study the topic of hardware which directly links to GCSE Computer Science Term 1. Students will gain knowledge of computer systems, understanding that all computer systems follow IPO, as well as learning about both storage and memory.	Weekly topic assessments - self marked. Students first opportunity to study the topic of Data which directly links to GCSE Computer Science Term 3. This SoW flows logically from the previous term's work where students now gain a deeper insight into the inner workings of computer systems. Additionally, students will learn how to represent and convert between denary and binary.	Weekly topic assessments - self marked. Students will explore the concept, different types and prevention techniques of malware. Students will learn about encryption as a method of securing data. Students will apply different cipher techniques to data to demonstrate encryption. This unit also coincides with National Safer Internet Day (07/02/2023).	Weekly topic assessments - self marked. Students will learn about the role of algorithms in computer science. They will understand the concepts of abstraction, decomposition and pattern recognition when solving problems. Students will also construct flow diagrams to represent algorithms to solve problems. This SoW is fundamental for preparing students to study GCSE Computer Science.	Weekly topic assessments - self marked. Continuing on from algorithms, students will further develop their problem solving and computational thinking skills to further develop their Python Programming skills that were previously taught in Year 7. Selection is the natural progression after sequence and students will learn how to create decisions in their programs.	Weekly topic assessments - self marked. Students will explore a range of editing software and techniques to plan, produce, test and evaluate a media product for a given scenario. The editing skills developed in this SoW provide a platform to study CNAT Creative iMedia at KS4.

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Implementation (Year 9)

Year 9 Overview	Students in year 8 develop new skills through new schemes of work such as sound and video editing, whilst developing their skills and knowledge from previously taught topics such as Python Programming. Students will continue to experience a varying curriculum that enables them to make a well informed decision on whether or not they would like to continue learning about the subjects we have on offer at KS4 (GCSE Computer Science, CNAT Information Technology and CNAT Creative iMedia).

SOW	Advanced Spreadsheets	Programming in Python: Iteration	Cyber Security	Networking and the Internet	Ethics of Computing	Designing Websites
Assessment Type & Unit Focus	Weekly topic assessments - self marked. Students develop their spreadsheet skills that were initially taught in year 7, now learning more advanced skills such as: advanced functions, validation rules, run queries, create and use macros.	Weekly topic assessments - self marked. Students now learn the next programming construct, iteration - the repetition of code. Students will develop their programming ability to use for and while loops, whilst learning when each should be used for a certain problem.	Weekly topic assessments - self marked. Students continue to learn about the impact of computer science on security of data. Students will learn about a variety of different cyber attacks and types of attacker. This unit also coincides with National Safer Internet Day (07/02/2023).	Weekly topic assessments - self marked. Students will learn how data is sent across a network and the concept of packet-switching. Furthermore, students will learn about network hardware, role of IP addresses, domain names and more. These topics link directly into the content that is taught at GCSE computer science.	Weekly topic assessments - self marked. Students will learn the role of algorithms in decision making and how algorithms can have bias that effects the ethics of their output. Students will also learn about the legislation involved in protecting intellectual property.	Weekly topic assessments - self marked. Students will learn how to use a variety of HTML and CSS tags to create and develop websites. Students will learn the factors that contribute to a well designed and presented web page.

Topic Texts	The students have a variety of reading that is tested using PAFF questions for fortnightly homework tasks: Applications of Microsoft Excel, What is Computer Hardware?, 5 Huge Tech Companies that use Python, Coding for Kids, Representing Data & Email Etiquette.

Impact

Year Tracking		KS3 RP1	KS3 RP2			KS3 RP3

literacy and Numeracy links	**Literacy** skills are developed throughout all key stages and through the majority of SoW through the use of students using word processing and presentation software to write their work. Throughout many of the Boost Learning resources there are reading tasks for students to undertake to develop this important literacy skill. **Numeracy** skills are developed throughout, but even more so in specific topics such as spreadsheet, programming and binary, all of which require students to perform maths but also have an understanding of how numbers work.
How It Is Used / Skills Set Developed / Outcomes	Students will learn the basics of how to use the school computer system along with all of the applications students require to be successful digital learnings, such as Microsoft package etc. Furthermore, students develop subject specific skills and expertise such as spreadsheets, programming, image and sound editing, HTML and CSS website development as well as much, much more. Students also develop additional skills such as group work and communication along with organisation through files and folders and even problem solving skills through the development of algorithms.
Links to Higher Education	The topics students experience in the 3 years have been carefully considered and placed in an order that the faculty believe will develop learning as well as interest in the Key Stage 4 courses that are available to students, GCSE Computer Science, CNAT Information Technology and CNAT Creative iMedia. Furthermore, learning done at KS3 also prepares students to study these subjects even further at Sixth Form or College. Specially at Sixth Form students can continue to study Computer Science, IT and Digital Media.
Careers in the Curriculum	Students are aware of the careers available in this curriculum through display boards in the Computing and IT teaching areas as well discussions in class.