

## Computer Science

<b>Overview of the year:</b> This year, students start off learning basic organisation skills using the school network, alongside looking at E-safety and health safety aspects when working with computers. For the next topic students will look further into different types of cybercrime and online threats including Virus and Malware and Cyber bullying. For the third topic students are introduced to the concept financial modelling using a spreadsheet application. The last topic for the year is Flowol which teaches them fundamental concepts of algorithms, visual flowcharts and how these concepts and techniques can be used to develop a controlled system.		<b>Ways to consolidate and extend your learning in Computer Science/ICT:</b> TOP READ: look out for information and articles shared on Microsoft Teams. These links will be directly relevant to topics being taught. Teachers will be posting articles and videos here. TOP YOUTUBE CHANNEL: Craig and Dave Computer Science channel on YouTube. Techquickie ICT and Computer Science channel TOP FAMILY VISIT: The National Museum of Computing, Block H, Bletchley Park, MILTON KEYNES. All the resources can be found here: <a href="https://www.tnmoc.org/learning">https://www.tnmoc.org/learning</a> Why not subscribe to or read articles on Computer Science and ICT from the world-renowned university Massachusetts Institute of Technology. All resources can be found here: <a href="https://news.mit.edu/topic/computers">https://news.mit.edu/topic/computers</a> TOP WEBSITE: Visit Teach-ICT.com for support with ICT and Computer Science based work and resources. Students will need to ask their teachers for username and password to this website.		
Half Term	Unit title	Knowledge	Skills	Assessment
1	E-Safety	Knowledge on the safe use of Computers Understanding of common online threats.	File management skills Using computer network effectively Recognise and respond to online threats	Health and safety, Using computers effectively, Appropriate response online threats.
2	Computer crime and cyber security	Knowledge on the legal safeguards regarding Computer Misuse Act, Data Protection Act and Copyright Law, Phishing scams, email frauds, hacking, data harvesting and identity theft.	Distinguish the difference between: Computer Misuse Act, Data Protection Act and Copyright law Identify signs of phishing scams, email fraud and virus/malware infection.	Virus, Malware, Appropriate response to online threats. Computer Misuse Act. Data Protection Act. Copyright law
3	Spreadsheet modelling	Knowledge on the principles of creating and formatting basic spreadsheets to produce and use simple computer models. Explore formula, functions and other features of Microsoft Excel.	Develop basic formatting skills in a spreadsheet application. Write basic formula. Use functions like (MIN, SUM, COUNTIF etc). Answer “what if questions”	Formatting techniques Correct use of formula, functions, graphs and charts and Conditional formatting
4	Flow charts and algorithms (Flowol)	Knowledge of how sensors are used in a controlled system. Knowledge of how to create a flowchart for a controlled system. Knowledge of how subprograms are used and called in a controlled system	Identify flow chart shapes with respect to their uses. Create a flowchart for controlled system. Test flowchart/algorithm using a mimic software (Flowol)	Demonstration of knowledge and Demonstration of knowledge and understanding of the following: Input, Process, Output, Iteration, Sub-programs within a program. Sensors
5	Flowol and revision	Complete Flowol unit and revisit previous units	Complete Flowol unit and revisit previous units	Complete Flowol unit and revisit previous units
6	Revision/ End of year exam	End of year exam on all topics	End of year exam on all topics	End of year exam on all topics