

Computer Science

Overview of the year: This year, students start off learning what hardware makes up a computer system, alongside looking at how data is processed and stored. The second topic looks at learning to program using a visual block-based programming language (Kodu). Students will learn programming by creating computer games. For the third topic students are introduced to the creation and use of flat file databases. Students will appreciate how a database is integral to any organisation using data. The last topic for the year is Learning how to program using Python, which is a text-based programming language. In this unit students will revisit fundamental concepts like sequence, selection, iteration, and variables from a text-based programming language perspective.			Ways to consolidate and extend your learning in Computer Science/ICT: 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: https://www.tnmoc.org/learning 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: https://news.mit.edu/topic/computers 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	Understanding computers	Understand how computer hardware and software makes up a computer system. Understand how data is processed and stored on a computer.	Calculate file size based on units of data in binary. Binary addition Identify input and output of a computer system	Computer Hardware (input, process, and output) Units of data Calculation of file size Future use of technology
2	Introduction to coding through Kodu.	Knowledge on the following programming constructs: sequence, selection, and iteration	Proficiency in Kodu Create and alter shapes in Kodu. Change properties of an object Program objects to create a game.	Sequence Selection Iteration Visual programming environment (Kodu)
3	Database development	Understand how databases are created and used effectively to store and retrieve data	Proficiency in Microsoft Access Create and search for data using queries. Create reports in Ms Access	Flat file database Fields, data types, queries, and reports
4	Introduction to python	Knowledge on the following programming constructs: sequence, selection, iteration, and variables	Proficiency in text-based programming language and IDE. Application of sequence, selection and iteration programming constructs. Debug programs	IDE, Sequence, Selection, Iteration and Error handling
5	Introduction to python (continued) and revision	Complete Introduction to python unit and revisit previous units	Complete Introduction to python unit and revisit previous units	Complete Introduction to python 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