# Key Stage 3
## Year 8 Computer Science and IT Learning Map

| Term | I am learning | By the end of this topic I will be able to | Assessment |
|---|---|---|---|
| Autumn | **Computer Crime** (KS3 link 1.9): <br> – Identify common types of computer crime. <br> – Recognize the signs of fraudulent emails. <br> – Computer Misuse Act. <br> – ways to protect yourself from malware and hacking. <br> – Be aware of the possibility of identity theft. <br> – Be aware of who might hold personal data about you. <br> – Know how to minimize the chance of identity theft. <br> – Learn about Copyright law. <br> – Understand the damage that illegal copying does to individuals, companies and society. | This unit covers some of the legal safeguards regarding computer use, including overviews of the Computer Misuse Act, Data Protection Act, and Copyright Law and their implications for computer use. <br><br> Phishing scams and other email frauds, hacking, "data harvesting" and identity theft are discussed together with ways of protecting online identity and privacy. <br><br> Health and Safety Laws and environmental issues such as the safe disposal of old computers are also discussed. | A Microsoft Forms assessment made up of exam-style questions covering all aspects of the unit. This will be carried out at the end of the unit |
| | **App Development** (KS3 links 1.7, 1.8 and 1.9 ): <br><br> – How to create a simple application and display it in a browser <br> – How to create a simple navigation system <br> – Create a design for a template for an app page <br> – Create a multi-page app <br> – Insert text, images, and links into an app page <br> – Add enhancements or additional features to the original basic design <br> – Construct a well-formatted interactive app that is suitable for its intended audience | During this unit, you will understand how apps are created and how code is used within applications. <br><br> Completing this unit, you will understand the importance of code within applications and why a multi-page app should have a consistent look and feel for each page. You will be able to create multiple pages and ensure links are set up correctly. You will understand house style and how to create an app for a given scenario. | Application created. Pages of each app A Microsoft Forms assessment made up of exam-style questions covering all aspects of the unit. This will be carried out at the end of the unit |

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| Spring | **Binary** (KS3 links 1.4 and 1.6)**:**<br>– The Binary Number System.<br>– Binary – Denary Conversions.<br>– Binary Addition.<br>– Binary Representation of Text. | Pupils will understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers<br><br>Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds, and pictures) can be represented and manipulated digitally, in the form of binary digits | A Microsoft Forms assessment made up of exam-style questions covering all aspects of the unit. This will be carried out at the end of the unit |
| | **Spreadsheets** (KS3 links 1.6 and 1.8)**:**<br>– The use of spreadsheet software to model real-world situations<br>– Understand the difference between entering text and numbers using different formatting options to display the data.<br>– The difference between formula and functions<br>– Add conditional formatting to a spreadsheet.<br>– Advanced filtering criteria<br>– Use graphs to change, edit and compare results. | By completing this unit students will learn how to create and format a spreadsheet.<br><br>They will also learn basic calculations and formulae. Students will learn how they can use spreadsheets in the real world and then model a spreadsheet for an intended purpose. | Data modeling a spreadsheet<br>A Microsoft Forms assessment made up of exam-style questions covering all aspects of the unit. This will be carried out at the end of the unit |
| Summer | **Introduction to Python** (KS3 links 1.1, 1.2 and 1.7)**:**<br>– Outputs<br>– Inputs and Variable Storage<br>– IF Statements<br>– Problem-Solving (Abstraction and Decomposition) Tasks | Pupils start to build on the skills gained in their block-based unit – Scratch. You will start to write code using a new text-based language.<br><br>The focus is on getting students to understand the process of developing programs, the importance of writing correct syntax, being able to formulate algorithms for simple programs, and debugging their programs.<br><br>This unit introduces students to the basics of programming using the Python programming language.<br>Students will learn about the following: | Python program<br>A Microsoft Forms assessment made up of exam-style questions covering all aspects of the unit. This will be carried out at the end of the unit |

| | | Print, Loops, Variables, If Statements and Else Statements, | |
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## Computing and IT Key Stage 3 Curriculum Links

| | Content | Year | Unit |
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| 1.1 | Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems. | 7, 8 & 9 | Scratch/Python/Flowol *[Computer Science]* |
| 1.2 | Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem. | 7, 8 & 9 | Scratch/Python/Advanced Python/Binary *[Computer Science]* |
| 13 | Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions. | 7, 8 & 9 | Scratch/Python/Advanced Python *[Computer Science]* |
| 1.4 | Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]. | 8 & 9 | Binary/Data Representation/ Logic Gates *[Computer Science]* |
| 1.5 | Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems. | 7 & 8 | Networks/Technology /Back to the Future/Computer Crime *[Computer Science]* |
| 1.6 | Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits. | 7, 8 & 9 | Technology/ Binary/ Data Representation/Spreadsheets *[Computer Science & IT]* |
| 1.7 | Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users. | 7, 8 & 9 | Spreadsheets /Multimedia Project/ Scratch/Python/ App Development *[Computer Science & IT]* |

| 1.8 | Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability. | 7, 8 & 9 | Multimedia Project/ Back to the Future/Computer Crime/E-Safety/App Development *[Computer Science & IT]* |
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| 1.9 | Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns. | 7 & 8 | E-Safety/Computer Crime/App Development *[Computer Science & IT]* |