# Year 7 Curriculum Plan

## IT Computer Science Digital Literacy

## Computing

**Threads**:
We use threads to signpost groups of units that link to one another, that together build a common body of knowledge over time. We use the term 'thread' to help us bring to mind the visual concept of a thread weaving through the curriculum:

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Algorithms & data structures | Artificial intelligence | Computer systems | Creating media | Data and information | Design and development | Effective use of tools | Impact of technology | Networks | Programming | Safety and security |

| | Autumn 1<br>7.1 - Using computers safely, effectively and reliable (UCSER) | Autumn 2<br>7.2 - Using media | Spring 1<br>7.3 - Understanding computers 1 | Spring 2<br>7.4 - Computational thinking and algorithms | Summer 1:<br>7.5 - Block-based programming | Summer 2<br>7.6 - Introduction to spreadsheets |
|---|---|---|---|---|---|---|
| PRIOR LEARNING | **Key Stage 1 and 2:**<br>Computing experience at KS1 and KS2 is varied so, following a baseline test to establish starting points, this unit aims to overcome the disparity in substantive knowledge, computational thinking, and understanding of different application interfaces.<br><br>**Threads**:<br>Effective use of tools<br>Safety and security | **KS2 IT:**<br>Students will apply skills they have previously learnt from KS2 IT projects, such as poster and presentation design as well as their wider everyday knowledge of brands.<br><br>**Threads**:<br>Creating media<br>Effective use of tools | **Unit 7.1 – UCSER**<br>**Unit 7.2 – Using media**<br>Students will build on unit 7.1 when they learned about the school network and systems and will build on unit 7.2 when they learned how respond to a client brief.<br><br>**KS2 Computer Science:**<br>Students will build on any introductory understanding of how computers work, basic software and hardware components identified in the baseline test. | **KS2 Computer Science:**<br>This unit will build on any prior learning of the fundamental concepts of computational thinking and algorithms identified in the baseline test.<br><br>**Threads**:<br>Algorithms and data structures<br>Design and development | **7.4 - Computational thinking and algorithms:**<br>This unit builds on the skills and concepts learned in Unit 7.4 by helping students develop a deeper understanding and practical application of computational thinking and algorithms.<br><br>**KS2 Computer Science:**<br>This unit will build on any previous experience of block-based programming from Scratch, 2Code, Lego | **7.1 - UCSER:**<br>This unit builds on the learning from 7.1 and throughout the year as students have experience of the Office 365 interface and packages.<br><br>**KS2 IT:**<br>This unit builds on any prior experience of spreadsheets identified in the baseline test as many students used 2Calculate or Excel for project work.<br><br>**Threads**: |

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| | | | **Threads**:<br>Computer systems<br>Data and information<br>Networks | | Mindstorms and Sphero identified in the baseline test.<br><br>**Threads**:<br>Algorithms and data structures<br>Programming | Data and information<br>Effective use of tools |
| KNOWING WHAT… | *School network fundamentals – purpose and how to navigate<br>* Office 365 and Teams –how to use efficiently<br>*File management<br>*Using outlook email<br>*Digital citizenship, netiquette, online safety, cyber security and digital footprint<br>*Web searching – advanced tools and 'TRUTH' for verifying | *Visual identity – importance and elements<br>*Visualisation diagrams and storyboards – purpose and elements<br>*Moodboards – purpose and contents<br>*Logos – types and 5 principles of effective design<br>*Fundraising posters – content and design<br>*Fundraising pitch – design and delivery | *Computers – past, present and future<br>*What is a computer system with I/O model<br>*Input, output and storage peripherals<br>*Internal components – purpose and synergy<br>*Simple binary – purpose and conversions | *Computational thinking - purpose and types<br>*Control and monitoring – purpose and examples<br>*Flowcharts in control systems – arranging in order with correct symbols | *Key components of the MicroBit and functions<br>*Sequence, selection and iteration in programs<br>*Variables – assigning, storing, retrieving and updating values | *Structure of a spreadsheet<br>*Formulae, replication and referencing<br>-Functions - SUM, AVERAGE, MAX and MIN<br>*Boolean operators, the IF, COUNT, COUNTIF, COUNTA<br>*Conditional formatting<br>*Graphs – creating and formatting<br>*Modelling with goal seek |
| KNOWING HOW… | *Navigate and explain the purpose of the school network<br>*Create, rename, move, share, delete files/folders<br>*Send, receive and manage emails<br>*Send, receive and manage emails<br>*Explain what a digital footprint is and maintain a positive one | *Identify and explain visual identity<br>*Create and use visualisation diagrams and storyboards<br>*Create and use a moodboard<br>*Design a logo, explaining its type and elements<br>*Design an effective poster incorporating | *Explain the past, present and future of computers including the concept of Moore's Law<br>*Describe a computer system using the I/O model and examples<br>*Categorise and describe input, output and storage peripherals<br>*Explain the purpose and synergy of internal computer components | *Explain what computational thinking it and why we use it<br>*Explain the different types of computational thinking and their uses<br>*Choose the best computational thinking tool for solving a problem<br>*Explain what control and monitoring are and their purpose | *Identify and describe the key components of the Micro:Bit<br>*Sequence blocks to construct a program<br>*Combine IF, ELSE IF and ELSE blocks to control program flow<br>*Set and use variables to store values in a program | *Identify the main elements of a spreadsheets<br>*Use operators to write formulae for calculations<br>*Replicate cells with absolute and relative cell referencing using the fill handle<br>*Perform complex calculations with functions with Boolean |

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| | *Demonstrate netiquette, identify cyber security dangers and provide prevention advice<br>*Use advanced web search tools and verify information using the 'TRUTH' method | content and design features<br>*Create an effective presentation incorporating visual identity | *Convert numbers to and from binary and explain its purpose | *Identify different flowchart symbols and explain their purpose<br>*Add variables and subroutines | *Use while and for loop to repeat sections of code<br>*Combine tools and programming constructs to create efficient programs | operators (SUM, AVERAGE, MAX, MIN, IF, COUNT, COJNTIF, COUNTA)<br>*Format cells for readability (font size, colour, fill colour, number format, text alignment and borders)<br>*Use conditional formatting to change cell appearance based on values<br>*Create and format various types of graphs<br>*Use Goal Seek as a modelling tool to make predictions |
| ASSESSMENT | Students will be assessed through an on-screen Office Forms test with questions in four sections:<br>1.What is effective file management?<br>2.Effective and responsible use of email<br>3.Use effective search techniques<br>4.Describe the recommended safe practices online | Students will be assessed though;<br>-Practical completion of the tasks (poster, presentation design and delivery of the pitch)<br>-A short on-screen Office Forms test with questions on the theory of visual identity, moodboards, logos, posters and presentations | Students will be assessed through:<br>-The recommendation proposal of a suitable computer<br>- complete formative assessment through the ongoing creation of an ongoing interactive presentation plus a final on-screen Office Forms test with questions on the purpose of hardware devices, the purpose of the CPU, binary logic and input and output devices. | Students will be assessed through:<br>-Formative assessment activities to check understanding each lesson (creating flowcharts).<br>They will then complete a final assessment on Office Forms with questions on computational thinking, control and monitoring and algorithms. | Students will be assessed through;<br>-A practical project where students have to plan and build a rock-paper-scissors game<br>-An on-screen Office Forms test covering the importance of sequencing in programming and identifying missing key words in sections of code | Students will be assessed through;<br>-An on-screen Office Forms test asking questions about formulas, functions, graphs and formatting of spreadsheets.<br>-A practical task involving students creating a spreadsheet with formulas and functions for a sports day scenario. |

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