**National Curriculum:**

The national curriculum for computing aims to ensure that all pupils:

* can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
* can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
* can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
* are responsible, competent, confident and creative users of information and communication technology.

**Key stage 1**

**Pupils should be taught to:**

* understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
* create and debug simple programs
* use logical reasoning to predict the behaviour of simple programs
* use technology purposefully to create, organise, store, manipulate and retrieve digital content
* recognise common uses of information technology beyond school
* use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

**Key stage 2**

**Pupils should be taught to:**

* design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
* use sequence, selection, and repetition in programs; work with variables and various forms of input and output ♣ use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
* understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
* use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
* select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
* use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

**EYFS**

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| **Vocabulary**  **By the end of EYFS they will be able touse the words:** | **Outcomes for the end of EYFS. Children will be able to:** |
| App  Computer  Device  Information  Interactive Whiteboard  Internet  iPad  Keyboard  Laptop  Mobile phone  Mouse  Online Safety  Program  Tablet  Technology | **Fine Motor Skills**  Develop their fine motor skills so that they can use a range of tools competently, safely and confidently  **Managing Self**  Be confident to try new activities and show independence, resilience and perseverance in the face of challenge  Explain the reasons for rules, know right from wrong and try to behave accordingly.  **Understanding the World**  Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class. |

**Cycle A, Spring Term 2**

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| **Year 1**  **Information Technology**  **Maze Explorers** | **Key Objective** | **Skills** | **Key Questioning** | **Key Vocabulary** | **Lesson context (Teacher notes)** |
| **Week 1** | I will understand what a spreadsheet looks like.  I will be able to navigate around a spread sheet and enter data.  I will learn new vocabulary related to spreadsheets. | Children can navigate around a spreadsheet.  Children can explain what rows and columns are.  Children can save and open sheets.  Children can enter data into cells. | What are spreadsheets? | **Spreadsheet:** A computer program that represents information in a grid of rows and columns.  **Data:** A collection of information, used to help answer questions.  **Row:** Boxes running horizontally on a spreadsheet.  **Column:** Boxes running vertically on a spreadsheet.  **Cell:** An individual section of a spreadsheet grid. It contains data or calculations.  **Delete:** Removes contents such as the contents in a cell.  **Calculations:** Maths calculations can be entered into a cell. For example the total of two cells can be added together using a calculation that appears in a new cell. |  |
| **Week 2** | I will be able to add clipart images to a spreadsheet.  I will be able to use the ‘move cell’ and ‘lock’ tools | Children can open the Image toolbox and find and add clipart.  Children can use the ‘move cell’ tool so that images can be dragged around the spreadsheet.  Children can use the ‘lock’ tool to prevent changes to cells |  | **Button:** An object you click that performs an action. E.g. print.  **Clip-art:** A library of images that a user can choose from and insert in a file.  **Image:** A drawing or photograph that users can import into a file.  **Move cell:** The move tool in 2Calculate lets a user move the contents of a cell to a new cell.  **Lock cell:** This feature lets a user lock a cell so its contents can’t be deleted.  **Select:** A user can select one or more cells and perform an action such as lock all selected cells. |  |
| **Week3** | I will be able to use the ‘speak’ and ‘count’ tools in 2Calculate to count items. | Children can give images a value that the spreadsheet can use to count them.  Children can add the count tool to count items.  Children can add the speak tool so that the items are counted out loud. |  | **Count tool:** In 2Calculate, this counts the number of cells with a value that matches the value of the cell to the left of the tool.  **Speak tool:** This tool will speak the contents of a cell containing a number each time the value changes.  **Value:** Images can have values given to them. For example, an apple could be given a value of 1 and a pear a value of 2. |  |
| **Week 4** |  |  |  |  |  |

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| **Year 2/3**  **Information Technology**  **Yr2 – Presenting** | **Key Objective** | **Skills** | **Key Questioning** | **Key Vocabulary** | **Lesson context (Teacher notes)** |
| **Week 1** | I will be able to explore how a story can be presented in different ways. | Children have examined a traditional tale presented as a mind map, as a quiz, as an ebook and as a fact file.  Children know that digital content can be represented in many forms. | What is an e-book? | **E-book:** An electronic version of a printed book that can be read on a computer or a specifically designed handheld device.  **Mind Map:** A tool for organising and representing knowledge. They form a web of ideas which are all interconnected.  **Node:** A way to represent a concept or idea using text and/or images. |  |
| **Week 2** | I will be able to make a quiz about a story or class topic. | children have made a quiz using 2Quiz.  Children can talk about their work and make improvements based on feedback received. | What types of questions have been used in this quiz? | **Quiz:** A test of knowledge, especially as a competition between individuals or teams as a form of entertainment.  **Multiple-choice:** A question type with several possible answers given where the user has to choose the correct answer or answers. |  |
| **Week3** | I will be able to make a fact file on a non-fiction topic. | Children have extracted information from a 2Connect file to make a publisher fact file on a non-fiction topic.  Children have added appropriate clipart.  Children have added an appropriate photo.  Children know that data can be structured in tables to make it useful. | Do you know the difference between fiction and non-fiction? | **Fiction:** A book or story that is written about imaginary characters and events and not based on real people or places.  **Non-fiction:** Writing that is about real people or events rather than stories that have been made up.  **Fact file:** A document containing all the important information about one subject |  |
| **Week 4** | I will be able to make a presentation to the class. | Children can use a variety of software to manipulate and present digital content and information. Children can collect, organise and present data and information in digital content.  Children can create digital content to achieve a given goal by combining software packages. | What different ways can we present information? | **Presentation:** A way of displaying information about a subject to an audience. |  |

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| **Yr 4,5,6**  **Information Technology** | **Key Objective** | **Skills** | **Key Questioning** | **Key Vocabulary** | **Lesson context (Teacher notes)** |
| **Week 1** | I will be introduced to the 2Design and Make tool. | Children know what the 2Design and Make tool is for.  Children can explore the different viewpoints in 2Design and Make whilst designing a building. |  | **Net:** What a 3D shape would look like if it was unfolded and opened out flat.  **Template:** Something that serves as a model for others to copy and edit.  **3D view:** A view point where you can see the net completed and put together as a 3D shape.  **Pattern Fill:** A tool where you can add a customised repeating pattern to the surface of the net. |  |
| **Week 2** | I will be able to explore the effect of moving points when designing. | Children can adapt one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form. |  | **Points:** The points on a 3D net which create the corners of the 3D shape. |  |
| **Week3** | I will be able to design a 3D model to fit certain criteria | Children can explore how to edit the polygon 3D models to design a 3D model for a purpose. |  | **Design Brief:** A document for a design project, defining the core details, including the goal and strategy. |  |
| **Week 4** | I will be able to refine and print a model. | Children can refine one of their designs to prepare it for printing.  Children can print their design as a 2D net and then created a 3D model.  Children can explore the possibilities of 3D printing. |  | **3D Printing:** The action or process of making a physical object from a three-dimensional digital model, typically by laying down many thin layers of a material in succession. |  |