**Computing**

**Intent:**

A high-quality computing education focuses on computational thinking, developing children’s digital literacy and confidence with a range of digital devices. Children will develop resilience when solving problems working to devise creative solutions. Children will recognise that the skills they learn in computing can be applied within a range of other subjects. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology. Children will become active participants in a digital world, preparing them for the future workplace.

**Aims:**

* provide a relevant, challenging and enjoyable curriculum in computing for all pupils.
* meet the requirements of the national curriculum programmes of study for computing.
* use computing as a tool to enhance learning throughout the curriculum.
* apply their computing skills and knowledge to their learning in other areas;
* equip pupils with the confidence and capability to use computing throughout their later life.
* develop the understanding of how to use computing safely and responsibly.
* develop computing capability in finding, selecting and using information;
* use computing for effective and appropriate communication

**Unit Planner**

Information Technology around us

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| Year 1  Computing systems and networks –Technology around us | Year 2  Computing systems and networks –IT around us | Year 3 Computing systems and networks – Connecting computers | Year 4  Computing systems and networks – The Internet | Year 5  Computing systems and networks – Sharing information | Year 6  Computing systems and networks – Communication |
| To identify technology  To identify a computer and its main parts  To use a mouse in different ways  To use a keyboard to type on a computer  To use the keyboard to edit text  To create rules for using technology responsibly | To recognise the uses and features of information technology  To identify the uses of information technology in the school  To identify information technology beyond school  To explain how information technology helps us  To explain how to use information technology safely  To recognise that choices are made when using information technology | To explain how digital devices function  To identify input and output devices  To recognise how digital devices can change the way that we work  To explain how a computer network can be used to share information  To explore how digital devices can be connected  To recognise the physical components of a network | To describe how networks physically connect to other networks  To recognise how networked devices make up the internet  To outline how websites can be shared via the World Wide Web (WWW)  To describe how content can be added and accessed on the World Wide Web (WWW)  To recognise how the content of the WWW is created by people  To evaluate the consequences of unreliable content | To explain that computers can be connected together to form systems  To recognise the role of computer systems in our lives  To recognise how information is transferred over the internet  To explain how sharing information online lets people in different places work together  To contribute to a shared project online  To evaluate different ways of working together online | To identify how to use a search engine  To describe how search engines select results  To explain how search results are ranked  To recognise why the order of results is important, and to whom  To recognise how we communicate using technology  To evaluate different methods of online communication |

Creating media

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| Year 1  Digital painting | Year 2  Digital Photography | Year 3  Stop Frame Animation | Year 4  Audio Editing | Year 5  Vector Drawing | Year 6  3D Modelling |
| To describe what different freehand tools do  To use the shape tool and the line tools  To make careful choices when painting a digital picture  To explain why I chose the tools I used  To use a computer on my own to paint a picture  To compare painting a picture on a computer and on paper | To use a digital device to take a photograph  To make choices when taking a photograph  To describe what makes a good photograph  To decide how photographs can be improved  To use tools to change an image  To recognise that photos can be changed | To explain that animation is a sequence of drawings or photographs  To relate animated movement with a sequence of images  To plan an animation  To identify the need to work consistently and carefully  To review and improve an animation  To evaluate the impact of adding other media to an animation | To identify that sound can be digitally recorded:  To use a digital device to record sound:  To explain that a digital recording is stored as a file:  To explain that audio can be changed through editing:  To show that different types of audio can be combined and played together:  To evaluate editing choices made | To identify that drawing tools can be used to produce different outcomes  To create a vector drawing by combining shapes  To use tools to achieve a desired effect  To recognise that vector drawings consist of layers  To group objects to make them easier to work with  To evaluate my vector drawing | To use a computer to create and manipulate three-dimensional (3D) digital objects  To compare working digitally with 2D and 3D graphics  To construct a digital 3D model of a physical object  To identify that physical objects can be broken down into a collection of 3D shapes  To design a digital model by combining 3D objects  To develop and improve a digital 3D model |

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| Year 1  Digital Writing | Year 2  Making Music | Year 3  Desktop Publishing | Year 4  Photo Editing | Year 5  Video Editing | Year 6 Web page creation |
| To use a computer to write  To add and remove text on a computer  To identify that the look of text can be changed on a computer  To make careful choices when changing text  To explain why I used the tools that I chose  To compare typing on a computer to writing on paper | To say how music can make us feel  To identify that there are patterns in music  To describe how music can be used in different ways  To show how music is made from a series of notes  To create music for a purpose  To review and refine our computer work | To recognise how text and images convey information  To recognise that text and layout can be edited  To choose appropriate page settings  To add content to a desktop publishing publication  To consider how different layouts can suit different purposes  To consider the benefits of desktop publishing. | To explain that digital images can be changed  To change the composition of an image  To describe how images can be changed for different uses  To make good choices when selecting different tools  To recognise that not all images are real  To evaluate how changes can improve an image | To explain what makes a video effective  To use a digital device to record video  To capture video using a range of techniques  To create a storyboard  To identify that video can be improved through reshooting and editing  To consider the impact of the choices made when making and sharing a video | To review an existing website and consider its structure  To plan the features of a web page  To consider the ownership and use of images (copyright)  To recognise the need to preview pages  To outline the need for a navigation path  To recognise the implications of linking to content owned by other people |

Programming

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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| A  Moving a Robot  To explain what a given command will do  To act out a given word  To combine forwards and backwards commands to make a sequence  To combine four direction commands to make sequences  To plan a simple program  To find more than one solution to a problem | A  Robot Algorithms  To describe a series of instructions as a sequence  To explain what happens when we change the order of instructions  To use logical reasoning to predict the outcome of a program (series of commands)  To explain that programming projects can have code and artwork  To design an algorithm  To create and debug a program that I have written | A  Sequencing Sounds  To explore a new programming environment  To identify that commands have an outcome  To explain that a program has a start  To recognise that a sequence of commands can have an order  To change the appearance of my project  To create a project from a task description | A  Repetition in shapes  To identify that accuracy in programming is important  To create a program in a text-based language  To explain what ‘repeat’ means  To modify a count-controlled loop to produce a given outcome  To decompose a task into small steps  To create a program that uses count-controlled loops to produce a given outcome | A  Selection in physical computing  To control a simple circuit connected to a computer  To write a program that includes count-controlled loops  To explain that a loop can stop when a condition is met  To explain that a loop can be used to repeatedly check whether a condition has been met  To design a physical project that includes selection  To create a program that controls a physical computing project | A  Variables in games  To define a ‘variable’ as something that is changeable  To explain why a variable is used in a program  To choose how to improve a game by using variables  To design a project that builds on a given example  To use my design to create a project  To evaluate my project |
| B  Introduction to Animations  To choose a command for a given purpose  To show that a series of commands can be joined together  To identify the effect of changing a value  To explain that each sprite has its own instructions  To design the parts of a project  To use my algorithm to create a program | B  AN Introduction to Quizzes  To explain that a sequence of commands has a start  To explain that a sequence of commands has an outcome  To create a program using a given design  To change a given design  To create a program using my own design  To decide how my project can be improved | B  Events and actions in Programming  To explain how a sprite moves in an existing project  To create a program to move a sprite in four directions  To adapt a program to a new context  To develop my program by adding features  To identify and fix bugs in a program  To design and create a maze-based challenge | **B**  Repetition in games  To develop the use of count-controlled loops in a different programming environment  To explain that in programming there are infinite loops and count-controlled loops  To develop a design that includes two or more loops which run at the same time  To modify an infinite loop in a given program  To design a project that includes repetition  To create a project that includes repetition | B  Selection in Quizzes  To explain how selection is used in computer programs  To relate that a conditional statement connects a condition to an outcome  To explain how selection directs the flow of a program  To design a program which uses selection  To create a program which uses selection  To evaluate my program | B  Sensing  To create a program to run on a controllable device  To explain that selection can control the flow of a program  To update a variable with a user input  To use an conditional statement to compare a variable to a value  To design a project that uses inputs and outputs on a controllable device  To develop a program to use inputs and outputs on a controllable device |

Data

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| Year 1  Grouping Data | Year 2  Pictograms | Year 3  Branching databases | Year 4  Data Logging | Year 5  Flat-file databases | Year 6  Spreadsheets |
| To label objects  To identify that objects can be counted  To describe objects in different ways  To count objects with the same properties  To compare groups of objects  To answer questions about groups of objects | To recognise that we can count and compare objects using tally charts  To recognise that objects can be represented as pictures  To create a pictogram  To select objects by attribute and make comparisons  To recognise that people can be described by attributes  To explain that we can present information using a computer | To create questions with yes/no answers  To identify the object attributes needed to collect relevant data  To create a branching database  To explain why it is helpful for a database to be well structured  To identify objects using a branching database  To compare the information shown in a pictogram with a branching database | To explain that data gathered over time can be used to answer questions  To use a digital device to collect data automatically  To explain that a data logger collects ‘data points’ from sensors over time  To use data collected over a long duration to find information  To identify the data needed to answer questions  To use collected data to answer questions | To use a form to record information  To compare paper and computer-based databases  To outline how grouping and then sorting data allows us to answer questions  To explain that tools can be used to select specific data  To explain that computer programs can be used to compare data visually  To apply my knowledge of a database to ask and answer real-world questions | To identify questions which can be answered using data  To explain that objects can be described using data  To explain that formulas can be used to produce calculated data  To apply formulas to data, including duplicating  To create a spreadsheet to plan an event  To choose suitable ways to present data |