**Computer Skills and Knowledge Progression**

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| **Minimum Expectations For Nursery** | | | **Minimum Expectations For Reception** | | | **Links to KS1 Curriculum** |
| Mark make on paint software on the interactive whiteboard. | | Select brushes, colours and rubbers when drawing on paint software. | | Use various tools such as brush, pens, eraser, stamps and shapes. | | Use various tools such as brushes, pens, eraser, stamps, and shapes. |
| Can play simple games on the interactive whiteboard by pressing buttons. | | Can play simple games on the interactive whiteboard by dragging and dropping items. | | Children can independently change games or increase levels of difficulty on games. | |  |
| Children can switch a camera/iPad on and off. | Children can take photos on the camera/iPad. | | Children can record videos on the camera/iPad. | Children can edit photos. | Erases content and understands how to charge the camera/iPad. | Identify which things count as personal information. Asks for help when they need it. |
| Children to know to ask for help if needed. (Reception) | | | Children know what personal information is and knows it shouldn’t be shared online. | | |

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|  | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Computing systems and networks** | Technology around us  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 | IT around us  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 | Connecting Computers  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 | The Internet  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 | Systems and Searching  To explain that computers can be connected together to form systems  To recognise the role of computer systems in our lives  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 | Communication and Collaboration  To explain the importance of internet addresses  To recognise how data is transferred across the internet  To explain how sharing information online can help people to work together  To evaluate different ways of working together online  To recognise how we communicate using technology  To evaluate different methods of online communication |
| **Programming** | 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  Programming 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 | 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  To explain that programming projects can have code and artwork  To design an algorithm  To create and debug a program that I have written  Programming 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 | 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  Events and actions in programs  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 | 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  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 | 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  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 that uses selection  To create a program that uses selection  To evaluate my program | 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  Sensing movement  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 and information** | Grouping data  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 | Pictograms  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 | Branching databases  To create questions with yes/no answers  To identify the attributes needed to collect data about an object  To create a branching database  To explain why it is helpful for a database to be well structured  To plan the structure of a branching database  To independently create an identification tool | Data logging  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 recognise how a computer can help us analyse data  To identify the data needed to answer questions  To use data from sensors to answer questions | Flat file databases  To use a form to record information  To compare paper and computer-based databases  To outline how you can answer questions by grouping and then sorting data  To explain that tools can be used to select specific data  To explain that computer programs can be used to compare data visually  To use a real-world database to answer questions | Introduction to spreadsheets  To create a data set in a spreadsheet  To build a data set in a spreadsheet  To explain that formulas can be used to produce calculated data  To apply formulas to data  To create a spreadsheet to plan an event  To choose suitable ways to present data |
| **Creating media** | Digital writing  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  Digital painting  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 | Digital photography  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  Digital music  To say how music can make us feel  To identify that there are patterns in music  To experiment with sound using a computer  To use a computer to create a musical pattern  To create music for a purpose  To review and refine our computer work | Desktop publishing  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  Stop frame animation  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 | Photo editing  To explain that the composition of digital images can be changed  To explain that colours can be changed in digital images  To explain how cloning can be used in photo editing  To explain that images can be combined  To combine images for a purpose  To evaluate how changes can improve an image  Audio production  To identify that sound can be recorded  To explain that audio recordings can be edited  To recognise the different parts of creating a podcast project  To apply audio editing skills independently  To combine audio to enhance my podcast project  To evaluate the effective use of audio | Introduction to vector graphics  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 apply what I have learned about vector drawings  Video production  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 | Web page creation  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    3D modelling  To recognise that you can work in three dimensions on a computer  To identify that digital 3D objects can be modified  To recognise that objects can be combined in a 3D model  To create a 3D model for a given purpose  To plan my own 3D model  To create my own digital 3D model |