| St Barnabas C of E Primary School | **Skills Progression**<br>**Subject area: Computing** | **Subject Intent:**<br>**Through our teaching of computing, we can equip our children to participate in a rapidly changing world where work and leisure activities are ever changing by the advancements of technology.**<br>**It is our intention to enable children to find, explore, analyse, exchange and present information. We also focus on developing the skills necessary for children to be able to use information in an effective and safe way.** |
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**EYFS Development Matters**
**Characteristics of effective teaching and learning**
**Playing and exploring** – children investigate and experience things, and 'have a go'
**Active learning** – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements
**Creating and thinking critically** – children have and develop their own ideas, make links between ideas, and develop strategies for doing things

| **3 and 4 year olds will be learning to:** | **Children in reception will be learning to:** | **Early Learning Goals:** |
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| Children will be using various toys and devices to compare pattern comparing, spot similarities and differences and work collaboratively on projects. | Children will be using various toys and devices to learn the basics of multimedia tools. Children will also be encouraged to use abstraction through working out what is important and ignoring what is not important. Algorithms and instructions are introduced through play and discussion. All learning is done through teacher or child lead investigation. | *To foster their understanding of our technological world.* |

| **Information Technology** | | | | | | | |
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| | **EYFS** | **Year 1** | **Year2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Using Software** | Using a simple online paint tool to create digital art | Using a basic range of tools within graphic editing software. Taking and editing photographs. Developing control of the mouse through dragging, clicking and resizing of images to create different effects. Developing understanding of different software tools. | Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts. Using word processing software to type and reformat text. Using software (and unplugged means) to create story animations. Creating and labelling images. | Taking photographs and recording video to tell a story. Using software to edit and enhance their video adding music, sounds and text on screen with transitions. | Use online software for documents, presentations, forms and spreadsheets. Using software to work collaboratively with others. | Using logical thinking to explore software more independently, making predictions based on their previous experience. Using software programme Sonic Pi/Scratch to create music. Using the video editing software to animate. Identify ways to improve and edit programs, videos, | Using logical thinking to explore software independently, iterating ideas and testing continuously. Using search and word processing skills to create a presentation. |

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| | | | | | | images etc. Independently learning how to use 3D design software package TinkerCAD. | |
| **Using email and internet searches** | N/A | Recognising devices that are connected to the internet. Understanding that we are connected to others when using the internet. | Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts. Using word processing software to type and reformat text. Using software (and unplugged means) to create story animations. Creating and labelling images. | N/A | Understanding why some results come before others when searching. Understanding that information found by searching the internet is not all grounded in fact. Searching the internet for data. | Developing searching skills to help find relevant information on the internet. | Understanding how search engines work. |
| **Using data** | N/A | Recognising devices that are connected to the internet. Understanding that we are connected to others when using the internet. | Searching for appropriate images to use in a document | N/A | Understanding that data is used to forecast weather. Recording data in a spreadsheet independently. Sorting data in a spreadsheet to compare using the 'sort by…' option. Designing a device which gathers and records sensor data. | Understanding how data is collected in remote or dangerous places. Understanding how data might be used to tell us about a location. | Understanding how barcodes, QR codes and RFID work. Gathering and analysing data in real time. Creating formulas and sorting data within spreadsheets. |
| **Wider use of technology** | N/A | Recognising common uses of information technology, | Learning how computers are used in the wider world. | Recognising how social media platforms are used | Understanding that software can be used collaboratively online to work as a | Learn about different forms of communication that have developed | Learning how 'big data' can be used to solve a problem or improve |

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| | | including beyond school. Understanding some of the ways we can use the internet. | | to interact. | team. | with the use of technology. | efficiency. |
| **Computer Science** | | | | | | | |
| | **EYFS** | **Year 1** | **Year2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Hardware** | Learning how to operate a camera to take photographs of meaningful creations or moments. Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary. Recognising and identifying familiar letters and numbers on a keyboard. Developing basic mouse skills such as moving and clicking. | Learning how to operate a camera or tablet to take photos and videos. Learning how to explore and tinker with hardware to find out how it works. Learning where keys are located on the keyboard. | Understanding what a computer is and that it's made up of different components. Recognising that buttons cause effects and that technology follows instructions. Learning how we know that technology is doing what we want it to do via its output. Developing confidence with the keyboard and the basics of touch typing. | Understanding what the different components of a computer do and how they work together. Drawing comparisons across different types of computers. Learning about the purpose of routers | Using tablets or digital cameras to film a weather forecast. Understanding that weather stations use sensors to gather and record data which predicts the weather. | Learning that external devices can be programmed by a separate computer. | Learning about the history of computers and how they have evolved over time. Using the understanding of historic computers to design a computer of the future. Understanding and identifying barcodes, QR codes and RFID. Identifying devices and applications that can scan or read barcodes, QR codes and RFID. |
| **Networks and data representation** | **N/A** | **N/A** | **N/A** | Understanding the role of the key components of a network. Identifying the key components within a network, including whether they are wired or wireless. Understanding that | Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration. | Learning the vocabulary associated with data: data and transmit. Recognising that computers transfer data in binary and understanding simple binary | **N/A** |

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| | | | | websites and videos are files that are shared from one computer to another. Learning about the role of packets. Understanding how networks work and their purpose. Recognising links between networks and the internet. Learning how data is transferred. | | addition. Learning that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations. | |
| **Computational thinking** | Using logical reasoning to understand simple instructions and predict the outcome. | Learning that decomposition means breaking a problem down into smaller parts. Using decomposition to solve unplugged challenges. Using logical reasoning to predict the behaviour of simple programs. Developing the skills associated with sequencing in unplugged activities. Following a basic set of instructions. Assembling instructions into a simple algorithm. | Articulating what decomposition is. Decomposing a game to predict the algorithms used to create it. Learning that there are different levels of abstraction. Explaining what an algorithm is. Following an algorithm. Creating a clear and precise algorithm. | Using decomposition to explain the parts of a laptop computer. Using decomposition to explore the code behind an animation. Using repetition in programs. Using logical reasoning to explain how simple algorithms work. Explaining the purpose of an algorithm. Forming algorithms independently. | Using decomposition to solve a problem by finding out what code was used. Using decomposition to understand the purpose of a script of code. Identifying patterns through unplugged activities. Using abstraction to identify the important parts when completing both plugged and unplugged activities. | Decomposing animations into a series of images. Decomposing a story to be able to plan a program to tell a story. Predicting how software will work based on previous experience. Writing more complex algorithms for a purpose. | Decomposing a program into an algorithm. Using past experiences to help solve new problems. Writing increasingly complex algorithms for a purpose. |
| **Programming** | Following instructions as part of practical activities | Programming a Floor robot to follow a planned route. | Using logical thinking to explore software, predicting, | Using logical thinking to explore more complex | Creating algorithms for a specific purpose. Coding a | Iterating and developing their programming as | Debugging quickly and effectively to make a program |

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| | and games. Learning to give simple instructions. Learning to debug instructions, with the help of an adult, when things go wrong. | Learning to debug instructions when things go wrong. Learning to debug an algorithm in an unplugged scenario | testing and explaining what it does. Using an algorithm to write a basic computer program | software; predicting, testing and explaining what it does. Incorporating loops to make code more efficient. Continuing existing code. | simple game. Using abstraction and pattern recognition to modify code. Incorporating variables to make code more efficient. Iterating and developing their programming as they work. Confidently using loops in their programming. Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. Writing code to create a desired effect. | they work. Confidently using loops in their programming. Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. Writing code to create a desired effect. Using a range of programming commands. Using repetition within a program. | more efficient. Remixing existing code to explore a problem. Using and adapting nested loops. Programming using the language Python. Changing a program to personalise it. Evaluating code to understand its purpose. Predicting code and adapting it to a chosen purpose. |

**Digital Literacy**

| EYFS | Year 1 | Year2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| Recognising that a range of technology is used for different purposes. Learning to log in and log out. | Logging in and out and saving work on their own account. When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable. Understanding how to interact safely with others online. | Learning how to create a strong password. Understanding how to stay safe when talking to people online and what to do if they see or hear something online that makes them feel upset or uncomfortable Identifying whether information is safe or unsafe to be shared online. Learning to be | Recognising that different information is shared online including facts, beliefs and opinions. Learning how to identify reliable information when searching online. Learning how to stay safe on social media. Considering the impact technology can have on mood. Learning about cyberbullying. | Recognising that information on the internet might not be true or correct and that some sources are more trustworthy than others. Learning to make judgements about the accuracy of online searches. Identifying forms of advertising online. Recognising what appropriate behaviour | Identifying possible dangers online and learning how to stay safe. Evaluating the pros and cons of online communication. Recognising that information on the internet might not be true or correct and learning ways of checking validity. Learning what to do if they experience bullying | Learning about the positive and negative impacts of sharing online. Learning strategies to create a positive online reputation. Understanding the importance of secure passwords and how to create them. Learning strategies to capture evidence of online bullying in order to |

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| | Recognising how actions on the internet can affect others. Recognising what a digital footprint is and how to be careful about what we post. | respectful of others when sharing online and ask for their permission before sharing content. Learning strategies for checking if something they read online is true. | Learning that not all emails are genuine, recognising when an email might be fake and what to do about it. | is when collaborating with others online. Reflecting on the positives and negatives of time spent online. Identifying respectful and disrespectful online behaviour. | online. Learning to use an online community safely. | seek help. Using search engines safely and effectively. Recognising that updated software can help to prevent data corruption and hacking. |