# Meadow Primary School Progression Map

## Subject: Computing

Intent: In Computing we intend to teach the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. We will build on this knowledge and understanding so that pupils use information technology to create programs, systems and a range of content. We will focus on being safe whilst working in a digital environment and understand the digital footprint we leave. The curriculum will develop pupil's digital literacy – so that they able to use, and express themselves at a level suitable for the future workplace and as active participants in a digital world.

| Autumn | EYFS | Key Stage 1 | | Key Stage 2 | | | |
|---|---|---|---|---|---|---|---|
| | Year R | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Knowledge | Busy Things/ Internet Safety  Mouse control  Keyboard skills | **Technology Around Us** Identifying technology Identifying a computer and its main parts Creating rules for using technology responsibly **Digital Painting** Describing what different freehand tools do Making careful choices when painting a digital picture To compare painting a picture on a computer and on paper | **Information Technology Around Us** Recognising the uses of Information Technology Identifying IT in the home and beyond school Understanding how IT helps us Understanding how to use IT safely **Digital Photography** Knowing what devices can be used to take photographs Describing what makes a good photograph | **Connecting Computers** Understanding how digital devices function Understanding how computer networks share information Recognising the physical components of a network **Stop-Frame Animation** Understanding that animation is a sequence of drawings or photographs | **The Internet** Understanding how networks connect to other networks Recognising how networked devices make up the internet Understanding how websites can be shared via the World Wide Web Understanding how content can be added and accessed Evaluating the consequences of unreliable content **Audio Editing** Understanding that sound can be digitally recorded Evaluating choices | **Sharing Information** Understanding that computers connect together to form systems Recognising the role of computer systems in our lives Understanding how information is transferred over the internet **Video Editing** Recognising video as moving pictures Identifying digital devices that can record video | **Communication** Understanding how search engines select results Understanding how search results are ranked Evaluating different methods of online communication **Web Page Creation** Reviewing an existing website Considering the ownership and use of images Understanding the implications of linking to content owned by other people |
| Skills | Completes a simple program on a computer. Uses ICT hardware to interact with age-appropriate computer software. | **Technology Around Us** Using a mouse in different ways Using a keyboard to type Using a keyboard to edit text **Digital Painting** Using shape tools and line tools Using a computer to paint a picture | **Digital Photography** Using a digital device to take a photograph Using tools to change an image | **Stop-Frame Animation** Planning and creating an animation Reviewing and improving an animation | **Audio Editing** Using a digital device to record sound Changing audio through editing Combining audio | **Sharing Information** Contributing to a shared project online **Video Editing** Capturing video using a digital device Improving video by reshooting and editing | **Communication** Using a search engine efficiently **Web Page Creation** Planning and creating a web page |

| Spring | EYFS | Key Stage 1 | | Key Stage 2 | | | |
|---|---|---|---|---|---|---|---|
| | Year R | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Knowledge | Microsoft Word/ Internet Safety<br><br>Keyboard skills<br><br>Typing<br><br>Editing | **Moving a Robot**<br>Understanding what a given command will do<br>**Grouping data**<br>Labelling objects<br>Identifying that objects can be counted<br>Describing objects in different ways<br>Comparing groups of objects<br>Answering questions about groups of objects | **Robot Algorithms**<br>Describing a series of instructions as a sequence<br>Understanding what happens when we change the order of instructions<br>**Pictograms**<br>Recognising that we can count and compare objects using tally charts<br>Recognising that objects can be represented as pictures<br>Recognising that people can be described by attributes | **Sequence in Music**<br>Identifying that sprites are controlled by commands<br>Recognising that a sequence of commands can have an order<br>**Branching Databases**<br>Identifying the object attributes needed to collect relevant data<br>Understanding why it is helpful for a database to be well structured<br>Comparing pictograms with branching databases | **Repetition in Shapes**<br>Understanding what 'repeat' means<br>**Data Logging**<br>Understanding that data can be used to answer questions<br>Understanding that data loggers collect 'data points' from sensors over time | **Selection in Physical Computing**<br>Understanding that a loop can stop when a condition is met<br>**Flat-File Databases**<br>Comparing paper and computer databases<br>Understanding how grouping and sorting data helps us answer questions<br>Understanding that computer programs can be used to compare data visually | **Variables in Games**<br>Defining 'variable' as something that is changeable<br>Evaluating a project<br>**Spreadsheets**<br>Identifying questions that can be answered using data<br>Understanding that formula can be used to produce data |
| Skills | Completes a simple program on a computer. Uses ICT hardware to interact with age-appropriate computer software. | **Moving a Robot**<br>Combining forwards and backwards commands to make a sequence<br>Combining four direction commands to make sequences<br>Planning a simple program<br>Finding more than one solution to a problem<br>**Grouping data**<br>Counting objects with the same properties | **Robot Algorithms**<br>Using logical reasoning to predict the outcome of a program<br>Designing an algorithm<br>Creating and debugging a program<br>**Pictograms**<br>Creating a pictogram<br>Selecting objects by attribute and making comparisons<br>Presenting information using a computer | **Sequence in Music**<br>Exploring a programming environment<br>Changing the appearance of a project<br>Creating a project from a task description<br>**Branching Databases**<br>Creating questions with yes/no answers<br>Creating a branching database<br>Identifying objects using a branching database | **Repetition in Shapes**<br>Creating a program in text-based language<br>Modifying a count-controlled loop<br>Decomposing a program into parts<br>Creating a program that uses count-controlled loops<br>**Data Logging**<br>Using a digital device to collect data<br>Using data to find information | **Selection in Physical Computing**<br>Controlling a circuit connected to a computer<br>Writing a program that includes count-controlled loops<br>Designing a physical project that includes selection<br>**Flat-File Databases**<br>Using a form to record information<br>Using knowledge of databases to ask and answer questions | **Variables in Games**<br>Improving a game by using variables<br>Designing and creating a project that builds on a given example<br>**Spreadsheets**<br>Applying formula to data, including duplicating<br>Creating a spreadsheet<br>Choosing suitable ways to present data |

| Summer | EYFS | Key Stage 1 | | Key Stage 2 | | | |
|---|---|---|---|---|---|---|---|
| | Year R | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Knowledge | Beebots/ Internet Safety<br><br>Programming | **Digital Writing**<br>Understanding that the look of text can be changed<br>Understanding why certain tools have been used<br>Comparing writing on a computer with writing on paper<br>**Programming animations**<br>Choosing a command for a given purpose<br>Identifying the effect of changing a value<br>Understanding that each sprite has its own instructions | **Making Music**<br>Saying how music can make us feel<br>Identifying that there are patterns in music<br>Describing how music can be used in different ways<br>Showing how music is made from a series of notes<br>**Programming Quizzes**<br>Understanding that a series of commands has a start and an outcome<br>Deciding how a project can be improved | **Desktop Publishing**<br>Recognising how text and images convey information<br>Recognising that text and layout can be edited<br>Considering how different layouts suit different purposes<br>Considering the benefits of desktop publishing<br>**Events and Actions**<br>Understanding how a sprite moves | **Photo Editing**<br>Understanding that digital images can be changed for different uses<br>Recognising that not all images are real<br>Evaluating how changes can improve an image<br>**Repetition in Games**<br>Understanding that in programming there are infinite loops and count-controlled loops | **Vector Drawing**<br>Understanding that drawing tools can be used for different outcomes<br>Understanding that vector drawings consist of layers<br>Evaluating vector drawings<br>**Selection in Quizzes**<br>Understanding how selection in used in computer programs<br>Understanding how selection directs the flow of a program<br>Evaluating programs | **3D Modelling**<br>Comparing working digitally with 2D and 3D graphics<br>Understanding that physical objects can be broken down into a collection of 3D shapes |
| Skills | Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. | **Digital Writing**<br>Using a computer to write<br>Adding and removing text on a computer<br>Changing text<br>**Programming animations**<br>Showing that a series of commands can be joined together<br>Designing the parts of a project<br>Using an algorithm to create a program | **Making Music**<br>Creating music for a purpose<br>Reviewing and refining computer work<br>**Programming quizzes**<br>Creating a program using a given design<br>Changing a given design<br>Creating a program using my own design | **Desktop Publishing**<br>Choosing appropriate page settings<br>Adding content to a desktop publishing publication<br>**Events and Actions**<br>Creating a program to move a sprite<br>Adapting a program to a new context<br>Adding features to a program<br>Identifying and fixing bugs in a program<br>Designing and creating a maze-based challenge | **Photo Editing**<br>Changing the composition of an image<br>Making good choices when selecting tools<br>**Repetition in Games**<br>Developing the use of count-controlled loops<br>Developing a design that includes two or more loops running at the same time<br>Modifying an infinite loop<br>Creating a project that includes repetition | **Vector Drawing**<br>Creating a vector drawing by combining shapes<br>Using tools to achieve a desired effect<br>Grouping objects to make them easier to work with<br>**Selection in quizzes**<br>Creating a program that uses selection | **3D Modelling**<br>Using a computer to create and manipulate 3D digital objects<br>Constructing a digital 3D model of a physical object<br>Designing a digital model by combining 3D objects<br>Developing and improving a digital 3D model |

# Impact (End Points)

| EYFS | Key Stage 1 | | Key Stage 2 | | | |
|---|---|---|---|---|---|---|
| Year R | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. Children can use the keyboard and mouse. Children can access an app. | Children should be able to confidently log in and use a range of technology/programs e.g. Beebots, computer, camera. They use different technology/programs appropriately to type, locate, identify and create. | Children create simple pictures increasing my mouse skills They know how to stay safe when working online. Children can understand how code moves a sprite and how to write an algorithm for movement. | Children demonstrate a safe use of the Internet, awareness of privacy. Competent use of Excel spreadsheets, word documents and editing. Accomplished at collecting, analysing, evaluating, presenting data and information. Understanding of Binary. | Children should be confident in using the internet safely (search engines) and who to report concerns to. Understand the meaning of algorithms and how they work, detecting and correcting simple errors. | Children will know how to use a variety of different programs to achieve a desired outcome. They will be able to identify and debug algorithms in order to create a game using Kodu. Children will be able to use spreadsheets to collect and calculate data and present it in a variety of ways. They know how to stay safe online and how to behave responsibly online. | Children are able to use logical reasoning to explain how simple algorithms work in different programs and be able to apply their knowledge and understanding. Children should be able to use search technologies effectively and independently. Children should be able to understand computer networks, including the internet and be able to use them safely, respectfully and responsibly. |