



Cliffe Woods Primary school

Computing Milestone Progression

Children need to be secure in the black Milestones before progressing to the purple.

| Threshold Concepts | Milestones | | | | | |
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| | Milestone 1 Year 1 and 2 | | Milestone 2 Year 3 and 4 | | Milestone 3 Year 5 and 6 | |
| Connect (Computing systems and networks) This concept involves developing an understanding the use of digital devices and how to safely connect with others. | Technology Around Us | <ul style="list-style-type: none"> Identify technology Identify a computer and its main parts Use a mouse in different ways Use a keyboard to type on a computer Use the keyboard to edit text Create rules for using technology responsibly To recognise the uses and features of information technology | Connecting Computers | <ul style="list-style-type: none"> Explain how digital devices function Identify input and output devices Recognise how digital devices can change the way we work Explain how a computer network can be used to share information Explore how digital devices can be connected Recognise the physical components of a network | Systems & Searching | <ul style="list-style-type: none"> Explain that computers can be connected together to form systems Recognise the role of computer systems in our lives Experiment with search engines Describe how search engines select results Explain how search results are ranked Recognise why the order of results is important, and to whom |
| | IT Around US | <ul style="list-style-type: none"> Identify the uses of information technology in the school Identify information technology beyond school Explain how information technology helps us Explain how to use information technology safely Recognise that choices are made when using information technology | The Internet | <ul style="list-style-type: none"> Describe how networks physically connect to other networks Recognise how networked devices make up the internet Outline how websites can be shared via the World Wide Web (WWW) Describe how content can be added and accessed on the World Wide Web (WWW) Recognise how the content of the WWW is created by people Evaluate the consequences of unreliable content | Communication & Collaboration | <ul style="list-style-type: none"> Explain the importance of internet addresses Recognise how data is transferred across the internet Explain how sharing information online can help people to work together Evaluate different ways of working together online Recognise how we communicate using technology Evaluate different methods of online communication |

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| Code (Programming) This concept involves developing an understanding of instructions, logic and sequences. | Making a Robot | <ul style="list-style-type: none">Explain what a given command will doCombine forwards and backwards commands to make a sequenceCombine four direction commands to make sequencesPlan a simple programFind more than one solution to a problem | Sequencing Sounds | <ul style="list-style-type: none">Explore a new programming environmentIdentify that commands have an outcomeExplain that a program has a startRecognise that a sequence of commands can have an orderChange the appearance of a projectCreate a project from a task description | Selection in Physical Computing | <ul style="list-style-type: none">Control a simple circuit connected to a computerWrite a program that includes count-controlled loopsExplain that a loop can stop when a condition is metExplain that a loop can be used to repeatedly check whether a condition has been metDesign a physical project that includes selectionCreate a program that controls a physical computing project |
| | Robot Algorithms | <ul style="list-style-type: none">Describe a series of instructions as a sequenceExplain what happens when we change the order of instructionsUse logical reasoning to predict the outcome of a programExplain that programming projects can have code and artworkDesign an algorithmCreate and debug a program that I have written | Repetition in Shapes | <ul style="list-style-type: none">Identify that accuracy in programming is importantCreate a program in a text-based languageExplain what ‘repeat’ meansModify a count-controlled loop to produce a given outcomeDecompose a task into small stepsCreate a program that uses count-controlled loops to produce a given outcome | Variables in Games | <ul style="list-style-type: none">Define a ‘variable’ as something that is changeableExplain why a variable is used in a programChoose how to improve a game by using variablesDesign a project that builds on a given exampleUse a design to create a projectEvaluate a project |
| | Programming Animations | <ul style="list-style-type: none">Choose a command for a given purposeShow that a series of commands can be joined togetherIdentify the effect of changing a valueExplain that each sprite has its own instructionsDesign the parts of a projectUse an algorithm to create a program | Events & Actions | <ul style="list-style-type: none">Explain how a sprite moves in an existing projectCreate a program to move a sprite in four directionsAdapt a program to a new contextDevelop a program by adding featuresIdentify and fix bugs in a programDesign and create a maze-based challenge | Selection in Quizzes | <ul style="list-style-type: none">Explain how selection is used in computer programsRelate that a conditional statement connects a condition to an outcomeExplain how selection directs the flow of a programDesign a program which uses selectionCreate a program which uses selectionEvaluate a program |
| | Programming Quizzes | <ul style="list-style-type: none">Explain that a sequence of commands has a startExplain that a sequence of commands has an outcomeCreate a program using a given designChange a given designCreate a program using my own designDecide how a project can be improved | Repetition in Games | <ul style="list-style-type: none">Develop the use of count-controlled loops in a different programming environmentExplain that in programming there are infinite loops and count controlled loopsDevelop a design that includes two or more loops which run at the same timeModify an infinite loop in a given programDesign a project that includes repetitionCreate a project that includes repetition | Sensing Movement | <ul style="list-style-type: none">Create a program to run on a controllable deviceExplain that selection can control the flow of a programUpdate a variable with a user inputUse a conditional statement to compare a variable to a valueDesign a project that uses inputs and outputs on a controllable deviceDevelop a program to use inputs and outputs on a controllable device |

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| Communicate (Creating Media) This concept involves using apps to communicate one's ideas. | Digital Painting | <ul style="list-style-type: none"> Describe what different freehand tools do Use the shape tool and the line tools Make careful choices when painting a digital picture Explain why I chose the tools I used Use a computer on my own to paint a picture Compare painting a picture on a computer and on paper | Stop-Frame Animation | <ul style="list-style-type: none"> Explain that animation is a sequence of drawings or photographs Relate animated movement with a sequence of images Plan an animation Identify the need to work consistently and carefully Review and improve an animation Evaluate the impact of adding other media to an animation | video Production | <ul style="list-style-type: none"> Explain what makes a video effective Identify digital devices that can record video Capture video using a range of techniques Create a storyboard Identify that video can be improved through reshooting and editing Consider the impact of the choices made when making and sharing a video |
| | Digital Photography | <ul style="list-style-type: none"> Use a digital device to take a photograph Make choices when taking a photograph Describe what makes a good photograph Decide how photographs can be improved Use tools to change an image Recognise that photos can be changed | Photo Editing | <ul style="list-style-type: none"> Explain that the composition of digital images can be changed Explain that colours can be changed in digital images Explain how cloning can be used in photo editing Explain that images can be combined Combine images for a purpose Evaluate how changes can improve an image | 3D Modelling | <ul style="list-style-type: none"> Recognise that you can work in three dimensions on a computer Identify that digital 3D objects can be modified Recognise that objects can be combined in a 3D model Create a 3D model for a given purpose Plan my own 3D model Create my own digital 3D model |
| | Digital Writing | <ul style="list-style-type: none"> Use a computer to write Add and remove text on a computer Identify that the look of text can be changed on a computer Make careful choices when changing text Explain why I used the tools that I chose Compare typing on a computer to writing on paper | Desktop Publishing | <ul style="list-style-type: none"> Recognise how text and images convey information Recognise that text and layout can be edited Choose appropriate page settings Add content to a desktop publishing publication Consider how different layouts can suit different purposes Consider the benefits of desktop publishing | Introduction to Vector Graphics | <ul style="list-style-type: none"> Identify that drawing tools can be used to produce different outcomes Create a vector drawing by combining shapes Use tools to achieve a desired effect Recognise that vector drawings consist of layers Group objects to make them easier to work with Apply what I have learned about vector drawings |
| | Digital Music | <ul style="list-style-type: none"> Say how music can make us feel Identify that there are patterns in music Experiment with sound using a computer Use a computer to create a musical pattern Create music for a purpose Review and refine our computer work | Audio Production | <ul style="list-style-type: none"> Identify that sound can be recorded Explain that audio recordings can be edited Recognise the different parts of creating a podcast project Apply audio editing skills independently Combine audio to enhance my podcast project Evaluate the effective use of audio | Web Page Creation | <ul style="list-style-type: none"> Review an existing website and consider its structure Plan the features of a web page Consider the ownership and use of images (copyright) Recognise the need to preview pages Outline the need for a navigation path Recognise the implications of linking to content owned by other people |

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| Collect (Data & Information) This concept involves developing an understanding of databases and their uses. | Grouping Data | <ul style="list-style-type: none"> Label objects Identify that objects can be counted Describe objects in different ways Count objects with the same properties Compare groups of objects Answer questions about groups of objects | Branching Databases | <ul style="list-style-type: none"> Create questions with yes/no answers Identify the attributes needed to collect data about an object Create a branching database Explain why it is helpful for a database to be well structured Plan the structure of a branching database Independently create an identification tool | Flat-File Databases | <ul style="list-style-type: none"> Use a form to record information Compare paper and computer-based databases Outline how you can answer questions by grouping and then sorting data Explain that tools can be used to select specific data Explain that computer programs can be used to compare data visually Use a real-world database to answer questions |
| | Pictograms | <ul style="list-style-type: none"> Recognise that we can count and compare objects using tally charts Recognise that objects can be represented as pictures Create a pictogram Select objects by attribute and make comparisons Recognise that people can be described by attributes Explain that we can present information using a computer | Data Logging | <ul style="list-style-type: none"> Explain that data gathered over time can be used to answer questions Use a digital device to collect data automatically Explain that a data logger collects 'data points' from sensors over time Recognise how a computer can help us analyse data Identify the data needed to answer questions Use data from sensors to answer questions | Spreadsheets | <ul style="list-style-type: none"> Create a data set in a spreadsheet Build a data set in a spreadsheet Explain that formulas can be used to produce calculated data Apply formulas to data Create a spreadsheet to plan an event Choose suitable ways to present data |