

Computing Progression of Knowledge and Skills

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Unit | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Computing systems and networks  Technology around us  IT around us  Connecting computers  The Internet  Systems and searching  Communication and collaboration | -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 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 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 experiment with search engines  -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 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 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Unit | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Creating media  Digital painting  Digital photography  Stop-frame animation  Audio production  Video production  Web page creation | -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 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 | -To explain what makes a video effective  -To identify digital devices that can 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 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Unit | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Programming  Moving a robot  Robot algorithms  Sequencing sounds  Repetition in shapes  Selection in physical  Computing  Variables in games | -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 | -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 | -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 | -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 | -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 | -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 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Unit | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Data and information  Grouping data  Pictograms  Branching databases  Data logging  Flat-file databases  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 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 | -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 | -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 | -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 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Unit | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Creating media  Digital writing  Digital music  Desktop publishing  Photo editing  Introduction to vector  graphics  3D Modelling | -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 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 | -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 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 | -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 | -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 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Unit | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Programming  Programming animations  Programming quizzes  Events and actions in programs  Repetition in games  Selection in quizzes  Sensing movement | -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 | -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 | -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 | -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 | -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 | -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 a 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 |