**CYCLE: A**

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| **SUBJECT:**  **Computing** | **Autumn** | **Spring** | **Summer** |
| **KS1** | **Unit Name:** Improving Mouse Skills  **Key Vocabulary:**  Mouse  Screen  Left-Click  Right-Click  Drag  Keyboard  **Key Skills:**  Developing control of the mouse through dragging,  clicking and resizing of images to create different effects.  Learning where  keys are located on the keyboard.  Log in and navigate around a computer  Drag, drop, click and control a cursor using a mouse  **Unit Name:** Algorithms Unplugged  **Key Vocabulary:**  Algorithm  Bug  Debug  Instructions  Input  Output  **Key Skills:**  Explain what an algorithm is.  Follow an algorithm.  Explain what inputs and outputs are.  Identify bugs in an algorithm and how to fix them. | **Unit Name:** Rocket To The Moon  **Key Vocabulary:**  Cells  Data  Document  Edit  Save  Share  **Key Skills:**  Use a computer to make a list  Input data about their rockets into a table or spreadsheet  Logging in and out and saving work on their own account.  **Unit Name:** What is a computer?  **Key Vocabulary:**  Camera  Computer  Desktop  Laptop  Robot  Technology  **Key Skills:**  Recognise that buttons cause effects.  Explain that technology follows instructions.  Recognise different forms of technology.  Learning how computers are used  in the wider world | **Unit Name:** Algorithms and Debugging  **Key Vocabulary:**  Algorithm  Correct  Error  Loop  Predict  Decomposition  **Key Skills:**  Give a definition for ‘decomposition’.  Use loops in their algorithms to make their code more efficient.  **Unit Name:** Word Processing  **Key Vocabulary:**  Backspace  Copy  Paste  Spacebar  Text  Undo  **Key Skills:**  Use the spacebar and backspace correctly.  Type and make simple alterations to text using buttons on a word processor.  Modify text in a document.  Use copy and paste to copy text from one document to another. |
| **LKS 2** | **Unit Name:** Online Safety  **Key Vocabulary:**  Password  Privacy  Cyberbullying  Personal information  Consent  **Key Skills:**  Recognise the importance of keeping personal information private online.  Understand the impact of cyberbullying and how to seek help if needed.  Create strong passwords and understand why they are essential for online safety.  Identify trustworthy websites and sources of information.  Learn the importance of consent and respecting others' privacy online.  **Unit Name:** Computer Systems and Networks  **Key Vocabulary:**  Network  Router  Internet  Server  Data  **Key Skills:**  Understand how data travels across a network and the role of routers and servers.  Recognize different types of networks (e.g., local area networks, wide area networks).  Explore how devices connect to the internet and the flow of data between systems.  Understand the importance of keeping systems secure and the role of firewalls.  Identify the difference between hardware and software in computer systems. | **Unit Name:** Programming One  **Key Vocabulary:**  Algorithm  Code  Debugging  Sequence  Loop  **Key Skills:**  Write and follow simple algorithms to solve problems.  Use basic programming concepts like sequencing and loops to create functional programs.  Debug programs by identifying and fixing errors in the code.  Understand the importance of precise instructions in programming.  Explore how to use programming to control digital devices (e.g., robots or animations). | **Unit Name:** Programming Two  **Key Vocabulary:**  Algorithm  Code  Debugging  Sequence  Loop  **Key Skills:**  Write and follow simple algorithms to solve problems.  Use basic programming concepts like sequencing and loops to create functional programs.  Debug programs by identifying and fixing errors in the code.  Understand the importance of precise instructions in programming.  Explore how to use programming to control digital devices (e.g., robots or animations).  **Unit Name:** Data Handling  **Key Vocabulary:**  Data  Spreadsheet  Graph  Table  Sort  **Key Skills:**  Collect, organize, and present data in various formats (e.g., tables, graphs, and charts).  Use spreadsheets to input data and perform basic calculations.  Sort and filter data to find patterns and draw conclusions.  Create simple charts and graphs to represent data visually.  Understand the importance of accuracy when collecting and inputting data. |
| **UKS2** | **Unit Name:** Mars Rover 1  **Key Vocabulary:**  8-bit binary  Binary Code  Byte  Input  Data  Signal  **Key Skills:**  Mars Rover is a motor vehicle that collects data from space by taking photos and examining rock samples.  What numbers using binary code look like and be able to identify how messages can be sent in this format.  RAM is Random Access Memory and acts as the computer’s working memory.  What simple operations can be used to calculate bit patterns.  **Unit Name:** Mars Rover 2  **Key Vocabulary:**  3D  Binary Image  CPU  Pixels  Operating System  RAM  **Key Skills:**  To understand that bit patterns represent images as pixels.  To understand that the data for digital images can be compressed.  To know the difference between ROM and RAM.  To understand various techniques that will improve the design of a 3D object (using CAD software). | **Unit Name:** Bletchley Park  **Key Vocabulary:**  Acrostic Code  Cipher  Combination  Discovery  Password  Scrambled  **Key Skills:**  To understand the importance of having a secure password and what “brute force hacking” is.  To know that the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2.  To know about some of the historical figures that contributed to technological advances in computing.  To understand what techniques are required to create a presentation using appropriate software.  **Unit Name:** History of Computers  **Key Vocabulary:**  Byte  Device  Kilobyte  Megabyte  ROM  Sound Clip  **Key Skills:**  Radio plays are plays where the audience can only hear the action so sound effects are important.  Sound clips can be recorded using sound recording software.  Sound clips can be edited and trimmed. | **Unit Name:** Micro:bit  **Key Vocabulary:**  Algorithm  Debug  Code  Loop  Load  Pedometer  **Key Skills:**  To know that a Micro:bit is a programmable device.  To know that Micro:bit uses a block coding language similar to Scratch.  To understand and recognise coding structures including variables.  To know what techniques to use to create a program for a specific purpose (including decomposition).  **Unit Name:** Inventing a Product  **Key Vocabulary:**  Advert  Design  Image Rights  Opinion  Product  Screenshot  **Key Skills:**  What designing an electronic product involves.  Which programming software/language is best to achieve a purpose.  The building blocks of computational thinking, for example, sequence, selection, repetition, variables and inputs and outputs. |

**CYCLE: B**

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| **SUBJECT:**  **Computing** | **Autumn** | **Spring** | **Summer** |
| **KS1** | **Unit Name:** Bee Bots  **Key Vocabulary:**  Algorithm  Bee Bot  Code  Explore  Precise  Video  **Key Skills:**  Recognise cause and effect when pressing buttons on a Bee-Bot.  Discuss and demonstrate how the Bee-Bot works.  Record video, ensuring everyone is in the shot.  Give several clear instructions in sequence.  Program a Bee-Bot to reach a destination.  Identify and correct mistakes in their programming.  **Unit Name:** Digital Imagery  **Key Vocabulary:**  Camera  Crop  Download  Resize  Photograph  Filter  **Key Skills:**  Explain how to take clear photos.  Take photos using a device.  Edit photos by cropping, filtering and resizing.  Search for and import images from the internet. | **Unit Name:** Introduction to Data  **Key Vocabulary:**  Bar Chart  Table  Pictogram  Tally  Sort  Record  **Key Skills:**  Represent the same data as a pictogram and a table or chart.  Collect data about minibeasts using a tally chart and represent data digitally.  Consider the types of input used to gather different forms of data when designing an invention.  **Unit Name:** Scratch Jr  **Key Vocabulary:**  Animation  Blocks  Icon  Instructions  On Tap'  Sequence  **Key Skills:**  Explain what the blocks on ScratchJr do and use them for a purpose.  Recognise a loop in coding and why it is useful.  Use a code to create an animation of an animal moving.  Use code to follow and create an algorithm.  Program code to run ‘on tap’. | **Unit Name:** Stop-Motion  **Key Vocabulary:**  Tablet  Images  Sequence  Frame  Animation  **Key Skills:**  Using greater control when taking photos with cameras, tablets or computers.  Using logical thinking to explore software,  predicting, testing and explaining what it does.  **Unit Name:** International Space Station  **Key Vocabulary:**  Experiment  Monitor  Satellite  Sensor  Space  Column  **Key Skills:**  Creating and labelling images.  Collecting and inputting data into a spreadsheet.  Interpreting data from a spreadsheet.  Learning how computers are used in the wider world. |
| **LKS 2** | **Unit Name:** Online Safety  **Key Vocabulary:**  Password  Privacy  Cyberbullying  Personal information  Consent  **Key Skills:**  Recognise the importance of keeping personal information private online.  Understand the impact of cyberbullying and how to seek help if needed.  Create strong passwords and understand why they are essential for online safety.  Identify trustworthy websites and sources of information.  Learn the importance of consent and respecting others' privacy online.  **Unit Name:** Computer Systems and Networks  **Key Vocabulary:**  Network  Router  Internet  Server  Data  **Key Skills:**  Understand how data travels across a network and the role of routers and servers.  Recognize different types of networks (e.g., local area networks, wide area networks).  Explore how devices connect to the internet and the flow of data between systems.  Understand the importance of keeping systems secure and the role of firewalls.  Identify the difference between hardware and software in computer systems. | **Unit Name:** Computer Systems and Networks  **Key Vocabulary:**  Network  Router  Internet  Server  Data  **Key Skills:**  Understand how data travels across a network and the role of routers and servers.  Recognize different types of networks (e.g., local area networks, wide area networks).  Explore how devices connect to the internet and the flow of data between systems.  Understand the importance of keeping systems secure and the role of firewalls.  Identify the difference between hardware and software in computer systems. | **Unit Name:** Programming  **Key Vocabulary:**  Algorithm  Code  Variable  Loop  Debugging  **Key Skills:**  Design and create algorithms to solve specific problems.  Write code using loops and variables to create more efficient programs.  Debug programs by identifying and correcting errors.  Break down complex tasks into smaller, manageable steps in code.  Use programming to create animations, games, or control physical systems like robots.  **Unit Name:** Creating Media  **Key Vocabulary:**  Edit  Format  Digital content  Multimedia  Import  **Key Skills:**  Use software to create and edit digital content, such as images, videos, or sound.  Combine different types of media (text, images, audio) to create multimedia projects.  Edit and format digital content to improve its presentation and clarity.  Import and export files to and from digital devices or programs.  Understand the importance of copyright and using media responsibly. |
| **UKS2** | **Unit Name:** Programming Music  **Key Vocabulary:**  Beat  Buffer  Format  Live Loops  Programming  Repetition  **Key Skills:**  To know that a soundtrack is music for a film/video and that one way of composing these is on programming software.  To understand that using loops can make the process of writing music simpler and more effective.  To know how to adapt their music while performing.  **Unit Name:** Stop Motion Animation  **Key Vocabulary:**  Animation  Background  Edit  Frames  Stop Motion  Storyboard  **Key Skills:**  Decomposition of an idea is important when creating stop-motion animations.  Stop-motion animation is filmed one frame at a time using models and with tiny changes between each photograph.  Editing is an important feature of making and improving a stop-motion animation. | **Unit Name:** Search Engines  **Key Vocabulary:**  Copyright  Fair  Fake  Keywords  Privacy  Rank  **Key Skills:**  To know how search engines work.  To understand that anyone can create a website and therefore we should take steps to check the validity of websites.  To know that web crawlers are computer programs that crawl through the internet.  To understand what copyright is.  **Unit Name:** Big Data 1  **Key Vocabulary:**  Barcode  Brand  Chip  Data  QR Code  Signal  **Key Skills:**  Data contained within barcodes and QR codes can be used by computers.  Infrared waves are a way of transmitting data.  Radio Frequency Identification (RFID) is a more private way of transmitting data.  Data is often encrypted so that even if it is stolen it is not useful to the thief. | **Unit Name:** Big Data 2  **Key Vocabulary:**  Big Data  Bluetooth  Corrupted  GPS  QR Scanner  Threat  **Key Skills:**  To know that data can become corrupted within a network but this is less likely to happen if it is sent in ‘packets’.  To know that devices or that are not updated are most vulnerable to hackers.  To know the difference between mobile data and WiFi.  **Unit Name:** Introduction to Python  **Key Vocabulary:**  Command  Design  Instructions  Pattern  Random  Repeat  **Key Skills:**  To know that there are text-based programming languages such as Logo and Python.  To know that nested loops are loops inside of loops.  To understand the use of random numbers and remix Python code. |