Computing Curriculum Map

"Our DREAM is for greatness in our learning. To BELIEVE, in our unique talents and gifts and ACHIEVE a better world, living life to the full."

Dream Believe Achieve

Year A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Aut1 **Computer Systems and networks** **Using a Computer** (Lessons 1-5) The main parts of a computer, how to use the keyboard and mouse and logging in and out.			Spr2 **Programming** **All About Instructions** (Lessons 1-5) Follow and give instructions, debugging instructions and predictions	Sum1 **Computer Systems and networks** **Exploring hardware** (Lessons 1-4) Taking photographs, class photo album	Sum2 **Computer Systems and networks** **Using a Computer** (Lessons 1-5) Mouse control, clicking and dragging, logging in
KS1	Aut1 **Computer Systems and Networks** **What is a computer?** (Lessons 1,2 and 5 only) Name some computer peripherals and their function. Recognise that buttons cause effects. Explain that technology follows instructions. Recognise different forms of technology. Design an invention which includes inputs and outputs. Explain the role of computers in the world around them. **Programming** **Algorithms & debugging** (Lessons 1,2,4&5 only) Decompose a game to predict the algorithms. Give a definition for 'decomposition'. Write clear and precise algorithms. Create algorithms to solve problems. Use loops in their algorithms to make their code more efficient. Explain what abstraction is.		Spr 2 **Programming** **Scratch Jr** (Lessons 1, 2, 4 and 5) Explore a new application independently. 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'. Explain the role of the blocks in a program they have created. Spr1 (During Safer Internet Week) **Online Safety** **Year 1** (Lessons 1-4) Discuss what the internet is and how it can be used. Recognise that the internet may affect mood or emotions Recognise how internet use can affect and upset others Identify which information is appropriate to share and post online and which is not.		Sum2 **Programming** **Bee-bots** (lessons 1, 3, 4 and 5) 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.	
LKS2	Aut2 **Computer Systems and Networks** **Networks** (Lessons 1,3,5) Recognise that a network is two or more devices connected and its purpose. Identify key components that make up the school's network.		Spr1 **Programming** **Programming Scratch (animation & storytelling)** (Lessons 1, 2, 3 and 5) Explain what some of the blocks do in Scratch. Explain what a loop is and include one in their program.		Sum2 **Creating Media** **Video trailers - Ipads** (Lessons 1-4) Describe the purpose of a trailer. Create a storyboard for a book trailer. Consider camera angles when taking photos or videos.	

	Explain the difference between wired and wireless connections. Recognise that files are saved on a server. Understand the role of the server in a network when requesting a website. Identify parts of a website's journey to reach your computer. Recognise that routers connect to send information. Understand that data is broken into packets. **Computer Systems and Networks** **Journey inside a computer** (lessons1,2,5) Recognise inputs and outputs and that the computer sends and receives information. Explain that the parts of a laptop work together and the purpose of each part. Explain what an algorithm is. Suggest what memory is for inside a computer. Make comparisons between different types of computer.	Suggest possible additions to an existing program by remixing code. Recognise where something on screen is controlled by code. Use a systematic approach to find bugs. Understand the definitions of decomposition and algorithm and how they are used to create accurate code. Spr1 (During Safer Internet Week) **Online Safety** **Year 3** (Lessons 1-5 combine 4 and 5) Differentiate between fact, opinion and belief online. Explain how to deal with upsetting online content. Recognise that digital devices communicate with each other to share personal information. Explain what social media platforms are used for. Recognise why social media platforms are age-restricted.	Import videos and photos into film editing software. Add text to a video. Incorporate transitions between images. Evaluate their own and others' trailers.
UKS2	Aut1 **Computer Systems and Networks** **Search Engines** (lessons 1-4) Explain what a search engine is, suggesting several search engines to use and explain how to use them to find websites and information. Suggest that things online aren't always true and recognise what to check for. Explain why keywords are important and what TASK stands for, using these strategies to search effectively. Recognise the terms 'copyright' and 'fair use' and combine text and images in a poster. Make parallels between book searching and internet searching, explaining the role of web crawlers and recognising that results are rated to decide rank. **Creating Media** **History of computers** (Lessons 3-5) Create a document that includes correct date information and facts about the computers and how they made a difference. Demonstrate a clear understanding of their device and how it affected modern computers, including well-researched information with an understanding of the reliability of their sources.	Spr1 **Creating Media** **Stop motion** (Lesson 1-4) Create a toy with simple images and a single movement. Create a short stop motion with small changes between images. Think of a simple story idea for their animation and then decompose it into smaller parts to create a storyboard with simple characters. Make small changes to the models to ensure a smooth animation and delete unnecessary frames. Add effects such as extending parts and titles. Provide helpful feedback to other groups about their animations. Spr1 (During Safer Internet Week) **Online Safety** **Year 5** (Lessons 1, 4 and 5) Understand that passwords need to be strong and that apps require some form of password. Recognise some types of online communication and know who to go to if they need help with any communication matters online. Search for simple information about a person, such as their birthday or key life moments.	Sum 1 **Programming** **Programming music – Scratch (soundtrack for text)** (Lessons 1-4) Iterate ideas, testing and changing throughout the lesson. Explain what the basic commands do. Explain how their program links to the theme. Include a loop in their work. Correct their own simple mistakes. Explain their scene in the story. Link musical concepts to their scene. Include a repeat and explain its function to enhance music. Code a piece of music that combines a variety of structures. Use loops in their programming. Recognise that programming music is a way to apply their skills

Describe all of the features that we'd expect a computer to have including RAM, ROM, hard drive and processor, but of a higher specification than currently available.	Know what bullying is and that it can occur both online and in the real world. Recognise when health and well-being are being affected in either a positive or negative way through online use. Offer some advice and tips to combat the negative effects of online use.	

Year B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Aut1 **Computer Systems and networks** **Using a Computer** (lessons 1-5) The main parts of a computer, how to use the keyboard and mouse and logging in and out.		Spr 1 Safer Internet Day	Spr2 **Programming** **All About Instructions** (Lessons 1-5) Follow and give instructions, debugging instructions and predictions	Sum1 **Computer Systems and networks** **Exploring hardware** (Lessons 1-4) Taking photographs, class photo album	Sum2 **Computer Systems and networks** **Using a Computer** (lessons 1-5) Mouse control, clicking and dragging, logging in
KS1	Aut1 **Computer Systems and Networks** **Improving mouse skills** (lessons 1-3 only) Use computers more purposefully Log in and navigate around a computer Drag, drop, click and control a cursor using a mouse Use software tools to create art on the computer **Programming** **Algorithms unplugged** (lessons 1,2,4 &5 only) Explain what an algorithm is. Write clear algorithms. Follow an algorithm. Explain what inputs and outputs are. Create an achievable program. Decompose a design into steps. Identify bugs in an algorithm and how to fix them.		Spr1 **Data Handling** **International space station** (Lessons 1, 3 and 5) Describe and explain how astronauts' survival needs are met aboard the ISS. Identify and digitally draw items which fulfil basic human needs when aboard the ISS. Read the correct temperature on a thermometer. Design a display showing everything that needs to be monitored by sensors on the ISS. Create an algorithm that addresses all plants' needs. Explain how space exploration can benefit life on Earth. Read data to identify whether a planet might be habitable. Spr1 (During Safer Internet Week) **Online Safety** **Year 2** (Lessons 1- 4) Explain what is meant by online information. Recognise what information is safe to be shared online Explain why we need passwords and what makes a strong password. Understand that they need to ask permission before sharing content online and explain why.		Sum1 **Creating Media** **Digital imagery** (Lessons 1-3) Plan a pictorial story using photographic images in sequence. 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. Explain what to do if something makes them uncomfortable online. Organise images on the page, orientating where necessary.	

		Understand that they need have the right to deny their permission to information about them being shared online. Say who they can ask for help with online worries. Use some strategies to work out if online information is reliable or not.	
LKS2	Aut2 **Computer Systems and Networks** **Collaborative learning (office) l** (lessons 1,3,4,5) Understand the need to be thoughtful when working on a collaborative document. Use comments to suggest changes to a document and understand how to resolve comments. Plan a survey for Microsoft Form with a range of different questions types that will provide different types of answer, e.g. text, multiple choice or numerical values. Create a Microsoft Form with a range of different question types that will provide different types of answer, e.g. text, multiple choice or numerical values. Export data to a spreadsheet, highlighting data, using conditional formatting and calculating averages and sums of numbers. **Programming** **Further coding with scratch** (lessons 2&4) Understand how to create a simple script in Scratch. Add or change a sprite and prevent it from rotating. Use decomposition to identify key features and understand how to decipher actions that make the quiz game work. Understand what a variable is and how to use the 'say' and 'ask' blocks. Create a variable and be able to use a variable to record a score. Understand what a variable is and how it works within a program.	Spr2 **Data handling** (Lessons 1, 3 and 4) **Investigating Weather** Search the web efficiently to find temperatures of different cities and record this accurately. Design a weather station that gathers and records sensor data, explaining how it works and the units of measurement it would use. Design an automated machine that uses selection to respond to sensor data. Search for and record weather forecast information in a spreadsheet and explain how this data is collected. Create a video which includes weather forecast information. Spr1 (During Safer Internet Week) **Online Safety** **Year 4** (Lessons 1, 2, 3 and 5) Describe how to search over multiple platforms and be aware of the accuracy of the results presented. Describe some of the methods used to persuade people to buy online. Explain the difference between fact, opinion and belief and recognise these online. Explain what a bot is and give examples of different bots. Explain some positive and negative distractions of using technology and small strategies for reducing the time spent on technology.	
UKS2	Aut2 **Computing Systems & Networks** **Bletchley Park** (Lessons1-3) Explain that codes can be used for a number of different reasons and decode messages. Explain how to ensure a password is secure and how this works.	Spr1 **Data Handling** **Mars Rover 1** (Lessons 1, 2 and 4) Identify some types of data the Mars Rover could collect (for example, photos). Explain how the Mars Rover transmits the data back to Earth and the challenges involved. Read any number in binary, up to eight bits. Identify input, processing and output on the Mars Rovers.	Sum1 **Programming** **Intro to Python (create a new Olympic logo?)** (Lessons 1-4) Iterate ideas, testing and changing throughout the lesson and explain what their program does. Use nested loops in their designs, explaining why they need two repeats.

Create a simple website with information about Bletchley Park including the need to build electronic thinking machines to solve cipher codes. **Data Handling** **Big Data 1** (lessons 1,3,4,5) Understand why barcodes and QR codes were created. Create (and scan) their own QR code using a QR code generator website. Explain how RFID works, recall a use of RFID chips, and type formulas into spreadsheets. Take real-time data and enter it effectively into a spreadsheet. Presenting the data collected as an answer to a question. Recognising the value of analysing real-time data. Analyse and evaluate transport data and consider how this provides a useful service to commuters.	Read binary numbers and grasp the concept of binary addition. Relate binary signals (Boolean) to a simple character-based language, ASCII. Spr1 (During Safer Internet Week) **Online Safety** **Year 6** (lessons 1, 2, 4 and 6) Discuss various issues online that can leave pupils feeling sad, frightened, worried or uncomfortable and can describe numerous ways to get help. Explain how sharing online can have both positive and negative impacts. Be aware of how to seek consent from others before sharing material online and describe how content can still be shared online even if it is set to private. Explain what a digital reputation is and what it can consist of. Understand the importance of capturing evidence of online bullying and demonstrate some of these methods on the devices used at school. Describe ways to manage passwords and strategies to add extra security, such as two-factor authentication. Explain what to do if passwords are shared, lost or stolen. Describe strategies to identify scams. Explain ways to increase their privacy settings and understand why it is important to keep their software updated.	Alter the house drawing using Python commands; use comments to show a level of understanding around what their code does. Use loops in Python and explain what the parts of a loop do. Recognise that computers can choose random numbers; decompose the program into an algorithm and modify a program to personalise it.