Share Multi Academy Trust

Curriculum Plan

Subject:	**Computing**	**Year**	**7**	**Ability**	**All**

Term / Date(s)	**Topic 1 (6-8 Weeks)**	**Topic 2 (6-8 Weeks)**	**Topic 3 (6-8 Weeks)**	**Topic 4 (6-8 Weeks)**	**Topic 5 (5-7 Weeks)**
Topic	Induction	Office Skills and Productivity	Computational Thinking: Computer Systems	Binary and logic	Programming using Scratch
Topic overview **Pupils will learn…**	In this unit, students will learn and understand how to use the school network and the internet safely and responsibly, developing the skills needed to work efficiently and identify good and safe practices when working with computers.	In this unit, students will develop a number of digital literacy productivity skills that will enable them to use computer systems more efficiently and creatively through the use of keyboard shortcuts and the creation of digital graphics.	In this unit, students will learn what a computer is and what all computers have in common. They will also learn that computers come in many different formats, each with their own specific design uses, advantages and disadvantages.	In this unit, students will learn about how binary is used by computer systems to process data, from numbers, to text to images and how digital devices, on a basic level, they all operate through the use of logic gates.	In this unit, students will learn key programming design skills and how to turn a plan in to a working program using common functions, variables, loops, inputs and outputs.
Components	Students will learn and understand about: • Logging on and creating secure passwords, in order to create effective passwords that are easy to remember but hard for others to guess. • The importance of good File Management in order to save and locate their work effectively to avoid loss. • How to use the school VLE (Office365) to access online resources. • Health and Safety in a computer room – Being able to work safely and responsibly in a computer room environment and understand implications to health of improper use is crucial. • How to use the school email and Office 365 – Being able to access the online facilities effectively is essential for accessing subject material, emailing teachers and accessing lessons if absent.	Students will learn and understand about: • How you can create graphics in different software using commonly available tools and effects. • How to use drawing tools, including shapes, fill, line, effects etc… to create effective graphics. • Effective use of common keyboard shortcuts, such as copy, paste, save to enhance their productivity when using the computer.	Students will learn and understand: • What a computer is and what makes a computer a computer, in order to understand that all computers are fundamentally the same. • That all computers are made up of hardware and software in order to understand the differences between the two, including being able to identify different examples of the two. • How data travels around all computer systems, regardless of their type, in order to understand that all computers use the same principles of Input, Process, Output and Storage. • How computers use many different hardware devices to Input, Process, Output and Store data, in order to categorise hardware devices accordingly and be able to identify common hardware devices and characteristics and uses on a computer. • That computers come in many different types, in order to understand that each type has their own characteristics, uses, advantages and disadvantages.	Students will learn: • What binary is, in order to understand how it is used by all computers to process data using 1s and 0s and create storage capacities from bits to terabytes. • How computers use binary to count, in order to understand how we can convert these numbers in to our denary (decimal) number system and vice-versa. • How computers use binary to write, in order to understand how characters are created using ASCII. • How computers create graphics on a screen, in order to understand how binary is used to turn pixels on and off and create colours. • How binary logic including AND, OR and NOT are used within computer circuits, in order to understand how circuits are represented as logic gates to allow the flow of data. • How binary logic for AND, OR and NOT logic gates can be combined together to make complex systems through a logic gate diagrams.	Students will learn and understand: • The fundamentals of program design and creation, in order to create simple pseudocode and flowcharts for algorithmic problems. • How to turn their programming ideas in to a created product, in order to use commands such as inputs, variables, loops and outputs effectively.
Golden Knowledge	• Logging on • Secure passwords • Reasons for good file management (create folders, save files appropriately, open files. • Identifying health and safety risks in a computer room • Being able to use Office 365 facilities and email effectively	• Graphics production using different shapes, tools and effects. • Creating different shapes using group and merge. • Use common keyboard shortcuts effectively, e.g. copy, paste etc…	• What is a computer? • What is hardware and software? • How data travels around computer systems using input, process, output, storage. • Identify input, process, output, storage devices. • Identify different types of computers and their characteristics.	• What is binary? • Data storage units (conversions) • Binary numbers. • Writing in binary • Graphics in binary • What is a logic gate? • How do AND, OR, NOT gates work? • How to draw logic diagrams for scenarios.	• What is an algorithm? • How to write basic pseudocode to solve a problem. • How to create a basic flow chart to solve a problem. • How to create a working game in scratch using sprites, backgrounds, loops and control commands.
What pupils should already know (prior learning components)	In Key Stage 2, students should have been taught to: • Understand computer networks including the internet; how they can provide multiple services, such as the world wide web. • Use search technologies effectively and be discerning in evaluating digital content. • Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of content that accomplish given goals. • Use technology safely, respectfully, and responsibly; recognize	In Key Stage 2, students should have been taught to: • Use search technologies effectively and be discerning in evaluating digital content. Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of content that accomplish given goals.	In Key Stage 2, students should have been taught to: • Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration. • Recognise common uses of information technology.	In Key Stage 2, students should have been taught to: • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. For most students however, this will be the first time that they have seen binary and understood how it is used in all computers to process data.	In Key Stage 2, students should have been taught to: • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

	acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.				
Transferrable knowledge (skills)	**Digital Literacy Skills** – this skill is developed throughout a number of units and covers core skills needed by students to create effective documents for a specific purpose and audience across all subject areas.	**Keyboard Shortcuts** – make using computer systems and applications more efficient to improve speed of performing common tasks and improve productivity. **Digital Literacy Skills** – this skill is developed throughout a number of units and covers core skills needed by students to create effective documents for a specific purpose and audience across all subject areas. These skills specifically transfer to R082 Creative iMedia	**Computing Theory** – Computer systems and devices theory links directly to Year 8 unit Computer Systems and Networks, and GCSE Computer Science course content. **Digital Literacy** – Document layout skills including composition and effective use of whitespace. Text formatting skills including insert, resize, colour, emphasis, font style, spacing. Image formatting skills including insert, move, resize, remove background, colour.	**Computing Theory** – How binary is used in computers systems, converting binary numbers, representing characters, representing images, **Digital Literacy** - Document layout skills including composition and effective use of whitespace. Text formatting skills including insert, resize, colour, emphasis, font style, spacing. Image formatting skills including insert, move, resize, remove.	Programming skills such as designing using pseudocode and flowcharts, writing using sequence, selection, repetition, variables inputs and outputs, and debugging including detecting errors, all transfer through to future programming units in years 8-11.
Key vocabulary pupil will know and learn	Username, Password, VLE, File Name, Folder, File, Management, Health and Safety, RSI, Back Pain, Eye Strain, DVT, Trip Hazzard, Email, Email Address, CC, Email Subject, Attachment, Virus, Spam, Phishing.	Keyboard Shortcut, Ctrl + C, Ctrl + V, Ctrl + P, Ctrl + S, Ctrl + B, Ctrl + U, Ctrl + I, Ctrl + Z, Ctrl + O, Ctrl + N, Shapes, WordArt, Fill Colour, Outline, Effects, Input Device, Output Device, Monitor, Keyboard, Mouse, Printer, Scanner.	Computer, Hardware, Software, Input, Process, Output, Storage, Keyboard, Mouse, Joystick, Graphics Tablet, Central Processing Unit (CPU), Monitor, Printer, Speakers, Headphones, Hard Disk Drive, CD/DVD, USB Memory Stick, Random Access Memory (RAM), General Purpose Computer, Embedded Computer, Desktop PC, Laptop, Netbook, Tablet, Smartphone, Server, Supercomputer.	Binary, Bit, Nibble, Byte, Denary Table, ASCII, George Boole, Boolean Logic, Binary Logic, Logic Gates, AND Gate, OR Gate, NOT Gate, Truth Table.	**Programming** - ,Conditions, Action, Parameter Or Argument, Sequence, Algorithm, Pseudocode **Scratch** - Motion, Looks, Sound, Events, Control, Sensing, Operators, Variables, Sprite, Stage.
Assessment activities	Starter and plenary mini assessments Use of online assessments (forms, Kahoot, quizizz) File Management and Health and Safety Knowledge Assessment (20 mins) Health and Safety in a Computer Room Poster	Starter and plenary mini assessments Use of online assessments (forms, Kahoot, quizizz) Keyboard Shortcuts Poster Computer Hardware Graphics	Starter and plenary mini assessments Use of online assessments (forms, Kahoot, quizizz) Computer Systems Presentation/booklet	Starter and plenary mini assessments Use of online assessments (forms, Kahoot, quizizz) Knowledge Assessment Binary Booklet	Starter and plenary mini assessments Use of online assessments (forms, Kahoot, quizizz) Created Product
Resources available	• Lesson Resources: I:\Maths and Computing\ICT\KS3\Year 7\7.1 Induction • Topic Checklist Book Sticker • SOW: I:\Maths and Computing\ICT\Curriculum • KS2 NC information - National Curriculum - Computing key stages 1 to 2 (publishing.service.gov.uk) • BBC Bitesize: ○ Internet communication - KS3 Computer Science - BBC Bitesize ○ Safety and responsibility - KS3 Computer Science - BBC Bitesize	• Lesson Resources: I:\Maths and Computing\ICT\KS3\Year 7\7.3 ICT Productivity Skills • Topic Checklist Book Sticker • SOW: I:\Maths and Computing\ICT\Curriculum KS2 NC information - National Curriculum - Computing key stages 1 to 2 (publishing.service.gov.uk)	• Lesson Resources: I:\Maths and Computing\ICT\KS3\Year 7\7.4 Computer Systems – Types • Topic Checklist Book Sticker • SOW: I:\Maths and Computing\ICT\Curriculum • KS2 NC information - National Curriculum - Computing key stages 1 to 2 (publishing.service.gov.uk) • Bitesize - Computer Systems • •	• Lesson Resources: I:\Maths and Computing\ICT\KS3\Year 8\8.4 Binary and Computer Logic • Topic Checklist Book Sticker • SOW: I:\Maths and Computing\ICT\Curriculum • KS2 NC information - National Curriculum - Computing key stages 1 to 2 (publishing.service.gov.uk) • BBC Bitesize: ○ Binary ○ Digital Devices •	• Lesson Resources: I:\Maths and Computing\ICT\KS3\Year 7\7.6 Programming • Topic Checklist Book Sticker • SOW: I:\Maths and Computing\ICT\Curriculum • KS2 NC information - National Curriculum - Computing key stages 1 to 2 (publishing.service.gov.uk) • Scratch
Notes **Why this topic is important…**	Before students can begin to work effectively on the computer, they need to be able to access it correctly and efficiently. Students will need these skills throughout all their subjects in order to create, save and locate work efficiently. Students gain access through their usernames and choosing of suitable and secure passwords. Students must learn how to access Office 365, including Teams, Sharepoint, OneDrive and email for use throughout their school lives in order to access the online facilities effectively is essential for accessing subject material, emailing teachers and accessing lessons if absent. Finally it is important that students understand that computer rooms are different to normal classrooms and that some rules are different and there can be long term implications to health from prolonged improper use.	Being able to get the most out of software tools and facilities is important from a productivity and creativity perspective. These are tools and facilities that could be used across different curriculum areas and understanding how to get the most out of these tools and techniques can lead to improved document creation. Speeding up student working using common keyboard shortcuts can lead to greater proficiency in completing tasks. Understanding how to create digital graphics within different software and the tools that are available leads the students to an understanding of how digital graphics are created and the different ways creators develop these and the different ways that are available to manipulate graphics.	Having a better understanding of how computers work allows students to determine the hows and whys of computer systems, which helps them become more effective in using the different hardware and software. Knowing about different computer systems makes it easy to understand their benefits and limitations, and their intended used. This helps students maintain realistic expectations about computers and attached devices and maximise their use	If you want to be a programmer or engage in the web development industry, learning the binary system is necessary. Learning binary code allows you to know more about how computers function.	Programming is a basic literacy in the digital age, and students need to understand and work with the technology around them. Learn programming prepares them for the future and can help with communication, creativity, math, writing, and confidence. As they learn to program, they learn that there is no one way to do something even if their way didn't work and can develop problem solving and resilience skills without worrying about failing.