



Acre Hall Primary School Computing Long Term Curriculum Plan



Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Using a computer	All about instructions	Exploring hardware	Programming Bee-Bots	Introduction to data	Colour coded to show content areas: Digital Literacy Computer Science Information Technology Online Safety
1	Improving mouse skills	Algorithms unplugged	Digital imagery	Programming Bee-Bots	Online Safety Y1	
1/2	What is a computer?	Algorithms and debugging	International Space Station (data handling)	Programming 2 – Scratch Jr	Online Safety Y2	
2	What is a computer?	Algorithms and debugging	International Space Station (data handling)	Programming 2 – Scratch Jr	Online Safety Y2	
KS1 SSC	Improving mouse skills (Year 1)	Algorithms unplugged (Year 1)	Digital imagery (Year 1)	Programming Bee-Bots (Year 1)	Online Safety Y1	
3	Computing systems and networks	Programming - Scratch	Journey inside a computer	Video trailers	Online Safety Y3	
4	Collaborative learning	Further coding with Scratch	Investigating weather	Computational thinking	Online Safety Y4	
LKS2 SSC	What is a computer? (Year 2)	Algorithms and debugging (Year 2)	International Space Station (data handling) (Year 2)	International Space Station (Year 2)	Online Safety Y2	
5	Mars Rover 1	Programming music	Search engines	Stop Motion animation	Online Safety Y5	
6- SS	Bletchley Park	Intro to Python	Big data 1	History of computers	Online Safety Y6	
UKS2 SSC	Computing systems and networks (Year 3)	Programming – Scratch (Year 3)	Journey inside a computer (Year 3)	Video trailers (Year 3)	Online Safety Y3	
Notes:						



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- These topics are interchangeable within the curriculum year group. Online Safety may be completed during the Spring Term to coincide with National Online Safety Day.
- Completing the condensed long term plan of KAPOW Primary Computing ensures full coverage of the National Curriculum still but will allow teachers more time to revisit, review and assess.
- Teachers will have the chance to address any misconceptions and consolidate understanding throughout the year.
- Teachers will also be able to identify any basic skills that their children need and factor that into their planning.
- EYFS classes will be following the KAPOW EYFS computing units.
- Our SSC children have created a tailor made curriculum that is purposeful for their children.
- **UPDATE 2023:** KS1 SSC following Year 1, LKS2 SSC following Year 2 topics and UKS2 SSC Following Year 3 topics in 2023/24.
- **UPDATE 2023:** Year 1/2 following the Year 2 curriculum due to the makeup of their class.
- **UPDATE 2023:** Year 5 switched 'Search engines' and 'Programming music'.

EYFS Computing

The technology strand has been removed from the EYFS framework (it used to sit within 'Understanding the World') however at Acre Hall we value the expectation that teaching of computing and technology is embedded within other areas of learning and throughout provision. We follow the guidance for Birth to 5 matters which highlights the importance of technology in children's early lives, offering them a range of technologies in provision and providing teaching opportunities both formally and informally.

Computing in EYFS

Our children engage in the home corner and other role play areas, where they use phones, laptops, washing machines and other technological devices.

The children use and engage with programmes on the interactive whiteboard to practise Maths and English games.

We have weekly opportunities to explore the iPads; both as part of adult directed guided sessions and in continuous provision. The children are encouraged to use the iPads to photograph their own learning, which can then be shared with their peers. We also regularly use Seesaw as an opportunity for the children to 'show and tell' their home learning and show case their homework.

From Reception upwards, we follow our whole school computing programme Kapow, we learn about computers and simple hardware, such as how to use a keyboard.

As part of our computing modules and topic work, linked to 'In the moment planning' we use Beebots. We learn how to programme them as well as practising beebot coding skills on the iPad.

The lessons are a natural precursor to our Year 1 computing plans and focus on how to naturally incorporate computing into all areas of learning within the EYFS curriculum. Topics and concepts are introduced in imaginative and easy-to-understand ways, ensuring that children acquire a solid foundation of understanding and make a smooth transition to the KS1 scheme of work. Both the EYFS and Year 1 computing schemes feature a unit all about programming a Bee-Bot. While the Year 1 lessons focus on programming the Bee-Bots to follow set paths and getting to grips with the finer points of algorithms, the EYFS Bee-Bot unit begins simply with understanding arrows. This is because in order to understand algorithms (sets of instructions) and programming, children first need to know how to give simple instructions and what directional arrows mean. It is in this way that



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	our schemes work together in perfect symbiosis - the EYFS scheme building the foundations and bridging the gaps so that children can enter Year 1 with all the building blocks in place to continue their computing journey.
3-4 years Nursery	<p><u>Statutory: None</u> <u>Birth to 5 matters:</u> Knows how to operate simple equipment, e.g. turns on CD player, uses a remote control, can navigate touch-capable technology with support</p> <ul style="list-style-type: none"> • Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets • Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images • Knows that information can be retrieved from digital devices and the internet • Plays with a range of materials to learn cause and effect, for example, makes a string puppet using dowels and string to suspend the puppet. <p>Completes a simple program on electronic devices • Uses ICT hardware to interact with age appropriate computer software • Can create content such as a video recording, stories, and/or draw a picture on screen • Develops digital literacy skills by being able to access, understand and interact with a range of technologies • Can use the internet with adult supervision to find and retrieve information of interest to them</p>
Reception ELG	<p><u>Statutory ELG: None</u> <u>Birth to 5 Matters:</u> Children require access to a range of technologies, both digital and non-digital in their early lives. Exploring with different technologies through play provides opportunities to develop skills that children will go on to develop in their lifetimes. Investigations, scientific inquiry and exploration are essential components of learning about and with technology both digitally and in the natural world. Through technology children have additional opportunities to learn across all areas in both formal and informal ways. Technologies should be seen as tools to learn both from and with, in order to integrate technology effectively within early years practice.</p>
Books linked to computing	<p><i>No Bot</i> <i>Unplugged</i></p>
Component Knowledge by the end of EYFS	<p>Personal, Social and Emotional Development I can wait a short amount of time for something I want e.g.: a computer loading / an App to work. I know how to complete a familiar task independently and with support will try new things. E.g.: a computer programme / Beebots. I can select tools and resources that I need to complete a task of my own choosing. I know how to be safe online. I know that a password is secret.</p> <p>Physical Development I know how to use an iPad or tablet appropriately. I know how to use my fingers on a touch screen, and control a mouse/touchpad on a computer.</p> <p>Understanding the World</p>



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	<p>I know how to use a camera i.e.: on an iPad. I know how to work a simple programmable toy. I can select and use technology for particular purposes.</p> <p>I know how technology is used in my own home. I know that technology has changed since my adults were young.</p> <p>Expressive Art and Design</p> <p>Children can safely use a range of technology for a purpose</p>
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Year One

	Autumn One	Autumn Two	Spring One	Spring Two	Summer One
Topic Enquiry Question: Lesson Sequence Key Questions	<p><u>TQ: How can we improve our mouse skills?</u></p> <p><i>KQ: How do you log into a computer and access a website?</i> <i>KQ: How do you use a mouse?</i> <i>KQ: How do you draw and edit shapes?</i> <i>KQ: How do you draw a scene from a story?</i> <i>KQ: How do you create a self-portrait using digital techniques?</i></p>	<p><u>TQ: How do we use and fix algorithms?</u></p> <p><i>KQ: What is an algorithm?</i> <i>KQ: How can I precisely carry out an action?</i> <i>KQ: What are inputs and outputs?</i> <i>KQ: What is decomposition?</i> <i>KQ: How do you debug an algorithm?</i></p>	<p><u>TQ: How do you create digital imagery?</u></p> <p><i>KQ: How do you plan a photo story?</i> <i>KQ: How do you take photos using technology?</i> <i>KQ: How do you edit photos?</i> <i>KQ: How do you search for images online?</i> <i>KQ: What is a photo collage?</i></p>	<p><u>TQ: What can we make a Bee-Bot do?</u></p> <p><i>KQ: What is a Bee-Bot?</i> <i>KQ: How can we demonstrate what a Bee-Bot does?</i> <i>KQ: Can we plan and follow a set of instructions precisely?</i> <i>KQ: How do you program a device?</i> <i>KQ: How do you create a program?</i></p>	<p><u>Online Safety Year One</u></p> <p><i>KQ: How do you use the internet safely?</i> <i>KQ: What are online emotions?</i> <i>KQ: How can we be kind and considerate online?</i> <i>KQ: What should we post and share online?</i> <i>KQ: How much time should be spent on technology?</i></p>
Component knowledge By the end of the unit, children should be able to	<ul style="list-style-type: none"> ✓ "Log in and Log out" means to begin and end a connection with a computer. ✓ A computer and mouse can be used to click, drag, fill and select and also 	<ul style="list-style-type: none"> ✓ An algorithm is when instructions are put in an exact order. ✓ Input devices get information into a computer and output devices get information out of a computer. 	<ul style="list-style-type: none"> ✓ To understand that holding the camera or device still and considering angles and light are important to take good pictures. ✓ To know that you can edit, crop and filter photographs. 	<ul style="list-style-type: none"> ✓ To understand the basic functions of a Bee-Bot. ✓ To know that you can use a camera/tablet to make simple videos. ✓ To know that algorithms move a 	<ul style="list-style-type: none"> ✓ The internet is many devices connected to one another. ✓ To know what to do if you feel unsafe or worried online – tell a trusted adult. ✓ To know that people you do not know on








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	add backgrounds, text, layers, shapes and clip art. ✓ Passwords are important for security.	✓ Decomposition means breaking a problem into manageable chunks. ✓ Errors in an algorithm are 'bugs' and fixing these 'debugging'.	✓ To know how to search safely for images online.	Bee-Bot accurately to a chosen destination.	the internet (online) are strangers and are not always who they say they are. ✓ To know that to stay safe online it is important to keep personal information safe. ✓ To know that 'sharing' online means giving something specific to someone else via the internet and 'posting' online means placing information on the internet.
NC Computing Links	- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - Create and debug simple programs - Use logical reasoning to predict the behaviour of simple programs		- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - Create and debug simple programs - Use logical reasoning to predict the behaviour of simple programs	- Use technology safely and respectfully. - Use technology purposefully to create, organise, store, manipulate and retrieve digital content
Cross curricular Links	RSE: Online safety Maths: Geometry – properties of shapes English: Reading – comprehension	English: Writing – composition, Spoken language Maths: Geometry – properties of shapes, position and direction		Maths: Geometry – position and direction Geography: Geographical skills and fieldwork	RSE – Online safety



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		Geography: Geographical skills and fieldwork		English: Reading – comprehension, Spoken language	
Revisit and review opportunities	Computing systems and networks 1: Using a computer (<i>EYFS</i>) Computing systems and networks 1: What is a computer? (<i>Year 2</i>)	Programming 1: All about instructions (<i>EYFS</i>) Programming 1: Option 1: Bee-Bot		Programming 1: Algorithms unplugged Programming 1: Algorithms and debugging. (<i>Year 2</i>)	
Curriculum Driver Links					
Vocabulary	<u>Autumn 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Autumn 2</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Spring 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Spring 2</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Summer 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access

Year One/Two

	Autumn One	Autumn Two	Spring One	Spring Two	Summer Term
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Topic Enquiry Question: Lesson Key Questions:	TQ: What is a computer? <i>KQ: Can you name the different parts of a computer?</i> <i>KQ: How is technology controlled?</i> <i>KQ: What technology do you recognise?</i> <i>KQ: Can you create a design for an invention?</i> <i>KQ: What is the role of computers?</i>	TQ: How do you debug an algorithm? <i>KQ: Can you decompose a game to predict the algorithm used?</i> <i>KQ: How do computers make predictions?</i> <i>KQ: How could you solve problems using algorithms?</i> <i>KQ: What is abstraction?</i> <i>KQ: What is debugging?</i>	TQ: How do computers help in space? <i>KQ: How do computers help humans survive in space?</i> <i>KQ: What essential items do we need in space?</i> <i>KQ: What is the role of the sensors on the ISS?</i> <i>KQ: What algorithm can be used for growing a plant in space?</i> <i>KQ: How do we interpret data?</i>	TQ: How do we use Scratch Jr? <i>KQ: What is Scratch Jr?</i> <i>KQ: How do you create an animation?</i> <i>KQ: How do you make a music instrument?</i> <i>KQ: How do you programme a joke?</i> <i>KQ: How do you plan and use code to create an algorithm?</i>	Online Safety Year Two <i>KQ: What happens when I post online?</i> <i>KQ: How do I keep things safe online?</i> <i>KQ: Who should I ask?</i> <i>KQ: When should I say no?</i> <i>KQ: Is everything I read true?</i>
Component knowledge By the end of the unit, children should be able to	<ul style="list-style-type: none"> ✓ The difference between a desktop and laptop computer is that a laptop is portable. ✓ People control technology. ✓ Input devices give a computer an instruction about what to do (output). ✓ Computers often work together. 	<ul style="list-style-type: none"> ✓ Coding is writing in a special language so that the computer understands what to do. ✓ The character in ScratchJr is controlled by the programming blocks. ✓ A program can be written to create a musical instrument or tell a joke. 	<ul style="list-style-type: none"> ✓ You can enter simple data into a spreadsheet. ✓ Steps you need to take to create an algorithm. ✓ Use data to answer certain questions. ✓ Computers can be used to monitor supplies. 	<ul style="list-style-type: none"> ✓ . To know that coding is writing in a special language so that the computer understands what to do. ✓ To understand that the character in ScratchJr is controlled by the programming blocks. ✓ To know that you can write a program to create a musical instrument or tell a joke. 	<ul style="list-style-type: none"> ✓ Personal information should not be posted online. ✓ People need a strong password to be safe. ✓ People should ask permission from others before sharing about them online and that they have the right to say 'no.' ✓ Not everything I see or read online is true.



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NC Computing Links	<ul style="list-style-type: none"> - Recognise common uses of information technology beyond school - Use technology purposefully to create, organise, store, manipulate and retrieve digital content - Use technology safely and respectfully. 	<ul style="list-style-type: none"> - Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - Create and debug simple programs - Use logical reasoning to predict the behaviour of simple programs 	<ul style="list-style-type: none"> - Use technology purposefully to create, organise, store, manipulate and retrieve digital content 	<ul style="list-style-type: none"> - Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - Create and debug simple programs - Use logical reasoning to predict the behaviour of simple programs 	<ul style="list-style-type: none"> - Use technology safely and respectfully. - Use technology purposefully to create, organise, store, manipulate and retrieve digital content
Cross curricular Links	English: Spoken Language Science: Working scientifically Design and technology: Design	English: Spoken language, Writing – composition Maths: Geometry – position and direction Geography: Geographical skills and fieldwork	Science: Animals, including humans; Living things and their habitats Science: Y5 Space Maths: Measurement	English: Spoken language, Reading – comprehension Maths: Geometry – position and direction Music	RSE – Online safety
Revisit and review opportunities	Computing systems and networks 1: Using a computer (<i>EYFS</i>) Computing systems and networks 3: Journey inside a computer (<i>Year 3</i>)	Programming 1: Algorithms unplugged (<i>Year 1</i>) Programming 2: Scratch JR (<i>Year 3</i>)	Data handling: Introduction to data (<i>EYFS</i>) Google: Data handling: Comparison cards databases (<i>Year 3</i>)	Programming 1: Algorithms and debugging	Assessment – Computing: Online Safety (<i>Year 1</i>) Computing: Online Safety (<i>Year 3</i>)
Curriculum Driver Links	Aspirational Learners 	Adventurers & Explorers 	Healthy Advocates 	Clear Communicators 	Global Citizens 



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Vocabulary	<u>Autumn 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Autumn 2</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Spring 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Spring 2</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Summer 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access

Year Two

	Autumn One	Autumn Two	Spring One	Spring Two	Summer Term
Topic Enquiry Question:	TQ: What is a computer?	TQ: How do you debug an algorithm?	TQ: How do computers help in space?	TQ: How do we use Scratch Jr?	Online Safety Year Two
Lesson Key Questions:	<i>KQ: Can you name the different parts of a computer?</i> <i>KQ: How is technology controlled?</i> <i>KQ: What technology do you recognise?</i> <i>KQ: Can you create a design for an invention?</i> <i>KQ: What is the role of computers?</i>	<i>KQ: Can you decompose a game to predict the algorithm used?</i> <i>KQ: How do computers make predictions?</i> <i>KQ: How could you solve problems using algorithms?</i> <i>KQ: What is abstraction?</i> <i>KQ: What is debugging?</i>	<i>KQ: How do computers help humans survive in space?</i> <i>KQ: What essential items do we need in space?</i> <i>KQ: What is the role of the sensors on the ISS?</i> <i>KQ: What algorithm can be used for growing a plant in space?</i> <i>KQ: How do we interpret data?</i>	<i>KQ: What is Scratch Jr?</i> <i>KQ: How do you create an animation?</i> <i>KQ: How do you make a music instrument?</i> <i>KQ: How do you programme a joke?</i> <i>KQ: How do you plan and use code to create an algorithm?</i>	<i>KQ: What happens when I post online?</i> <i>KQ: How do I keep things safe online?</i> <i>KQ: Who should I ask?</i> <i>KQ: When should I say no?</i> <i>KQ: Is everything I read true?</i>






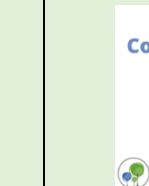
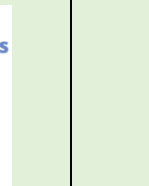
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Component knowledge By the end of the unit, children should be able to	<ul style="list-style-type: none"> ✓ The difference between a desktop and laptop computer is that a laptop is portable. ✓ People control technology. ✓ Input devices give a computer an instruction about what to do (output). ✓ Computers often work together. 	<ul style="list-style-type: none"> ✓ Coding is writing in a special language so that the computer understands what to do. ✓ The character in ScratchJr is controlled by the programming blocks. ✓ A program can be written to create a musical instrument or tell a joke. 	<ul style="list-style-type: none"> ✓ You can enter simple data into a spreadsheet. ✓ Steps you need to take to create an algorithm. ✓ Use data to answer certain questions. ✓ Computers can be used to monitor supplies. 	<ul style="list-style-type: none"> ✓ . To know that coding is writing in a special language so that the computer understands what to do. ✓ To understand that the character in ScratchJr is controlled by the programming blocks. ✓ To know that you can write a program to create a musical instrument or tell a joke. 	<ul style="list-style-type: none"> ✓ Personal information should not be posted online. ✓ People need a strong password to be safe. ✓ People should ask permission from others before sharing about them online and that they have the right to say 'no.' ✓ Not everything I see or read online is true.
NC Computing Links	<ul style="list-style-type: none"> - Recognise common uses of information technology beyond school - Use technology purposefully to create, organise, store, manipulate and retrieve digital content - Use technology safely and respectfully. 	<ul style="list-style-type: none"> - Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - Create and debug simple programs - Use logical reasoning to predict the behaviour of simple programs 	<ul style="list-style-type: none"> - Use technology purposefully to create, organise, store, manipulate and retrieve digital content 	<ul style="list-style-type: none"> - Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - Create and debug simple programs - Use logical reasoning to predict the behaviour of simple programs. 	<ul style="list-style-type: none"> - Use technology safely and respectfully. - Use technology purposefully to create, organise, store, manipulate and retrieve digital content
Cross curricular Links	English: Spoken Language Science: Working scientifically Design and technology: Design	English: Spoken language, Writing – composition Maths: Geometry – position and direction Geography: Geographical skills and fieldwork	Science: Animals, including humans; Living things and their habitats Science: Y5 Space Maths: Measurement	English: Spoken language, Reading – comprehension Maths: Geometry – position and direction	RSE – Online safety



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				Music	
Revisit and review opportunities	Computing systems and networks 1: Using a computer (EYFS) Computing systems and networks 3: Journey inside a computer (Year 3)	Programming 1: Algorithms unplugged (Year 1) Programming 2: Scratch JR (Year 3)	Data handling: Introduction to data (EYFS) Google: Data handling: Comparison cards databases (Year 3)	Programming 1: Algorithms and debugging	Assessment – Computing: Online Safety (Year 1) Computing: Online Safety (Year 3)
Curriculum Driver Links					
	Aspirational learners Clear communicators	Global citizens Clear communicators			
Vocabulary	<u>Autumn 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Autumn 2</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Spring 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Spring 2</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Summer 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access

Year Three



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	Autumn One	Autumn Two	Spring One	Spring Two	Summer Term
Topic Enquiry Question: Lesson Key Questions:	TQ: How are we connected to the internet? <i>KQ: What is a network?</i> <i>KQ: How does information move around a network?</i> <i>KQ: How is a website created?</i> <i>KQ: What is a router?</i> <i>KQ: What are packets?</i>	TQ: How can we create fun activities with coding? <i>KQ: What is Scratch?</i> <i>KQ: What is repetition?</i> <i>KQ: How do you program an animation?</i> <i>KQ: How do you program a story?</i> <i>KQ: How do you program a game?</i>	TQ: What is inside a computer? <i>KQ: Can you name the basic inputs and outputs?</i> <i>KQ: Can you decompose a laptop?</i> <i>KQ: What is the purpose of computer parts?</i> <i>KQ: What does computer memory do?</i> <i>KQ: Can you decompose a tablet?</i>	TQ: How do you create video trailers? <i>KQ: How do you plan a book trailer?</i> <i>KQ: How can we tell a story using photos and videos?</i> <i>KQ: What can you do if you aren't happy with a trailer?</i> <i>KQ: How do you add text and transitions to a video?</i> <i>KQ: How do you know an edited video is ready?</i>	Online Safety Year 3 <i>KQ: How is the internet used to share opinions and beliefs?</i> <i>KQ: Who should I ask?</i> <i>KQ: How can the internet effect my feelings?</i> <i>KQ: How is personal information shared on the internet?</i> <i>KQ: What are the rules of social media platforms?</i>
Component knowledge By the end of the unit, children should be able to	<ul style="list-style-type: none"> ✓ Understand computer networks including the internet and talk about the services they provide. ✓ Select, use and combine a variety of software (including internet services) on a range of digital devices. ✓ Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour. ✓ Identify a range of ways to report concerns about content and contact 	<ul style="list-style-type: none"> ✓ Design, write and debug programs that accomplish specific goals. ✓ Decompose algorithms into smaller parts ✓ Explain and correct algorithms. ✓ Talk about what computer networks do. 	<ul style="list-style-type: none"> ✓ Understand the roles that inputs and outputs play on computers. ✓ Know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together. ✓ To know what a tablet is and how it is different from a laptop/desktop computer. 	<ul style="list-style-type: none"> ✓ Use different camera shots to make photos or videos look more effective. ✓ Edit photos and videos using film editing software. ✓ Add transitions and text to my video. 	<ul style="list-style-type: none"> ✓ Not everything on the internet is true: people share facts, beliefs and opinions online. ✓ The internet can affect people's moods and feelings. ✓ Privacy settings limit who can access important personal information, such as names, ages, gender etc. ✓ What social media is and that age restrictions apply.








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NC Computing Links	<ul style="list-style-type: none"> - Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and opportunities they offer for communication and collaboration - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 	<ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<ul style="list-style-type: none"> - select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information 	<ul style="list-style-type: none"> - Use technology safely and respectfully. - Use technology purposefully to create, organise, store, manipulate and retrieve digital content
Cross curricular Links	English: Spoken language RSE: Online relationships Maths: Measurement, Statistics	English: Spoken language, Writing – composition Music	English: Spoken language Design and technology	Reading – comprehension Writing – composition	RSE – Online safety
Revisit and review opportunities	Computing systems and networks 1: What is a computer? (Year 2) Computing systems and networks 3: Journey inside a computer (Year 3)	Programing 2 – Scratch JR (Year 2) Programming 1 – Further coding with Scratch (Year 4)	Computing systems and networks 1: What is a computer? (Year 2)		Online Safety – Year Two Online Safety – Year Four



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Curriculum Driver Links	Aspirational Learners 	Adventurers & Explorers 	Healthy Advocates 	Clear Communicators 	Global Citizens 
	Global citizens Clear communicators		Clear communicators Global citizens		
Vocabulary	<u>Autumn 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Autumn 2</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Spring 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Spring 2</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Summer 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access

Year Four

	Autumn One	Autumn Two	Spring One	Spring Two	Summer Term
Topic Enquiry Question:	TQ: How do we collaboratively learn?	TQ: Why do we need to decompose algorithms?	TQ: How can we investigate the weather?	TQ: What are the four strands of computational thinking?	Online Safety Year 4
Lesson Key Questions:	<i>KQ: How do you work online as a team?</i> <i>KQ: How do we share documents?</i> <i>KQ: How do you create effective presentations?</i> <i>KQ: How do you create a google form?</i> <i>KQ: How can you explore data?</i>	<i>KQ: What are the key features of Scratch?</i> <i>KQ: What is decomposition?</i> <i>KQ: What are variables?</i> <i>KQ: How do you make a variable in Scratch?</i> <i>KQ: How do variables help you to create a quiz?</i>	<i>KQ: How do you log data in a spreadsheet?</i> <i>KQ: How do you design a weather station?</i> <i>KQ: How can you measure extreme weather?</i> <i>KQ: How are weather forecasts made?</i>	<i>KQ: What is computational thinking?</i> <i>KQ: What is decomposition?</i> <i>KQ: What is abstract and pattern recognition?</i> <i>KQ: What is algorithm design?</i> <i>KQ: How can we combine computational thinking skills to solve a problem?</i>	<i>KQ: What happens when I search online?</i> <i>KQ: How do companies encourage us to buy online?</i> <i>KQ: Fact, opinion or belief?</i> <i>KQ: What is a bot?</i> <i>KQ: What is my #TechTimetable like?</i>






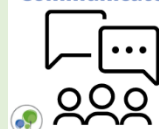

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			<i>KQ: How can you present a weather forecast?</i>		
Component knowledge By the end of the unit, children should be able to	<ul style="list-style-type: none"> ✓ Use software collaboratively online to work as a team. ✓ Work collaboratively on a document ✓ Use images, text, transitions and animation in presentation slides. 	<ul style="list-style-type: none"> ✓ A variable is a value that can change (depending on conditions) and know that you can create them in Scratch. ✓ What a conditional statement is in programming. ✓ That using variables can help you to create a quiz on Scratch. 	<ul style="list-style-type: none"> ✓ To know that computers can use different forms of input to sense the world around them so that they can record and respond to data ('sensor data'). ✓ To know that a weather machine is an automated machine that respond to sensor data. ✓ To understand how to present a weather forecast. 	<ul style="list-style-type: none"> ✓ Explain that computational thinking helps to solve problems ✓ Explain what pattern recognition is ✓ To understand what algorithms are used for 	<ul style="list-style-type: none"> ✓ To understand some of the methods used to encourage people to buy things online. ✓ Technology can be designed to act like or impersonate living things. ✓ Technology can be a distraction and identify when someone might need to limit the amount of time spent using technology. ✓ What behaviours are appropriate in order to stay safe and be respectful online?
NC Computing Links	<ul style="list-style-type: none"> - Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer of communication and collaboration - Use search technologies effectively, appreciate how results are selected and ranked, and be 	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer of communication and collaboration - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a 	<ul style="list-style-type: none"> - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts -Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. 	<ul style="list-style-type: none"> - Use technology safely and respectfully. - Use technology purposefully to create, organise, store, manipulate and retrieve digital content



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	discerning in evaluating digital content.	algorithms work and to detect and correct errors in algorithms and programs.	range of ways to report concerns about content and contact		
Cross curricular Links	RSE: Respectful Relationships, courtesy and manners. English: Writing – composition and peer assessment. Maths: Interpreting data, bar charts and time graphs.	Maths: 2-D grids, coordinates and translations. Multiplication and division facts for the 3, 4 and 8 tables. English: Spoken Language – speculating, hypothesising, imagining and exploring ideas.	Science – temperature, evaporation and condensation, water cycle, observations and accurate measurements. Geography – physical geography Maths – bar charts, pictograms, tables and other graphs. English: Spoken Language – discussions, presentations, performances, role play, improvisations and debates.	Maths: solve problems involving multiplying and adding. 2-D shapes and 3-D shapes. Recognising angles. Physical Education: perform dances using a range of movement patterns. English: Spoken Language – develop understanding through speculating, hypothesising, imagining and exploring ideas.	RSE – Online safety
Revisit and review opportunities	Google: Computing systems and networks: Search engines (<i>Year 5</i>)	Programming: Scratch (<i>Year 3</i>) Programming music: Scratch (<i>Year 5</i>)	Data Handling: Comparison cards database (<i>Year 3</i>) Data Handling: Mars Rover 1 (<i>Year 5</i>)	Programming: Algorithms and debugging (<i>Year 2</i>) Programming music – Scratch (<i>Year 5</i>)	Online Safety: <i>Year 3</i> Online Safety: <i>Year 5</i>
Curriculum Driver Links	Aspirational Learners 	Adventurers & Explorers 	Healthy Advocates 	Clear Communicators 	Global Citizens 



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Vocabulary	<u>Autumn 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Autumn 2</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Spring 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Spring 2</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Summer 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access

Year Five

	Autumn One	Autumn Two	Spring One	Spring Two	Summer One
Topic Enquiry Question:	TQ: What is the Mars Rover?	TQ: How can you use Scratch to create music?	TQ: Are search engines reliable?	TQ: What is stop motion?	Online Safety Year 5
Lesson Key Questions:	KQ: How and why is data collected in space? KQ: What is binary code? KQ: How does the Mars Rover work? KQ: What are bit patterns? KQ: How can we represent binary as text?	<i>KQ: What music elements does Scratch have?</i> <i>KQ: How do you create a soundtrack?</i> <i>KQ: How do you plan a soundtrack program?</i> <i>KQ: What do you need to program a soundtrack?</i> <i>KQ: Can you program music for a specific purpose?</i>	<i>KQ: What is a search engine?</i> <i>KQ: How do you know what the truth is online?</i> <i>KQ: How can you search effectively?</i> <i>KQ: How could we support people when searching online?</i> <i>KQ: How do search engines work?</i>	KQ: What is animation? KQ: What is stop motion animation? KQ: What characters should you use in stop motion animation? KQ: How do you create a stop motion animation? KQ: How can you edit a stop motion animation?	KQ: How do apps access our personal information? KQ: What are the aspects of online communication? KQ: How does online information help to form judgements? KQ: How can we overcome online bullying? KQ: How does technology affect health and wellbeing?








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	<ul style="list-style-type: none"> ✓ Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock. ✓ Binary code uses numbers to send messages and information. ✓ RAM is Random Access Memory and acts as the computer's working memory. ✓ Simple operations can be used to calculate bit patterns. ✓ Bit patterns represent images as pixels. ✓ Data for digital images can be compressed. 	<ul style="list-style-type: none"> ✓ A soundtrack is music for a film/video and that one way of composing these is on programming software. ✓ Loops can make the process of writing music simpler and more effective. 	<ul style="list-style-type: none"> ✓ Anyone can create a website and therefore we should take steps to check the validity of websites. ✓ Web crawlers are computer programs that crawl through the internet. 	<ul style="list-style-type: none"> ✓ To know that decomposition of an idea is important when creating stop-motion animations. ✓ To understand that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph. ✓ To know that editing is an important feature of making and improving a stop motion animation. 	<ul style="list-style-type: none"> ✓ Identifying possible dangers online and learning how to stay safe. ✓ Evaluating the pros and cons of online communication. ✓ Recognising that information on the Internet might not be true or correct and learning ways of checking validity. ✓ Learning what to do if they experience bullying online. ✓ Learning to use an online community safely.
NC Computing Links	<ul style="list-style-type: none"> -Understanding 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. -Using search technologies effectively, appreciating how results are selected and ranked, and be discerning in evaluating digital content. -Recognising that computers transfer data in binary and 	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 	<ul style="list-style-type: none"> - Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<ul style="list-style-type: none"> - Use technology safely and respectfully. - Use technology purposefully to create, organise, store, manipulate and retrieve digital content



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	understand simple binary addition.	detect and correct errors in algorithms and programs.			
Cross curricular Links	RSE: Online Relationships – online shared data, online friendships and the risks of strangers. English: Spoken Language – consider and evaluate different viewpoints, attending to and building on the contributions of others.	Music – appreciate and understand a wide range of music. Play and perform in solo and ensemble contexts. Improvise and compose music for a range of purposes. English: Reading – identifying and discussing themes and convention. Making comparisons within and across books.	Maths – convert between different units of metric measure. Solve problems involving addition, subtraction, multiplication and division. Solve practical problems. Science – describe the movement of the Earth and other planets relative to the sun in the solar system.	Art and design - develop techniques, including their control and their use of materials, with creativity and experimentation. Improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay].	RSE – Online safety
Revisit and review opportunities	Google: Computing systems and networks: Collaborative learning (Year 4) Google: Computing systems and networks: Bletchley Park (Year 6)	Programming 1: Further coding with Scratch (Year 4)	Bletchley Park – (Year 6)	Creating media: website design (Year 4) Creating media: History of computers (Year 6)	Online safety (Year 4) Online safety (Year 6)
Curriculum Driver Links	 Aspirational Learners	 Adventurers & Explorers	 Healthy Advocates	 Clear Communicators	 Global Citizens
	Clear communicators Aspirational learners		Global citizens Healthy advocates		
Vocabulary	<u>Autumn 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and	<u>Autumn 2</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Spring 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and	<u>Spring 2</u> KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access	<u>Summer 1</u> KAPOW knowledge organiser to be printed off at the start of the unit and



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Year Six-

	Autumn One	Autumn Two	Spring One	Spring Two	Summer Term
Topic Enquiry Question: Lesson Key Questions:	TQ: How has coding been used in history? <i>KQ: How many types of code can you name?</i> <i>KQ: How secure is a password?</i> <i>KQ: Why is Bletchley Park important?</i> <i>KQ: Can you talk about who is responsible for technological advances in computing?</i> <i>KQ: Who are the historical figures in computing?</i>	TQ: What is Python? <i>KQ: What is Python used for?</i> <i>KQ: What are nested loops?</i> <i>KQ: What are the basic Python commands?</i> <i>KQ: What loops can you use when programming?</i> <i>KQ: How can random numbers be used?</i>	TQ: How does technology help us to work with data? <i>KQ: How do barcodes and QR codes work?</i> <i>KQ: How do infrared waves transmit data?</i> <i>KQ: What are the uses of RFID?</i> <i>KQ: Is there an effective way to input and analyse data?</i> <i>KQ: What is the most effective way to evaluate data?</i>	TQ: How have computers changed over the course of history? <i>KQ: How do you create sound digitally?</i> <i>KQ: How do you alter sound using software?</i> <i>KQ: What impact have computers had over time?</i> <i>KQ: How have computers changed the world?</i> <i>KQ: What will computers look like in the future?</i>	Online Safety Year 6 <i>KQ: How can we get help if being online gives us negative feelings?</i> <i>KQ: What is the impact of sharing information online?</i> <i>KQ: How can you create a positive reputation online?</i> <i>KQ: How can you capture evidence of bullying online?</i> <i>KQ: How can we manage personal passwords effectively?</i> <i>KQ: What strategies can protect us online?</i>








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	<ul style="list-style-type: none"> ✓ It is important to have a secure password. ✓ The first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2. ✓ Historical figures have contributed to technological advances in computing. 	<ul style="list-style-type: none"> ✓ There are text-based programming languages such as Logo and Python. ✓ Nested loops are loops inside of loops. 	<ul style="list-style-type: none"> ✓ 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. 	<ul style="list-style-type: none"> ✓ To know that radio plays are plays where the audience can only hear the action so sound effects are important. ✓ To know that sound clips can be recorded using sound recording software. ✓ To know that sound clips can be edited and trimmed. 	<ul style="list-style-type: none"> ✓ To explain what a digital . ✓ To know what steps are required to capture bullying content as evidence. ✓ To understand that it is important to manage personal passwords effectively. ✓ To understand what it means to have a positive online reputation. ✓ To know some common online scams.
NC Computing Links	<ul style="list-style-type: none"> - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 	<ul style="list-style-type: none"> - 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. 	Select, use and combine a variety of software to collect, analyse and present data.	<ul style="list-style-type: none"> - Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer of communication and collaboration - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 	<ul style="list-style-type: none"> - Use technology safely and respectfully. - Use technology purposefully to create, organise, store, manipulate and retrieve digital content
Cross curricular Links	<p>History – study an aspect or theme in British history.</p> <p>Maths – solve number and practical problems. Read, write, order and compare numbers up to 10 000 000.</p>	<p>Maths – compare and classify geometric shapes based on their properties and sizes. Describe positions on the full coordinate grid.</p>	<p>Science – recognise that light appears to travel in straight lines</p> <p>RSE: Online Relationships – the rules and principles for keeping safe online and how to report.</p>	<p>English: Reading – comprehension. How authors use language; pupils understanding of what they have read; careful research; and how</p>	RSE – Online safety



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	<p>RSE – know the rules and principles for keeping safe online and how to report them. How to critically consider online friendships and an awareness of the risks associated with strangers online.</p> <p>English: Writing – Composition. Identifying the audience and purpose. Noting and developing initial ideas. Using further organisational and presentational devices to structure text.</p>	<p>Art – improve their mastery of art and design techniques, including drawing, painting and sculpture and know about great artists, architects and designers in history</p>	<p>How information and data is shared and used online.</p> <p>Maths: interpret and construct pie charts and line graphs and use these to solve problems. Complete, read and interpret information in tables</p>	<p>to correctly cite and record sources for information found on the internet.</p> <p>English: Writing – composition. Selecting appropriate grammar and vocabulary: describing settings, characters and atmosphere; and assessing the effectiveness of their own and others’ writing.</p> <p>History – a study of an aspect or theme in British history that extends pupils’ chronological knowledge.</p> <p>Design and Technology – use research and develop design criteria to inform the design of innovative, functional, appealing products</p>	
Revisit and review opportunities	<p>Computing systems and networks: Search engines (Year 5)</p> <p>Creating media: History of computers (Year 6)</p>		Data Handling: Mars Rover 2 (Year 5)		
Curriculum Driver Links	<p>Aspirational Learners</p> 	<p>Adventurers & Explorers</p> 	<p>Healthy Advocates</p> 	<p>Clear Communicators</p> 	<p>Global Citizens</p> 
	Aspirational learners Clear communicators				
Vocabulary	<p><u>Autumn 1</u></p> <p>KAPOW knowledge organiser to be printed off at the start of the unit and</p>	<p><u>Autumn 2</u></p> <p>KAPOW knowledge organiser to be printed off at the start of the unit and</p>	<p><u>Spring 1</u></p> <p>KAPOW knowledge organiser to be printed off at the start of the unit and</p>	<p><u>Spring 2</u></p> <p>KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access</p>	<p><u>Summer 1</u></p> <p>KAPOW knowledge organiser to be printed off at the start of the unit and displayed for the children to access</p>



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