

Woodham Burn Primary School



Computing Curriculum



Computing Curriculum Intent:

At Woodham Burn Primary School, we give the children the skills and knowledge to become digital citizens. This enables them to play an active role beyond school in an ever-changing digital landscape. It is a cohesive curriculum that teaches children a range of skills and knowledge around the three strands of computing set out in the National Curriculum:

- Computer Science
- Digital Literacy
- Information Technology

The skills the children will learn can be used throughout wider learning opportunities and they will be given the opportunity to do this across different subjects within school. The curriculum is progressive with clearly defined expectations for every year group which build on previous learning. Computer science allows children to understand computer programs and how they work. This begins with simple instructions being followed at the start of their learning journey; simple commands for a robot to follow; block programming and finally physical programming for a specific purpose by the end of Year 6. Each programming unit will incorporate the pedagogical approach of understand, copy, debug and create programs – this enables children to see a working program before undertaking their own.

As information technology is paramount to being successful in today's society, children will create media and information with growing confidence, with all year groups learning about spreadsheets; increasing the complexity as they move through phases. They will also use a range of programs to create media for different purposes allowing them to understand what makes it effective and why it might be used. Finally, digital literacy gives all children the platform to understand how to be safe using technology online and offline and how to communicate effectively with each other through email (KS2). Our online safety curriculum compliments this curriculum and runs alongside it to ensure children have a wider understanding.

We use the teach computing scheme to support us to deliver our computing curriculum. This provides us with structured lesson planning that teachers are then able to adapt, contextualized learning, scaffolded programming, cross-curricular links and adaptable and inclusive lesson content.



Curriculum Knowledge and Skills

Computing

Substantive Knowledge Concepts

Computer Science

Computer science focuses on introducing fundamental concepts of how computers work and how to use them effectively and safely. It allows children to learn about different digital systems and learning to program including understanding what debugging is in relation to programming

Information Technology

Information technology (IT) focuses on children understanding how computers are used to create, organise, manipulate and retrieve digital content and to understand how they work. In KS1 children can recognise what IT is and how it is used and use it for a purpose. Whereas KS2 children will use and create information before analysing, presenting and evaluating data.

Digital Literacy

Knowledge of how to use computer systems safely across a range of devices. Knowing how to keep their information private and identify ways to report and where to go for help when using the internet or other digital technologies.

This runs in tandem with the Online Safety curriculum that incorporates the focus from policies.

Disciplinary Skills

How we work and think like a computing expert.

Computing Systems and Networks

Using physical media to navigate, control and access a range of features and tools including the internet, laptops, tablets and shared files.

Explain how computers communicate with each other in a network and this provides opportunities for communication and collaboration

Identify devices that provide inputs, outputs or both

Programming

Use a range of programmable hardware and software to give instructions, debug problems and use programs for specific tasks.

Use of sequencing, repetition, selection and variables within a programming language to achieve a specific goal

Use logical reasoning to predict outcomes of programs

Data and Information

Gathering, analysing and evaluating data from a range of sources for a specific task.

Make choices on what data is needed to accomplish a specific task

Creating Media

Use devices and software to create media for a range of purposes including digital painting, photography, software-based media and multi-media.

Select the most appropriate software for a task and think critically about own and others' work

Using Technology Safely

Locate and search for files and information using devices and search engines and be able to scrutinise websites to find appropriate content.

Identify personal information, how to protect identities and the impact of sharing information online.

Recognise acceptable and unacceptable behaviour online and be able to report concerns and describe ways to safe online



Long-Term Provision Map for Computing: Teach Computing

	Autumn		Spring		Summer	
EYFS	Nursery Links: <i>Me and My Family</i> Reception Links: <i>All Change!</i>		Reception Links: <i>Terrific Transport</i>		Reception Links: <i>Once Upon a Time</i> Reception Links: <i>Fun at the Seaside!</i>	
Year 1	Computer Science Technology Around Us	Information Technology Digital Painting	Computer Science Moving a Robot	Information Technology Grouping Data	Information Technology Digital Writing	Computer Science Programming Animations
Year 2	Computer Science Technology Around Us	Information Technology Digital Photography	Computer Science Robot Algorithms	Information Technology Pictograms	Information Technology Digital Music	Computer Science Programming Quizzes
Year 3	Computer Science Connecting Computers	Information Technology Stop-frame Animation	Computer Science Sequencing Sounds	Information Technology Branching Databases	Information Technology Desktop Publishing	Computer Science Events and Actions in Programs
Year 4	Computer Science The Internet	Information Technology Audio Production	Computer Science Repetition in Shapes	Information Technology Data Logging	Information Technology Photo Editing	Computer Science Repetition in Games
Year 5	Computer Science Systems and Searching	Information Technology Video Production	Computer Science Selection in Physical Computing	Information Technology Flat-file Databases	Information Technology Vector Graphics	Computer Science Selection in Quizzes
Year 6	Digital Literacy Online Safety Communicate and Collaborate Blogging	Information Technology Webpage Creation	Computer Science Variables in Games	Information Technology Introduction in Spreadsheets	Information Technology 3D Modelling	Computer Science Sensing Movement



Year 1

Computing Sequences of Learning

Year 1 Computing Autumn Term 1-Technology Around Us

What is technology and how can we use it?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
What is technology and how does it help us?	What are the main parts of a computer and how do we use them	How can we use a mouse to control a computer?	How can a keyboard help us create and save our work?	How can we change and improve work we have created on a computer?	How can we use technology safely and responsibly?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Technology can be found in many places, including the classroom. - Different technologies help people complete different tasks. - There are ways to stay safe online and adults who can help when needed.	- Computers have different parts that perform specific functions. - Computers need to be switched on and logged into before use. - A mouse is an input device used to control objects on screen.	- All mice perform the same basic function of controlling movement on a screen. - Programs can be opened using a mouse. - Digital pictures can be created using mouse controls.	- A keyboard is used for typing letters, numbers, and symbols. - Typing allows users to create digital text. - Work can be saved as a file. - Save icons are commonly used across different programs.	- Saved files can be reopened and edited. - Text can be changed after it has been written. - Arrow keys move the cursor within text. - Delete functions allow mistakes to be corrected.	- Technology should be used responsibly at home and at school. - Online safety rules help protect users. - Following agreed rules creates a safer digital environment.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Computing Systems and Networks - Classifying objects as technology or non-technology. - Explaining how technology helps people.	Computing Systems and Networks - Identifying computer components. - Operating a computer safely and correctly. - Using a mouse to click and drag.	Computing Systems and Networks - Creating simple digital content. - Developing control and precision when using digital devices	Computing Systems and Networks - Recognising and using common digital icons. - Saving digital work appropriately. - Creating simple digital content.	Computing Systems and Networks - Opening existing files. - Editing digital text. - Using keyboard navigation tools. - Correcting and improving digital work.	Computing Systems and Networks - Discussing the purpose of safety rules. - Applying online safety principles. - Making responsible choices when using technology.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
EYFS: Children will have experienced and discussed technology in the world around them.	EYFS: Children have used touch screens and on-screen keyboards.	N/A	EYFS: Children will have used an onscreen keyboard (iPad) to locate letters (upper case and lower case).	EYFS: Children will have used an onscreen keyboard and have been shown how to delete if it is incorrect.	EYFS: will know common rules linked to the classroom and their home.

Vocabulary: technology, computer, keyboard, mouse, edit, text, delete, add, screen.

Year 1 Computing Autumn Term 2-Digital Painting

How can we paint using a computer?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
How can a computer be used to create a piece of art?	How can the same program be used to create shapes and lines?	How can we create art using the shape tools?	Why did I choose that?	What do I need to do to create art all by myself?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
• Paintings can be done by hand or digitally. • Freehand tools can be used for digital painting.	• There are different shape tools that can be used to create different shapes of different sizes. • The fill tool can be changed to include different colours. • The undo button removes changes.	• Tools in a program can help with creating different types of media including art. • Different styles can be created by using repetition.	• Digital tools can be combined to create an piece of art in the style of a famous artist.	• There is a colour palette to choose exact colours from.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Imitate a piece of art using tools in the palette	Creating Media Use the most effective tool to create an effect	Creating Media Use the most effective tool to create an effect. Imitate a piece of art using tools in the palette.	Creating Media Use the most effective tool to create an effect. Explain which tools they chose to create their work.	Creating Media Imitate a piece of art using tools in the palette Explain which tools they chose to create their work.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Y1 Aut 1: Control of a mouse to click, drag and select.	Y1 Aut 1: Control of a mouse to click, drag and select.	Y1 Aut 1: Control of a mouse to click, drag and select.	Y1 Aut 1: Control of a mouse to click, drag and select. Y1: DT-explain choses in relation to work in Design Technology.	Y1: DT-explain choses in relation to work in Design Technology.

Vocabulary: mouse, digital, palette, colours, shapes, tools, media, repetition, patterns, portrait.

Year 1 Computing Spring Term 1-Moving a Robot

How can a digital device follow my instructions?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What are the buttons for?	Which way to go?	How do I get there and back?	Where am I going?	How do I get from A to B?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
Buttons can perform a task on a digital device	- Programs work by following exact instructions called algorithms - Real world instructions can transfer to programming	Programs work by following exact instructions called algorithms	Combining instructions is called a sequence	There is sometimes more than one answer to a problem
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Programming Use logical reasoning to predict the behaviour of a simple program.	Programming Use logical reasoning to predict the behaviour of a simple program.	Programming Create a simple algorithm to make a robot move.	Programming Create and debug simple programs.	Programming Create and debug simple programs.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
EYFS: Follow a route another person has taken.	EYFS: Describe the route a robot is taking, using directional/positional language.	EYFS: Describe the route a robot is taking, using directional/positional language.	EYFS: Program a robot to follow a series of basic instructions.	EYFS: Program a robot to follow a series of basic instructions.

Vocabulary: instruction, program, command, algorithm, sequence, combine, debug, route, forwards, backwards, turn, left, right, stop, start, repeat.

Year 1 Computing Spring Term 2-Grouping Data

How can data be sorted?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What goes into each group?	How many?	What does it look like?	How have these been grouped?	What's the answer?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- We sort items into groups to identify them easily. - The word data is used to describe facts collected together to be analysed.	Sorting objects into groups helps us identify how many of something we have.	The properties of an object can help with grouping.	The properties of an object can help with grouping.	Grouping data helps us answer questions about it.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Data and Information Gather and analyse data.	Data and Information Gather and analyse data.	Data and Information Evaluate data for a specific task.	Data and Information Analyse and evaluate data.	Data and Information Analyse data based on questions asked.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
EYFS: Knowing that information can be retrieved from a computer. Y1 –Sorting materials in science.	EYFS – Comparing and grouping. Y1 – Counting and grouping in maths. Sorting materials in science.	EYFS – Comparing and grouping. Y1 – Counting and grouping in maths. Sorting materials in science.	EYFS – Comparing and grouping. Y1 – Counting and grouping in maths. Sorting materials in science.	EYFS – Using devices to support with their learning and explaining how. Y1 –Sorting materials in science.
Vocabulary: group, sort, count, items, data, properties.				

Year 1 Computing Summer Term 1: Digital Writing

How can a computer be used to create text?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What do the keys on a keyboard do?	How can you add or remove text?	How can the text be changed?	How can the text be changed?	Why have I made the choices I have?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- The keys on a keyboard have different functions. - A word processor is a computer tool that allows you to create text.	- The space key is used to put a space between words. - The backspace key is used to delete text.	- The caps lock key is used to change text from upper case to lower case. - The tool bar has different buttons that allows you to make text bold, italic or to be underlined.	- The tool bar has a button with a drop-down menu that allows you to change the font style and size. - The mouse cursor can be used to select different parts of the text	- The undo button can be used to remove changes. - The double-clicking on a word with the cursor enables you to select it, then drag and move it.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Computer Networks and Systems Use a mouse to open a word processor.	Computer Networks and Systems Use a mouse to open a word processor. Creating Media Be able to add and delete letters. Use keyboard keys to enter letters, numbers and use the space key. Use the backspace to delete text.	Computer Networks and Systems Use a mouse to open a word processor. Creating Media Use the caps lock to switch between upper and lowercase letters. Use bold, italic and underline.	Computer Networks and Systems Use a mouse to open a word processor. Creating Media Select a word by double-clicking. Select all of the text by clicking and dragging. Change the font.	Creating Media Explain what tools I used to change the text. Decide if the changes have made an improvement. Use 'undo' to remove changes.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Y1 Aut 1: Control of a mouse to click, drag and select. Aut 2: use a mouse to open a paint program.	Y1 Aut 1: Control of a mouse to click, drag and select.	Y1 Aut 1: Control of a mouse to click, drag and select. Aut 2: use of the tool bar to format a digital picture.	Y1 Aut 1: Control of a mouse to click, drag and select. Aut 2: use mouse to select different buttons on a toolbar.	Y1 Aut 1: Control of a mouse to click, drag and select. Aut 2: make choices linked to a digital picture.
Vocabulary: keyboard, function, tools, text, delete, keys, uppercase, lowercase, bold, italic, underline, cursor, select, font.				

Year 1 Computing Summer Term 2-Programming Animations

How can I program an on-screen animation?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
How can programming be different?	Which block?	How many times?	Who does what?	How do I program my algorithm?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
Programming can be done on different platforms	Placing blocks together creates a sequence in a program	Changing values can affect the function of a block	Different sprites can have different algorithms that affect how they move	An algorithm needs to be changed to a program to work on a device
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Programming Use different programming commands to move an on-screen sprite.	Programming Create a block programming sequence.	Programming Changing values to shorten sequences.	Programming Create different algorithms	Programming Design a program using algorithms. Debug any errors.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Y1: Programming a robot using algorithms.	Y1: Sequencing from creating robot algorithms.	Y1: Debugging programs.	Y1: Robot algorithms and making a robot move.	Y1: Using directions to program a robot.
Vocabulary: programming, animation, on-screen, sprite, command, platform, sequence, blocks, value, algorithm, device.				



Year 2

Computing Sequences of Learning

Year 2 Computing Autumn Term 1-Technology Around Use

What is technology and how can we use it?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What is technology and how can we use it safely?	How can we use computer technology?	How can a mouse help us when using a computer?	What is a keyboard for?	How can a keyboard be used to edit text?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Technology is anything people make or use to solve problems, do jobs, learn new things, or have fun. - Rules are needed and should be followed so that it is used safely and sensibly.	A computer has a screen, keyboard and mouse.	A mouse is used to control things on the screen.	- A keyboard is used for typing. - The Save icon is a button that helps you keep your work safe so you can look at it again later.	- A keyboard can be used to add text. - A keyboard can also be used to delete text.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Computer Networks and Systems Identify examples of technology in the classroom. Explain how technology helps us.	Computer Networks and Systems Use a mouse to click and drag. Switch on and log into a computer.	Computer Networks and Systems Use a mouse to open a program Creating Media Use a mouse to create objects on a screen.	Creating Media Be able to type their name Computer Networks and Systems Save work on the computer.	Creating Media Be able to add and delete letters. Use the arrow keys to move the cursor.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Y1: Technology around us. Looked at technology in the classroom and formulated rules for using technology safely.	Y1: Technology around us-used a mouse to open a program. Digital writing-used a mouse to select and drag.	Y1: Technology around us-used a mouse to open a program. Digital writing-used a mouse to select and drag.	Y1: Digital writing unit-children will have learnt how to add letters and use the space keys.	Y1: Digital writing unit-children will have learnt how to add and delete text.
Vocabulary: technology, rules, computer, keyboard, cursor, keys, mouse, control, select, drag, save, icon, typing, add, delete.				

Year 2 Computing Autumn Term 2-Digital Photography

What's in a Digital Image?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
How can I capture the moment?	Which way round?	What makes a good photograph?	What about light?	Why does it look like that?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
Devices can be used to take a photograph.	A photograph can be taken as a portrait or as landscape depending on the need.	- A photograph is created by a photographer. - A good photograph is a picture that is clear, interesting, and shows the subject well.	Light can change a photograph.	Images can be changed and they aren't always what they seem.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Explain the steps taken to create digital content and where it is stored.	Creating Media Explain why there is reason to manipulate technology for a purpose.	Creating Media Create photographs, deciding which is best.	Creating Media Explain the reasons why the media is unclear.	Creating Media Use different tools to create a desired effect.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
EYFS and Y1: Swiping and clicking on devices. Taking images with an iPad.	Y1: know the term landscape and portrait from creating digital paintings.	Y1: know that art is created by an artist, books by an author.	Y1: explored light in science, transparency through properties of materials.	Y1: Digital painting-know that images can be recreated and changed using a paint program tool.
Vocabulary: device, photograph, digital, store, portrait, landscape, photographer, clear, focus, light, blurred, dark.				

Year 2 Computing Spring Term 1-Robot Algorithms

How do I get the sequence right?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What is a sequence?	What's the same? What's different?	What will happen?	Which way should I go?	How do I fix it?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
A series of instructions is called a sequence.	Changing the order of a sequence can affect the outcome.	A prediction uses reasoned decisions and isn't just a guess.	The same goal can be achieved with different algorithms.	- Debugging is the finding and fixing of errors in a program. - Larger programming tasks can be broken into 'chunks' to make them easier to follow.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Programming Create sequences that have clear unambiguous instructions.	Programming Show different outcomes when using different sequences of the same instructions.	Programming Predict and check the outcome of a sequence and compare the outcomes.	Programming Create different algorithms that still achieve the same goal despite being different.	Programming Design an algorithm before checking it and debugging
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Y1: Moving a robot- Know what an algorithm is.	Y1: Moving a robot- Used logical reasoning to predict the outcome.	Y1: Moving a robot- Used logical reasoning to predict the outcome.	Y1: Moving a robot- Created a simple algorithm to make a robot move.	Y1: Moving a robot- Debugged a simple program.

Vocabulary: sequence, instructions, algorithm, same, different, outcome, predict, goal, fix, debug, errors.

Year 2 Computing Spring Term 2-Pictograms

How can we present information in pictures?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What do the pictures tell us?	What is the pictogram about?	Why do we collect data?	What do I want to find out?	What do I know from the data?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
Data can be represented in picture format.	A pictogram is a visual way of gathering and displaying data.	Collecting data gives us facts and information about something.	Collecting data gives us facts and information about something.	Data can help answer questions.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Data and Information Collect, create and discuss what the data shows.	Data and Information Analyse and ask questions about the data presented.	Data and Information Gather and record data and look for patterns.	Data and Information Make own decisions on what data they need to answer their own question and record it in a pictogram.	Data and Information Create questions based on the information given.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Y1: Grouping data unit- will know that items can be sorted into groups to identify them easily. Know that the term data describes facts collected together to be analysed.	Y1: Grouping data unit- will know that sorting objects into groups helps us identify how many of something we have.	Y1: Grouping data unit- will know that the word data is used to describe facts collected together to be analysed.	Y1: Grouping data unit- will know that the word data is used to describe facts collected together to be analysed.	Y1: Grouping data unit- will know that grouping data helps us answer questions about it.
Vocabulary: data, information, show, represent, collect, gather, present, visual, group, pictogram, block graph, questions.				

Year 2 Computing Summer 1-Digital Music

How can music make us think and feel?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What can we learn about pattern and rhythm?	How can music be used?	How can we create a music pattern on a computer?	How can animals inspire musical patterns?	How could our musical pattern be improved?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Rhythm is a pattern of beats or sounds in music. - Music is created and played by humans.	- Music can be used to express ideas and trigger emotions. - Pitch is how high or low a sound is.	- Music is a sequence of notes. - Music can be played in different ways. - Tempo is the speed of music-how fast or slow it is played.	- A melody is the main tune in a piece of music. - A musical pattern creates a melody.	- Know how to retrieve their work from a shared area. - Reviewing can improve something.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Identify that there are patterns in music. Create a rhythm pattern.	Creating Media Connect images with sound, Use a computer to experiment with pitch.	Creating Media Use a computer to create and refine musical patterns.	Creating Media Create a rhythm on a computer and add a sequence of notes to it.	Creating Media Review and explain work, describing the feelings it creates.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 1 – Digital Painting: Pupils learnt how to use a computer to create and change digital content using different tools.	Year 1 – Digital Writing: Pupils learnt how to use a computer to create and change digital content using different tools.	Year 1 – Digital Painting: Pupils learnt how to make choices about the tools they use to create digital content and achieve a desired outcome.	Year 1 – Digital Writing: Pupils learnt how to edit and improve digital content by making changes to achieve a desired outcome.	Year 1 – Digital Painting: Pupils learnt how to evaluate their digital creations and explain the choices they made when creating them.
Vocabulary: pattern, rhythm, beat, sound, note, pitch, tempo, sequence, feelings, images, represent, connect, melody.				

Year 2 Computing Summer 2: Programming Quizzes

What makes a good quiz?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What can we already do using Scratch Junior?	What could be the outcome?	How do we use a design?	How do we change a design?	Can we design, create and evaluate a computer quiz?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- A sequence of commands has a start. - The green flag is used to run the program.	A sequence of commands has an outcome.	Placing blocks together creates a sequence in a program.	Know how to change backgrounds and sprites in Scratch Jnr.	An algorithm is a sequence of instructions that makes something happen.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Programming Identify the start of a sequence.	Programming Predict and check the outcome of a sequence and compare the outcomes.	Programming Create a program using a given design.	Programming Change a given program to create a new design.	Programming Create own design building a sequence of blocks to match it. Create an algorithm.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Y1: Programming animations-used Scratch Jnr as a platform for programming.	Y1: Programming animations-learnt how to place blocks together to create a sequence.	Y1: Programming animations-learnt how to place blocks together to create a sequence and will now that changing the values can affect the function of the block.	Y1: Programming animations-know that different sprites can have different algorithms that affect how they move	Y2: Know that debugging is the finding and fixing of errors in a program.
Vocabulary: sequence, command, program, outcome, blocks, design, background, sprite, algorithm, instructions, debug, evaluate.				



Year 3

Computing Sequences of Learning

Year 3 Computing Autumn 1: Computer Networks

How do we stay connected?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
How does a digital device work?	What parts make up a digital device?	How do digital devices help us?	How are computers connected?	What does our school network look like?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
Digital devices use inputs, process and output to work.	Devices can be input or output devices and sometimes both.	Digital and non-digital devices have different capabilities.	A computer network is made up of several devices.	A computer network is made up of several devices.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Computer Systems and Networks (Unplugged) Explain the output to different processes.	Computer Systems and Networks (Unplugged) Recognise different devices that have an input or output.	Computer Systems and Network Use physical media to control different tools.	Computer Systems and Networks (Unplugged) Explain how computers are connected.	Computer Systems and Networks Explain how computers work together in a network.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 2 IT Around Us: Pupils learnt that information technology is made up of connected digital devices that help people complete tasks.	Year 2 IT Around Us: Pupils learnt that devices can work together and share information to perform different functions.	Year 2 IT Around Us: Pupils learnt that technology can be used to access and share information in different ways.	Year 2 IT Around Us: Pupils learnt that digital devices can communicate and be used to share information.	Year 2 IT Around Us: Pupils learnt that information can be shared using connected technology and that technology can help people communicate.
Vocabulary: digital, device, input, output, process, computer, network, connect, connected.				

Year 3 Computing: Autumn 2: Stop Frame Animation

How does it move?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
Can a picture move?	How do we make it move?	What's the story?	How do I know it is good?	How do I make it better?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
Animation is the process of making a still image move.	Each picture used in stop motion is called a frame.	- The job of an animator is to bring images to life. - An animation is carefully planned to prevent missing frames.	Every frame is important for a realistic stop motion effect.	There are always improvements that can be made to improve created media.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Create content to accomplish given goals.	Creating Media Use a device to create software-based media with support.	Creating Media Plan which content will be used to accomplish a given goal.	Creating Media Create content that accomplishes a given goal.	Creating Media Comment on other students' work suggesting an improvement.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 2 – Digital Photography: Pupils learnt that photographs can be captured and viewed digitally to create a desired outcome.	Year 2 – Digital Photography: Pupils learnt how to take a series of photographs with care and purpose.	Year 2 – Digital Photography: Pupils learnt that changing the way a photograph is taken can affect the final image.	Year 2 – Digital Photography: Pupils learnt how to review and improve images by identifying what works well and what could be changed.	Year 2 – Digital Photography: Pupils learnt how to evaluate digital content and explain the choices they made when creating it.
Vocabulary: animate, animation, process, stop motion, frame, still images, evaluate, improve.				

Year 3 Computing Spring 1: Sequencing Sounds

How does sequencing help when creating digital music?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
What is Scratch? *	How does it move? *	What is in my sequence?	Which order?	Which blocks work together?	What will the performance look like?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Programming can use different language depending on the software used. - Block programming is a type of programming.	A programmable character can be called a sprite.	Blocks can be joined together to make a sequence.	The order of a sequence dictates how my on-screen program will work.	Different types of blocks can be combined to create a program.	Code can be copied to save time.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Programming Compare programming inputs.	Programming Use logical reasoning to explain how a simple algorithm works.	Programming Use sequencing with different inputs	Programming Use logical reasoning to explain how an algorithm works.	Programming Design and create a sequence from given code.	Programming Design, create and debug a program that accomplishes a specific goal with support.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 2 – Digital Photography: Pupils learnt how to evaluate digital content and explain the choices they made when creating it.	Year 2 – Robot Algorithms: Pupils learnt how changing the order of instructions changes the outcome.	Year 2 – Robot Algorithms: Pupils learnt that programs follow instructions in the order they are written.	Year 2 – Robot Algorithms: Pupils learnt how to create and debug algorithms by identifying and correcting errors.	Year 2 – Robot Algorithms: Pupils learnt how to design algorithms to achieve a specific outcome.	Year 2 – Robot Algorithms: Pupils learnt how to evaluate whether an algorithm achieved its intended purpose.

Vocabulary: sequence, sequencing, program, programming, block, character, sprite, on-screen, combine, code, create.

Year 3 Computing Spring 2: Branching Databases

What is a branching database?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
Yes or No?	How has the data been sorted?	How do questions help me organise data?	How do I organise data?	Which object do I want to identify?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
A closed question can only be answered using yes or no.	- An attribute is a property of an object that helps identify it. - Data can be sorted in different ways by looking at different attributes.	A branching database uses questions to identify objects.	Questions need to be organised carefully to split objects into similarly sized groups.	Questions need to be organised carefully to split objects into similarly sized groups.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Data and Information Analyse data for a specific task.	Data and Information Make a choice on what data is needed to accomplish a specific task.	Data and Information Analyse data for a specific task.	Data and Information Analyse and evaluate data and check for effectiveness.	Data and Information Analyse and organise data through effective questioning.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 1 – Grouping Data: Pupils learnt how to sort objects into groups based on shared characteristics.	Year 2 – Pictograms: Pupils learnt how to ask and answer questions about data and use categories to organise information.	Year 1 – Grouping Data: Pupils learnt that data can be organised using labels and categories to help identify items.	Year 2 – Pictograms: Pupils learnt how organised data can be used to answer questions and find information efficiently.	Year 2 – Pictograms: Pupils learnt that the way data is organised affects how easily questions can be answered.

Vocabulary: branch, branching, data, database, sort, organise, closed question, attribute, property, object, split.

Year 3 Computing Summer 1: Desktop Publishing

How do I get someone's attention?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
How do I share information effectively?	Can you edit it?	How do I structure my content?	How do I become a designer?	How does it look?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
Text and images can be used to communicate information and these must be chosen carefully.	Content can be created and moved around a page to find the best place for it.	- Templates can help develop an effective design. - An editorial designer is a person who makes books, magazines, newspapers and other publications look attractive and easy to read.	Combining text and images into a template can create a design.	Information can be presented in different ways and this is always for a purpose.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Select and explain why certain media is used.	Creating Media Create content that accomplishes a specific goal.	Creating Media Create content that presents information in a particular way.	Creating Media Select and use software to design content.	Creating Media Think critically about their own work.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 1 – Digital Writing: Pupils learnt that text can be created and edited on a computer for a purpose.	Year 1 – Digital Writing: Pupils learnt how to change the appearance of text to make it clearer and easier to read.	Year 1 – Digital Writing: Pupils learnt that the way information is arranged can help communicate ideas more clearly.	Year 2 – Digital Photography: Pupils learnt how different digital elements can be chosen and organised to communicate information effectively.	Year 1 – Digital Writing: Pupils learnt how to review and improve digital work by considering whether it meets its purpose.
Vocabulary: information, sharing, text, images, communicate, edit, content, structure, organise, template, design, designer, presented, purpose.				

Year 3 Computing Summer 2: Sequencing in Programming

How does sequencing help me solve a problem?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
How will it move?	How does it work?	Which blocks should I choose?	What is wrong with it?	What will it look like?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
An event will lead to a programmed action.	Objects used in a program need to be sized correctly to work.	An event will lead to a programmed action.	Debugging program in small steps makes it easier to identify errors.	There are different ways to accomplish the same task.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Programming Use logical reasoning to explain how simple algorithms work.	Programming Use an algorithm to write a program.	Programming Design a program for a specific goal with support.	Programming Debug programs that accomplish specific goals.	Programming Design, write and debug programs that accomplish specific goals with support.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 1 – Programming Animations: Pupils learnt that programs are created by arranging commands to make something happen on screen.	Year 3 – Sequencing Sounds: Pupils learnt that programs use sequences of blocks that run in a specific order to achieve an outcome.	Year 2 – Robot Algorithms: Pupils learnt that changing the order of instructions changes the outcome.	Year 3 – Sequencing Sounds: Pupils learnt how to identify and correct errors in a sequence so that a program works as intended.	Year 3 – Sequencing Sounds: Pupils learnt how to combine sequences of blocks to create a program for a specific purpose.
Vocabulary: event, programme, action, algorithm, sequencing, problem, solve, blocks, objects, debugging, steps, errors.				



Year 4

Computing Sequences of Learning

Year 4 Computing Autumn 1: Computer Systems and Networks

What do we need to know about the world wide web?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
How do networks connect together to form the internet?	What devices and services make up the internet?	How is information shared across the World Wide Web?	How do people create and share content on websites?	Who owns the content we see online and what rules protect it?	How can we decide whether information online is trustworthy?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- The internet is a network of networks. - Networks can communicate with each other to share information. - Routers help direct information between networks.	- The internet consists of interconnected devices and networks. - Networked devices communicate to provide services. - The internet provides many services, including the World Wide Web.	- The WWW allows different types of media to be shared. - Websites are stored on servers connected to the internet. - The web enables people to publish and access information globally.	- Websites can contain different forms of media. - Users can create and upload content to the WWW. - Online tools and internet services allow content creation. - Content published online can be accessed by others.	- Websites and online content are created by people. - Digital content has owners and creators. - Copyright and other rules help protect content. - Not everything online can be copied, changed, or shared freely	- Not all online information is true or accurate. - Some content may be misleading, dishonest, or illegal. - Images and information can be manipulated. - Information can spread rapidly online once shared.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Computer Systems and Networks Use evidence and reasoning to explain network connections.	Computer Systems and Networks Construct conceptual models of how the internet works.	Computer Systems and Networks - Compare ways of accessing online content. - Explore and describe digital systems.	Computer Systems and Networks - Evaluate appropriate content for publication. - Recognise audiences and purposes for online content.	Computer Systems and Networks - Investigate ownership of digital content. - Compare digital ownership with ownership in everyday life.	Computer Systems and Networks - Evaluate the reliability of information and sources. - Assess risks and consequences of sharing content online.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Y3: Connecting Computers: Know that digital devices can be used for different purposes. Understand that digital devices have inputs, processes and outputs.	Y3: Connecting Computers: Understand that devices can be connected together to form a network.	Y3: Connecting Computers: Recognise that networks allow devices to communicate and share information.	Y3: Connecting Computers: Know that networks allow devices to communicate and share information.	Y3: Connecting Computers: Understand that content on websites is created by people and organisations and shared online.	Know that not everything published on the web is necessarily true.

Vocabulary: internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts

Year 4 Computing Autumn 2: Audio Production

Wired for Sound

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
How can I use technology to record sound?	How can I change my sound recording?	What is a podcast?	How to create a podcast?	How can I edit a podcast?	How can I improve a podcast?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Sound can be recorded digitally using a computer - Input devices (microphones) capture sound - Output devices (speakers or headphones) play sound - Audio recordings have an owner - Copyright means creators control how recordings are use.	- Audio recordings can be edited after recording - Soundwaves visually represent audio - Podcasts have common features (voice, music, effects) - Recording engineers improve audio quality	- Podcasts are made from multiple audio elements combined together - Audio layers (voice, music, effects) create richer outcomes - Saving a project preserves editability - Planning supports effective media creation	- High-quality audio often requires multiple recordings - Editing improves clarity and impact - Planning guides recording decisions	- Additional audio layers (music, sound effects) enhance recordings - Multiple tracks can be combined into one output - Saving a project is different from exporting a final file	- Audio products can be evaluated for effectiveness - Successful podcasts have identifiable strengths (clarity, structure, engagement) - Improvements can be made after evaluation
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Identify and select appropriate hardware Monitor and evaluate recording quality.	Creating Media Apply specific editing techniques Compare and critique digital media.	Creating Media Manage digital work effectively Justify design decisions.	Creating Media Self-assess quality using agreed criteria Solve practical problems as they arise.	Creating Media Manipulate digital content to achieve a specific audience effect Produce a final digital output.	Creating Media Critically evaluate digital media against clear criteria Use feedback to inform revisions.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 3: Pupils learned that computers use input and output devices to receive and present information.	Year 3: Pupils created and manipulated digital media using computers.	Year 3: Pupils planned and created digital content for a specific purpose and audience.	Year 3: Pupils planned and created digital media for a specific audience and purpose.	Year 3: Pupils combined and organised different forms of digital media to create content.	Year 3: Pupils evaluated digital content and suggested improvements to make it more effective.

Vocabulary: audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback.

Year 4 Computing Spring 1: Repetition in Shapes

When does repeating the same thing become effective?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
How do I make it move?	Can I write using code?	Can I do this any quicker?	What is a loop?	How do I make things easier?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Commands in text-based programming require specific code to work - A programmable object can be called a sprite	Using algorithms helps us plan specific instructions for a program to follow	Repetition in programming is when the same code can be used multiple times to complete a task	A loop is when something is done repeatedly	Breaking down programming tasks into smaller parts creates better programs
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Programming Give instructions for a specific task Give instructions for a specific task and change values commenting on the effect	Programming Design algorithms and program code debugging mistakes with support Design, write and debug code following written algorithms	Programming Use repetition in programs to achieve a specific goal Use repetition in programs and explain why this method is more effective	Programming Use logical reasoning to explain how simple algorithms work Use logical reasoning to predict the outcome of a program	Programming Solve problems by decomposing them into smaller parts Decompose a problem and debug each part
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 3: Pupils created and debugged simple programs using sequences of commands.	Year 3: Pupils wrote, tested and debugged simple programs to achieve a specific outcome.	Year 3: Pupils used sequences of commands to create simple programs and predict their outcomes.	Year 3: Pupils created and debugged programs using sequences of instructions to achieve specific outcomes.	Year 3: Pupils learned to break programs into sequences of steps to achieve a specific outcome.
Vocabulary: Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure.				

Year 4 Computing Spring 2: Data Logging

How and why is data collected over time?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
How can data collected over time help us answer questions	How can computers automatically collect data from the world around us	How do data loggers collect data over time?	How can computers help us find patterns and meaning in data?	How can we plan a data-logging investigation to answer a question?	What can our data tell us about the question we investigated
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Data can be collected over time to help answer questions. - Different data sets can answer different questions. - Useful data collection begins with a clear question. - Not all questions can be answered with the same data set. - Data can represent changes over time.	- Computers can collect data automatically. - Sensors are input devices that gather data from the physical environment. - Different sensors collect different types of data, such as temperature, light, or sound. - Data loggers can collect and store data without being connected to a computer.	- Data loggers collect data points over time. - Data is collected at regular intervals. - A data point is a single measurement recorded by a sensor. - The interval chosen affects the data that is collected.	- Computers help users analyse large amounts of data efficiently. - Data can be viewed in different forms, including tables and graphs. - Different views of data highlight different information. - Sorting data can make patterns easier to identify.	- Effective data collection starts with a question. - Data logging investigations require planning. - The sensor, location and duration of logging affect the data collected. - Testing a setup helps ensure reliable results.	- Logged data can be used to answer questions and support conclusions. - Conclusions should be based on evidence from collected data. - Data loggers make long-term and automatic data collection possible. - Technology can improve the efficiency of data collection.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Data and Information Identify what data is needed to answer a specific question.	Data and Information Explore how digital devices gather information from the real world.	Data and Information Configure and use a data logger to collect information. Identify and describe patterns in logged data.	Data and Information Navigate and interrogate data using software. Use data evidence to make observations.	Data and Information Formulate investigable questions. Plan a method for collecting data.	Data and Information Interpret collected data accurately. Draw evidence-based conclusions.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 3: Pupils collected and used data to answer questions and present information.	Year 3: Pupils learned that computers use input devices to collect data.	Year 3: Pupils learned that computers use input devices to collect and store data.	Year 3: Pupils organised and interpreted data to answer questions.	Year 3: Pupils used data to answer questions and identify useful information.	Year 3: Pupils collected, organised and interpreted data to answer questions.

Vocabulary: data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.

Year 4 Computing Summer 1: Creating Media

How can digital images be changed?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
What is image composition?	What effect can colour and filters have?	How is cloning used in photo editing?	What does image combining involve?	What would my own photo creation look like?	How could I improve my photo creation?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- The composition of digital images can be changed. - Cropping and rotating are both ways of changing and improving images.	- The composition of digital images can be changed. - Different colour effects evoke different thoughts and feelings.	- Cloning can be used in photo editing. - Parts of a photo can be removed or duplicated using a cloning tool.	Different parts of images can be combined using select, copy and paste, to create a revised/new image.	- Some images can be real whereas others can have been altered or produced using photo editing tools. - AI has image generator tools that can create fake images that look real.	Text can be added to images.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Explain how the composition of digital images can be changed. Digital Literacy Understand that editing images can be unethical.	Creating Media Experiment with different colour effects, explaining choices.	Creating Media Add to the composition of an image by cloning. Remove parts of an image by cloning. Identify how a photo edit can be improved.	Creating Media Use a range of different tools to select and copy between images.	Creating Media Design and then create a project that is a combination of other images.	Creating Media Evaluate how changes can improve an image.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 3: Pupils created and edited digital images using a range of digital tools.	Year 3: Pupils used digital tools to create and edit images for a purpose.	Year 3: Pupils edited digital images using a range of digital tools to achieve a desired effect.	Year 3: Pupils combined text and images to create digital content for a purpose.	Year 3: Pupils created digital content by combining text and images for a specific purpose.	Year 3: Pupils evaluated digital content and suggested improvements to make it more effective.

Vocabulary: composition, digital, crop, rotate, resize, effect, filter, cloning, duplicated, combining, altered, generated, editing, tools, improve, unethical.

Year 4 Computing Summer 2: Repetition in Games

How can I use repetition to design a game?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
What is Scratch?*	How does it move?*	What is the same? What is different?	Which loop is best?	What should I change?	How will it be created?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Programming can use different language depending on the software used. - Block programming is a type of programming.	Motion blocks are used to move a sprite.	Similar tasks can be undertaken using different programming language.	Infinite loops will follow the code forever and count controlled loops do something a specified number of times.	Changes in values affect how a program functions.	Changes in values affect how a program functions.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Programming Compare programming inputs Use logical reasoning to explain errors before correcting them	Programming Use logical reasoning to explain how a simple algorithm works Debug programs that accomplish specific goals	Programming Use logical reasoning to predict the outcome of an algorithm Comment on their preferred programming language and explain why	Programming Use repetition in programs Use different types of repetition and make decisions on which is most effective for the task	Programming Use repetition in programs and change values to accomplish a specific goal Use different types of repetition and make decisions on which is most effective for the task and change values depending on the audience	Programming Design, write and debug programs that accomplish specific goals Design, write and debug programs for a specific audience Decompose problems into smaller parts to solve them
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Used repetition using the Logo platform Only learnt the basics of scratch using sequencing	Used code to move a sprite around a screen Programmed a robot to follow directions and moved a sprite in Scratch Junior	Experienced some difference in programming by comparing Scratch Junior to programming using a Beebot.	Children have learnt why repetition helps when programming to save time and used repeat loops	Children have learnt why repetition helps when programming to save time	Children have experience designing a program by breaking it down into smaller parts Learnt how to create and debug simple programs using Beebots

Vocabulary: Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate.



Year 5

Computing Sequences of Learning

Year 5 Computing Autumn 1: Systems and Searching

What happens when we search for information?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
How do different parts work together to create a computer system?	How do computer systems help us in everyday life?	How can we use search engines effectively to find information?	How do search engines decide which results to show?	Why do some websites appear before others in search results?	What influences the results we see when we search online?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
• A system is made up of interconnected parts that work together to perform a function. • Digital systems have inputs, processes, and outputs. • Computers can connect to other devices and systems. • Physical and electronic connections enable communication between devices.	• Computer systems manage many everyday tasks. • People are often an important part of computer systems. • Computer systems provide benefits such as efficiency and automation. • Personal information needs to be kept safe when using digital systems.	• Search engines help users find information on the web. • Searches can be refined to improve results. • Different search engines may produce different results. • Not all websites are equally trustworthy.	• Search engines are needed because of the vast amount of information online. • Web crawlers collect information about websites. • Search engines build indexes of web content. • Search terms are matched against information stored in an index.	• Search engines rank results rather than displaying them randomly. • Ranking follows a set of rules and criteria. • Factors such as relevance and content influence ranking. • Search engine results are organised to help users find useful information	• Search results can be influenced by users, search engines, and website creators. • Search engines have limitations and cannot find everything. • Advertisements and sponsored content can affect what is displayed. • Search engines generate income through advertising and related services.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Computing Systems and Networks Identify components within systems.	Computing Systems and Networks Identify computer systems.	Computing Systems and Networks Conduct purposeful web searches.	Computing Systems and Networks Investigate how search technologies work. Explain technical processes using evidence.	Computing Systems and Networks Explain how algorithms influence digital experiences.	Computing Systems and Networks Evaluating factors that influence information retrieval.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 4: Pupils learned that computers use input, process and output to receive, handle and present information.	Year 4: Pupils learned that computer systems use input, process and output to perform tasks.	Year 4: Pupils used search tools to find information online.	Year 4: Pupils used search engines to find information and considered whether online content was trustworthy.	Year 4: Pupils used search engines to find information online using keywords.	Year 4: Pupils learned that not all online information is accurate or trustworthy.

Vocabulary: system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking.

Year 5 Computing Autumn 2: Video Production

Lights, Camera, Action!

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What is video?	How do I make it look like that?	What's the plan?	What do I want to change?	Did it meet the criteria?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Video is a visual media format. - Different techniques can be used depending on the content.	Different camera angles can change the appearance of a person or object.	Storyboards are used to plan videos to ensure correct techniques are used for each part.	- A video producer ensures all aspects of a production are carried out. - Editing is used to remove and change parts of a video for a desired effect.	Reviewing content created is an integral part of the whole process.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Identify the features of a specific media type Explain why features may be used	Creating Media Think critically about own work and the effects used Think critically about own work and give reasons for choices	Creating Media Use devices to create multi-media using a variety of techniques Create multi-media and explore which techniques are most effective	Creating Media Change media to accomplish a given goal Change media to meet their own goals	Create Media Think critically about their own and others' work with constructive feedback Think critically about others' work suggesting improvements
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 4: Pupils edited and evaluated digital images to communicate ideas effectively.	Year 4: Pupils used digital devices to capture, edit and improve digital media for a specific purpose.	Years 3-4: Pupils planned, created and reviewed digital media using a range of digital tools.	Years 3-4: Pupils planned, created and evaluated digital media to communicate information effectively.	Year 4: Pupils edited digital media using a range of tools to improve its quality and effectiveness.
Vocabulary: video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share.				

Year 5 Computing Spring 1: Selecting in Physical Programming

What type of crumble is this?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What does this tiny device do?	How many things?	Which conditions are perfect?	What should I select?	What is needed to make it work?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
A microcontroller controls components attached to it by following programs.	Microcontrollers can control more than one component using sequencing and repetition.	A condition can either be true or false and trigger actions in programs.	Selection uses the if...then structure to represent conditions and actions.	Selection can be used to control multiple components depending on the condition.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Programming Use different inputs to control outputs Select the best input to create a desired output	Programming Use more than one output Design sequences that control more than one output dependent on the input	Programming Write a program that accomplishes a specific goal Design and write a program that accomplishes specific goals	Programming Use logical reasoning to identify parts of an algorithm and predict how it works Describe how an output will work in an algorithm dependent on conditions	Programming Create two outputs using selection Create multiple outputs using different inputs and selection
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 4: Pupils used repetition (loops) to control the flow of programs and create specific outcomes.	Year 4: Pupils used count-controlled loops to create and control repeating sequences in programs.	Year 4: Pupils used loops and sequences to control the flow of a program and achieve specific outcomes.	Year 4: Pupils used repetition and debugging to create programs that achieved a specific outcome.	Year 4: Pupils designed, tested and debugged programs using sequences and loops to achieve a specific outcome.
Vocabulary: microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer				

Year 5 Computing Spring 2: Flat File Databases

How can I organise all this data?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What's a database again?	What are the benefits of digital databases?	How is it sorted?	What if I want more information?	How is this used in real life?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
A collection of data is called a database, a single file is a record and one piece of information is a field.	Fields can be used to sort data by answering a given question.	- Data can be grouped using one or more chosen values. - Databases are used to store a lot of data easily and make it easy to sort.	Databases have search features to allow the user to condense data to get desired data.	Databases may need information from more than one field to answer a question.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Data and Information (Unplugged) Order, sort and group data to answer questions Explain how information can be recorded and analysed to answer questions	Data and Information Sort and analyse data to accomplish given goals Explain how data has been sorted to help analyse data	Data and Information Use a search function to collect data Use a range of search functions to collect different groups of data	Data and Information Use a search function to collect data Choose different search functions to analyse and evaluate data	Data and Information Refine a search to analyse and evaluate data Make decisions on which data needs analysing to find answers
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 3: Pupils used branching databases to group and classify data using different attributes.	Year 3: Pupils used branching databases to organise and classify data using different criteria.	Year 3: Pupils used branching databases to sort and identify information using questions and attributes.	Year 3: Pupils used branching databases to find information by asking and answering questions.	Year 4: Pupils collected, analysed and interpreted data to answer questions and identify patterns.
Vocabulary: database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.				

Year 5 Computing Summer 1: Vector Graphics

How can we use shapes to create detailed digital artwork?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
What is a vector drawing?	What shapes are used to create vector drawings?	How can tools be used to create different effects?	How can layering be using to create an image?	How can we work with multiple objects at the same time?	Can we create a vector drawing for a specific purpose?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Vector drawings are made using shapes. - Vector drawings are different from paper-based drawings because they are created on a computer using shapes, lines and curves that can be easily edited.	- Each element added to a vector drawing is an object. - Vector drawings are created by combining shapes.	- The zoom tool can be used to add more precise detail to drawings. - Alignment grids and re-size handles can be used to improve consistency.	Each object is built on a new layer and these layers can be moved forwards and backwards to create effective vector drawings.	- Grouping lets you join several shapes or objects together so they act like one object. - Ungrouping separates the objects again so you can edit each one individually.	A graphic designer is someone who creates visual designs to communicate ideas, messages or information.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Experiment with shape and line tools.	Creating Media Identify shapes used in a vector drawing.	Creating Media Modify objects using different tools to create a new image.	Creating Media Use layering to create an image.	Creating Media Group objects to make them easier to work with.	Creating Media Create a vector drawing for a specific purpose.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 3: Pupils used digital drawing and painting tools to create and edit images, comparing digital artwork with paper-based drawings.	Year 3: Pupils used digital drawing tools to create and edit images.	Year 4: Pupils used photo-editing tools to make changes to digital images.	Year 4: Pupils used photo-editing tools to change and improve digital images.	Year 4: Pupils used photo-editing tools to select, move and adjust parts of an image.	Year 3: Pupils used digital tools to create, edit and improve images.

Vocabulary: vector drawing, edited, element, object, combine, zoom, precise, exact, alignment, re-size, consistency, accuracy, layer, group, ungroup, graphic.

Year 5 Computing Summer 2: Selection in Quizzes

How do computers make decisions in a quiz?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
How is selection used in computer programs? (Re-cap)	How can selection be used to create different outcomes?	How does selection direct the flow of a program?	Can we use selection to control the outcomes in an interactive quiz?	How can we test whether we have correctly used selection to control the outcomes?	How can the program be improved?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Selection allows a computer to choose what to do next based on a condition or answer. - Conditions are used to control the flow of actions in a program.	- Repetition is used in selection to ensure that conditions are repeatedly checked. - The condition informs which outcome will be selected.	- Program flow can branch according to a condition. - A condition can direct program flow in one of two ways	A quiz is planned by designing questions, answers and outcomes, using selection (if...then...else) to determine how the program responds to the user's input.	Testing helps identify and fix errors in a quiz program.	Evaluating a quiz helps identify its strengths, weaknesses and possible improvements.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Programming Explain how selection is used in computer programs.	Programming Create a program that uses selection to produce different outcomes	Programming Design the flow of a program that contains 'if... then... else...'	Programming Design a program that uses selection.	Programming Create a program that uses selection.	Programming Identify ways a program can be improved. Extend a program further.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 4: Pupils created programs in Scratch using sequencing, repetition and events.	Year 4: Pupils used repetition in Scratch to control what happens in a program.	Year 4: Pupils used events in Scratch to make programs respond to user input.	Year 4: Pupils used events and repetition in Scratch to control the flow of a program.	Year 4: Pupils used variables in Scratch to store and use information in a program.	Year 4: Pupils designed, created and evaluated Scratch programs using sequences, events and repetition.

Vocabulary: selection, condition, flow, program, actions, repetition, checked, outcome, branch, input, error, debug, evaluate.



Year 6

Computing Sequences of Learning

Year 6 Computing Autumn 1: Communication and Collaboration

How can we use digital technology responsibly to work with others?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
How do computers know where to send and receive information on the internet?	How is information broken up and sent across the internet?	How does the internet help people collaborate from different locations?	What are the most effective ways to collaborate online?	Which forms of communication are most suitable for different purposes?	How can we communicate safely and responsibly online?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Data is transferred using agreed rules called protocols. - Every device connected to the internet has an IP address. - Domain names are translated into IP addresses using DNS. - Internet addressing allows computers to locate websites and services	- All information sent across the internet travels in packets. - Packets contain a header and a data payload. - Images, audio, video, and text are all transferred as packets. - Packet-based transfer allows data to move efficiently across networks.	- Shared files can be stored and accessed online. - Information can be sent and shared in different ways. - The internet supports the sharing of different types of media. - Online tools enable people to work together remotely.	- Online collaboration can involve creating, sharing, adapting, and reusing work. - Collaborative work may be public or private. - The internet enables efficient teamwork across distances. - Reusing digital work requires appropriate permissions and respect for copyright.	- People communicate in a variety of ways. - The internet provides multiple methods of communication. - Different communication methods have different strengths and limitations. - The choice of communication method depends on purpose and audience.	- Different online communication methods offer different levels of privacy. - Personal information should not always be shared online. - Online communication may not be private or permanent. - Inappropriate content can and should be reported.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Computer Systems and Networks Interpret how digital systems identify devices.	Computer Systems and Networks Explain how information is transferred between devices.	Computer Systems and Networks Collaborate using online tools.	Computer Systems and Networks Compare the effectiveness of different online working methods.	Computer Systems and Networks Compare communication methods. Justify choices using evidence and reasoning.	Using Technology Safely Evaluate risks associated with online communication. Make informed decisions about information sharing.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 4- The Internet: Pupils learnt that the internet is a network of networks used to share information and communicate between devices.	Year 4-The Internet: Pupils learnt how information is shared across the internet and that websites can be accessed using web addresses (URLs).	Year 5-Systems and Searching: Pupils learnt that computer systems can work together and share information to complete tasks.	Year 5 – Systems and Searching: Pupils learnt how search engines use algorithms to organise and present information from across the internet.	Year 5 – Systems and Searching: Pupils learnt how search engines use algorithms to organise and present information from across the internet.	Year 5 – Sharing Information: Pupils learnt to evaluate and improve digital content so that information can be communicated clearly to others.

Vocabulary: communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, one way, two-way, one-to-one, one-to-many.

Year 6 Computing Autumn 2: Creating Media-Web Page Creation

How does the design of a web page affect the user experience?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
What makes a good website?	How do you become a web designer?	Copyright or CopyWRONG?	How does it look?	Why are navigation paths so important?	Why do you need to think before you link?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Websites are created using HTML code. - HTML is a coding language used to build and organise web pages. It tells a browser what to display on a website. HTML stands for HyperText Markup Language.	- A webpage is a page on a website that uses features such as headings, text, images and links. - A web designer designs how a website looks and works so that people can find information easily and enjoy using it.	- Copyright means the work belongs to its creator and cannot be copied or used without permission. - Fair use means you can sometimes use a small amount of someone else's work for a good reason, such as education or research. It must be used fairly and give credit where needed.	- Webpages do not appear exactly the same across different devices. - Web designers have to review the page on each device and make edits to improve the user experience.	- Navigation paths are the links, menus and buttons that help users move from one webpage to another within a website. - Navigation paths are important because they help users find information easily and move around a website quickly without getting lost.	- Linking webpages together with hyperlinks creates navigation paths that make a website easy to use and explore. - Before linking to or using someone else's content, you should check that it is appropriate, reliable and allowed to be shared or used under copyright rules.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Discuss the different types of media used on a websites.	Creating Media Recognise common features of a web page. Suggest media to include on own page.	Using Technology Safely Know how to use technology respectfully and responsibly online.	Creating Media Add content to own webpage. Evaluate how it looks across different devices and make improvements.	Creating Media Make multiple web pages and link them using hyperlinks	Creating Media Explain the implication of linking to content owned by others.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 5 – Introduction to Vector Graphics: Pupils learnt that digital content can be designed for a specific audience and purpose.	Year 5 – Introduction to Vector Graphics: Pupils learnt how to combine and organise different elements to create a purposeful digital product.	Year 5 – Introduction to Vector Graphics: Pupils learnt how to consider layout and design choices to make digital content clear and effective.	Year 5 – Introduction to Vector Graphics: Pupils learnt how to use images and other design elements effectively in a digital product.	Year 5 – Introduction to Vector Graphics: Pupils learnt how to evaluate and improve digital content by considering its effectiveness for the intended audience.	Year 5 – Introduction to Vector Graphics: Pupils learnt how to share, review and improve digital content by making changes based on feedback.
Vocabulary: hypertext, markup, language, features, media, fair use, copyright, credit, responsible, respectfully, devices, navigation, content, appropriate, reliable					

Year 6 Computing Spring 1: Variables in Games

How is technology used to create games?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What elements make it successful?	Why is the environment important?	What is the outcome?	How can I maximise playability?	What is effective?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
Games are a collection of elements that make it function.	Video games are set in an environment that appeals to the audience.	Video games need an outcome so it can become playable.	All created media is designed to engage an audience for the longest possible time.	Evaluating content is an important step to making a piece of media successful.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Think critically about others' work. Think critically and discuss reasons why somethings work better than others.	Programming Use a program for specific tasks <i>Creating an environment</i> Use different programs and make decisions on the most effective	Creating Media Create software-based media thinking critically about their own work Create software-based media that has multiple outcomes	Programming Use programmable software to create a playable game Use programmable software to create a playable and explain why it is effective	Creating Media Evaluate and think critically about own and others' work. Evaluate and suggest improvements to others' games
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 5 – Selection in Physical Computing: Pupils learnt that programs can use information to make decisions and change what happens next.	Year 5 – Selection in Physical Computing: Pupils learnt that programs can use inputs and conditions to control outcomes.	Year 5 – Selection in Physical Computing: Pupils learnt that information can be stored and used within a program to control what happens.	Year 5 – Selection in Physical Computing: Pupils learnt that a program can respond differently depending on changing information and conditions.	Year 5 – Selection in Physical Computing: Pupils learnt how to create and test programs that use conditions to control outcomes and respond to different situations.

Vocabulary: Animation, image, texture, computer game, instructions, perspective, customise, interactive, evaluation, screenshot, playability.

Year 6 Computing Spring 2: Introduction in Spreadsheets

How can software be used in real life?

Session 1	Session 2	Session 3	Session 4	Session 5
Key Question	Key Question	Key Question	Key Question	Key Question
What's the formula?	What type of model?	Can I make it easier to use?	How can I use graphs?	How can it solve problems?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
A formula is a group of letters, numbers and symbols that can be duplicated to save time.	A computational model means recreating a real-life situation on a computer.	Spreadsheets can sort data to make it easier to use.	Excel can use data to represent data in graph form.	Spreadsheets can be used to store meaningful data that can support in real life.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Make use of software to perform a specific task Use software to perform a task and change values commenting on the most appropriate	Data and Information Analyse data for a specific task Analyse data and explain how changing values affects the outcome	Data and Information Select the most appropriate tool to complete a task Evaluate the different tools and make decision on which is more appropriate to use	Data and Information Analyse data using a different representation Analyse and choose data appropriate for a task	Data and Information Choose the correct data required for a task Choose data and change formulae to affect outcomes
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 5 – Flat-file Databases: Pupils learnt how data can be entered, organised and viewed in a table.	Year 5 – Flat-file Databases: Pupils learnt how to sort, search and compare data in a table to answer questions.	Year 5 – Flat-file Databases: Pupils learnt that data can be organised into rows and columns, with each item stored in a specific field.	Year 5 – Flat-file Databases: Pupils learnt that data can be grouped and organised to make it easier to understand and use.	Year 5 – Flat-file Databases: Pupils learnt how to use data to answer questions and identify patterns.
Vocabulary: Autofit, cell, cell reference, chart, column, computational model, conditional formatting, data, formula, formulae, formula bar, graph, horizontal axis, range, spreadsheet, vertical axis, row, column, text wrapping.				

Year 6 Computing Summer 1: Creating Media-3D Modelling

How can 3D modelling help us design and represent real-world objects?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
How does 3D modelling work on a computer?	How can digital 3D objects be modified?	How can objects be combined in a 3D model?	Can we create our own 3D model for a given purpose?	How do architects use 3D design to visualise and plan buildings?	Can we create our own digital 3D model based on a design?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
A 3D model is a digital object that has height, width and depth and can be viewed from different angles on a computer.	3D objects can be changed by moving, resizing and rotating them to build a model.	- Complex 3D models can be built by joining simple shapes together. - Shapes can be positioned and adjusted to fit together. - Planning how shapes fit together helps create effective 3D models.	3D models should be designed with a clear purpose in mind, using appropriate shapes and features to meet the needs of the user. - A placeholder is a space saved for something that will be added later, such as text, an image or a 3D object.	Architects use 3D models to check, improve and share their building designs before anything is built, helping them spot problems and make changes early.	3D models can be shared and evaluated to show ideas clearly and improve the final design. - A final model should effectively communicate the intended idea.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Creating Media Recognise that you can work in three dimensions on a computer. Move 3D shapes relative to one another.	Creating Media Identify that digital 3D objects can be modified. Resize, recolour, lift/lower an object/s in three dimensions.	Creating Media Recognise that objects can be combined in a 3D model. Rotate, duplicate and group objects in three dimensions.	Creating Media Create a 3D model for a given purpose. Accurately size 3D objects. Combine a number of 3D objects.	Creating Media Plan own 3D model. Analyse a 3D model. Choose objects to use in a 3D model. Combine objects in a design.	Creating Media Construct, evaluate and modify own 3D model based on a design.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 5 – Introduction to Vector Graphics: Pupils learnt that digital objects can be created and manipulated by selecting, moving, resizing and grouping shapes.	Year 5 – Introduction to Vector Graphics: Pupils learnt how to move, resize and rotate objects to create a desired design.	Year 5 – Introduction to Vector Graphics: Pupils learnt how to combine simple shapes to create more complex digital images and designs.	Year 5 – Introduction to Vector Graphics: Pupils learnt how to make design choices to create digital content that is suitable for a specific purpose and audience.	Year 5 – Introduction to Vector Graphics: Pupils learnt how to review and improve digital designs by making changes to shapes, colours and layout.	Year 5 – Introduction to Vector Graphics: Pupils learnt how to share, evaluate and improve digital designs by using feedback and reviewing how effectively they met their purpose.

Vocabulary: dimensional, modelling, modify, resize, rotate, group, combine, duplicate, position, adjust, architect, design, construct, model, visual, evaluate.

Year 6 Computing Summer 2: Programming-Sensing Movement

How can computers use sensors to detect movement and respond automatically?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
What is a micro:bit?	How are if, then, else statements used to direct the flow of a program?	How can a computer use movement data to make decisions and respond in different ways?	How can movement sensors be used to control and improve a program?	How can we design and improve a program that uses movement as an input?	How can we evaluate and improve a program that uses movement sensors?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- A sensor is a device that detects changes in its environment. - The micro:bit uses a sensor called an accelerometer to detect movement and send information to a program so it can respond.	- If, then, else statements direct the flow of a program by telling it what to do when a certain condition is true or false. - The micro:bit can detect movement and use if, then, else statements to decide how to respond.	- Sensors collect movement data. - Movement data is used as an input to a program. - Programs use conditions to make decisions based on this data. - Different movements can trigger different responses.	Movement sensor data can be used as an input to control a program, and testing can help improve how accurately it responds to different movements.	Programs that use movement as an input can be tested, evaluated and improved to ensure they respond effectively to the user's actions.	Movement-controlled programs can be evaluated against their purpose and improved by using feedback, testing and debugging.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Programming Create a program to run on a controllable device.	Programming Explain that selection can control the flow of a program.	Programming Update a variable with a user input.	Programming Use an conditional statement to compare a variable to a value.	Programming Design a project that uses inputs and outputs on a controllable device.	Programming Develop a program to use inputs and outputs on a controllable device.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 5 – Selection in Physical Computing: Pupils learnt how programs use inputs and selection to make decisions and control outputs.	Year 5 – Selection in Physical Computing: Pupils learnt how inputs can be used in a program to trigger different outcomes using selection.	Year 5 – Selection in Physical Computing: Pupils learnt how inputs can be used in a program to trigger different outcomes using selection.	Year 5 – Selection in Physical Computing: Pupils learnt how inputs can be used to control outputs and how programs can be adapted to respond to different conditions.	Year 5 – Selection in Physical Computing: Pupils learnt how to test, adapt and improve programs so that they respond correctly to different inputs and conditions.	Year 5 – Selection in Phys Comp: Pupils learnt how to evaluate, debug and improve programs by testing whether they respond correctly to different inputs and conditions.

Vocabulary: sensor, movement, input, output, accelerometer, Micro:bit, program, algorithm, selection, condition, variable, tilt, shake, gesture, respond, debug.



Digital Literacy Teaching Sequences

Digital Literacy Intent

Digital literacy is the ability to use digital technologies confidently, safely and effectively. It involves much more than simply knowing how to operate a computer or tablet. A digitally literate individual can find, evaluate, create and share information using digital tools, whilst understanding how to behave responsibly and safely online.

Digital literacy includes a range of skills such as:

- Using devices and software effectively.
- Searching for and evaluating information online.
- Communicating appropriately through digital platforms.
- Creating digital content, such as presentations, videos and documents.
- Understanding online safety, privacy and security.
- Recognising misinformation and unreliable sources.

Here at Woodham Burn Primary School we know that digital literacy is an essential life skill in the modern world. Technology is embedded in nearly every aspect of daily life, including education, employment, communication, entertainment and access to public services.

Developing digital literacy enables children to:

- Participate safely and responsibly in online environments.
- Access information and learning opportunities independently.
- Communicate and collaborate with others effectively.
- Think critically about the information they encounter online.
- Prepare for further education and future employment.
- Develop problem-solving, creativity and innovation skills.

Digital literacy is taught as a progressive skill that is embedded across the primary curriculum rather than being confined solely to computing lessons. However, the following discrete teaching sequences are taught across school within computing.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Digital Literacy: <i>What is technology?</i> <i>Why is technology good?</i> <i>What is personal information?</i>	Digital Literacy: The Internet The Internet and the real world The Internet vs the real world Stay safe with technology	Digital Literacy: <i>Effective Searching</i>	Online Safety: <i>Email</i>	Online Safety: <i>Communicate and collaborate</i>	Online Safety: <i>Communicate and collaborate-blogging</i>

Year 1 Digital Literacy Discrete Teaching Sessions

Session 1	Session 2	Session 3
Key Question	Key Question	Key Question
<u>What is technology?</u>	<u>Why is technology good?</u>	<u>What is personal information?</u>
Key Knowledge	Key Knowledge	Key Knowledge
- Technology means machines or tools that are made by people. - It is equipment that is created using science. - High technology means complicated tools and machines that are difficult to make. - Low technology means simple tools and machines that have been around for a long time.	- Technology means machines or tools made by science. - Technology is used in lots of different ways. - Technology is used in the home to make life easier. - Technology allows us to communicate. - Technology also helps us to learn.	- There are different types of information: ordinary/everyday information and personal information. - Personal information should only be shared with people you can trust. - Ordinary information can be shared with anyone.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Computer Systems and Networks Identify examples and non-examples of technology. Explain the difference between low and high technology.	Use Technology Safely Explain the benefits of using technology. Understand the importance of not spending too much time on screens.	Using Technology Safely Identify information that is ordinary information and that which is personal information.
Prior Learning	Prior Learning	Prior Learning
EYFS: Understanding the world. Explored tablets, computers and programmable toys, talked about technology they use in their daily lives, and began to understand that technology can be used to help people complete tasks.	EYFS: pupils explored a range of digital technologies and used them to support play and learning. They discussed technology they encounter in everyday life and began to recognise that technological devices can help people carry out tasks, communicate and access information.	EYFS: pupils learned about themselves and their families, including their name, age and interests. They developed an understanding of keeping themselves safe, following rules when using technology and talking to trusted adults if they were worried.
Vocabulary	Vocabulary	Vocabulary
Technology, machine, tool, electricity, high, low, simple, science.	Technology, home, school, health, communicate, laptop, smartphone, computer.	Information, personal, ordinary, share, trust.

Year 2 Digital Literacy Discrete Teaching Sessions

Session 1	Session 2	Session 3	Session 4
Key Question	Key Question	Key Question	Key Question
What is the Internet?	The Internet and the Real World	The Internet vs the Real World	Staying safe with technology
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- The internet is a network of computers linked all over the world. - It carries information from one device to another. - A device is needed to use the internet. - The internet can be used for lots of different things: communicating, shopping, gaming, learning etc.	- The internet is a network of computers all around the world. - People use the internet to connect with each other and share information.	- The internet is a good way to communicate with people, to find out information and to keep us entertained. - It is important for us all to keep safe online. - Not everything that you see and read online is real.	Things can go wrong when we are online or using devices so we need to play safely and look after our devices.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Use Technology Safely Discuss key rules linked to using the internet responsibly and safely.	Use Technology Safely Identify and discuss the benefits of doing somethings online and others in real life.	Using Technology Safely Understand key safety rules linked to keeping safe online.	Using Technology Safely Understand that problems can occur when using technology and the internet. Respond to examples of situations where something has gone wrong.
Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 1: Pupils have explored what technology is and how it helps people in their everyday lives. They have identified a range of digital devices and discussed how technology can be used to learn, communicate and find information. Pupils have also learned about personal information and the importance of keeping it private.	Year 1 and 2: Pupils have learned about technology and how it is used in everyday life. They understand that the internet connects devices and allows people to communicate and access information. Pupils have also explored personal information and how to stay safe online.	Year 1 and 2: Pupils understand that the internet is a network that connects devices and enables people to communicate, learn and access information. They have explored how the internet is used in everyday life and have learned about keeping personal information private.	Year 1 and 2: Pupils have learned what technology and the internet are, how technology benefits people, and how it is used in everyday life. They understand that personal information should be kept private and know that problems can occur online. Pupils have compared online and offline behaviours and identified trusted adults who can help them.
Vocabulary	Vocabulary	Vocabulary	Vocabulary
Link, pipes, connected, device, communicate, research, information.	Network, internet, connect, share, information, communicate, real life.	Internet, online, safety, device, communicate, rules.	Technology, device, situation, problem, stranger, bullying.

Year 3 Digital Literacy Unit: Online Safety and Effective Searching.

Where do I find it and how do I know it's safe?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
How do I keep people out?	Fact or Fiction?	Is it safe for me?	What is the internet though?	How do I find it?	What do people need to know?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
• Passwords need to have different types of characters to be truly safe. • We use the Internet for communication.	• Not all information on the internet is true and that some websites are spoofs.	• Know where to turn for help if they see inappropriate content and know the meaning of age restrictions.	• The internet is a network of computers connected around the world and is different to the worldwide web which is the websites that we visit.	• Search engines are used to help find pages on the internet.	• Search engines are used to help find pages on the internet.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Using Technology Safely Explain how to stay safe online.	Computing Systems and Networks Use the internet to access websites. Use Technology Safely Scrutinise a website for appropriate content.	Using Technology Safely Identify ways in which inappropriate behaviour can affect others.	Computing Systems and Networks Access the internet and search engines.	Using Technology Safely Search and locate information using a search engine.	Creating Media Use software-based media to explain how to do something.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Y2: Using I.T. safely	Y2: Using I.T. safely	Y2: Using I.T. safely	KS1: Sharing work on different platforms.	Regular online safety lessons.	Regular online safety lessons.
Vocabulary: safety, password, characters, communication, Internet, spoofs, restrictions, appropriate/inappropriate, network, connected, websites, search engine.					

Year 4 Digital Literacy Unit: Online Safety and Email

How can I send a message quickly and safely?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
How do we communicate?	What is an e-mail?	How can I ensure it is safe?	How can I ensure it is safe?	What can I send?	What decisions do I need to make?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
There are different ways that we communicate including a range of ways online	Emails are used to send instant messages to others across the Internet	Email is an easy way to share information with others but does have its risks	Email is an easy way to share information with others but does have its risks	An attachment is something that can be sent with an email and can include files and images	Decisions must be made on what information people should reply with depending on the sender of the email
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Using Technology Safely Explain the benefits of communicating online Explain the benefits and dangers of communicating online	Computer Systems and Networks Navigate and access Internet tools Navigate and access internet tools and comment on the effectiveness of the tool	Using Technology Safely Describe ways to stay safe online Describe ways to stay safe online and what to do if you have a problem	Using Technology Safely Describe ways to stay safe online Describe ways to stay safe online including how to protect personal information	Creating Media Combine software using the Internet to create content Combine software using the Internet making choices on the correct information to use	Using Technology Safely Use acceptable behaviour and use technology responsibly Use acceptable behaviour and use technology responsibly and identify how to report concerns.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
KS1 – Children have learnt about following rules can keep us safe online	Children have learnt how computer networks are created and how they are linked together	Digital Literacy Y1: Children have learnt about personal information and how to keep it safe and know how to report problems.	Children will know that technology can be used to share information as a communication tool.	KS1 – Children have learnt about following rules can keep us safe online	Children have learnt how computer networks are created and how they are linked together

Vocabulary: address book, attachment, CC, BCC, communication, compose, email, inbox, password, personal information, draft, trusted contact.

Year 5 Digital Literacy Unit: Online Safety: Communicate and Collaborate

How do I work with someone who isn't with me?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
Is it my responsibility?	What should I share?	How can we collaborate?	Can I use someone else's work?	What is the best way to communicate?	How do I maintain security online?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Know how to use SMART rules to help stay safe online. - It is an individual's responsibility to keep themselves and others safe online.	- Passwords need to be maintained to stay secure. - Images can be manipulated for good and bad purposes.	Information and different media can be sent over the Internet in different ways.	Working collaboratively on the internet can be public or private.	There are a variety of ways to communicate over the Internet.	Communication on the Internet may not be private.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Using Technology Safely Understand the impact of sharing information online. Explain the impact of sharing online and give advice on how to handle any problems.	Using Technology Safely Explain how to protect identities and the impact of sharing online. Explain ways sharing content can be both safe and unsafe.	Computer Systems and Networks Use physical media to access a range of features including the Internet. Access and use shared files on the Internet to collaborate.	Using Technology Safely Recognise acceptable and unacceptable use of materials online. Explain ways in which it is acceptable to use other people's work.	Computer Systems and Networks Explain how the internet provides opportunities for communication. Choose appropriate methods of communication for different purposes.	Using Technology Safely Compare different ways to communicate online. Compare and make decisions when and when not to share information online.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Online Safety: Children have online safety lessons once every half term focusing on different ways to stay safe. LKS2 – Children have explained ways to stay safe online.	LKS2: Children have already looked at generating passwords to keep themselves safe. LKS2: Shared information through email. KS1: Manipulated photographs.	LKS2: Children have learnt how a network is made up of several devices.	Online Safety: Children have online safety lessons once every half term focusing on different ways to stay safe. LKS2: Used collaboration tools to share ideas.	LKS2: Discussed different ways to communicate and have been using email.	Online Safety: Children have online safety lessons once every half term focusing on different ways to stay safe. LKS2: Used email and have discussed the risks of sharing.
Vocabulary: communication, protocol, data, address, header, chat, explore, slides, reuse, remix, collaboration, internet, public, private, one-way, two-way, one-to-one, one-to-many.					

Year 6 Digital Literacy Unit: Online Safety and the Internet

How is it all connected?

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Key Question	Key Question	Key Question	Key Question	Key Question	Key Question
How does it know where I am?	How does it know who I am?	How does data travel around the world?	What is the internet made of?	Who owns the web?	Can I believe what I read?
Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge	Key Knowledge
- Secure websites use https: and a padlock icon in the address bar. - Location sharing shares your device's location and this can be turned off for security.	A digital footprint is information about a person as a result of their online activity.	The Internet is a network of networks.	- The internet can provide many services including the worldwide web, file sharing and email. - A web page is a single page on the worldwide web and a website is a collection of pages under one name.	Websites and pages are created by people but not necessarily owned by them.	Some online information may not be true, accurate or legal.
Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills	Disciplinary Skills
Using Technology Safely Explain the impact of sharing information online. Describe how sharing of information can be prevented to protect identities.	Using Technology Safely Explain how to protect identities to stay safe online. Explain the impacts of online activity to reputation.	Computer Systems and Networks Explain why networks need to be secure. Explain the risks a network may have in staying secure.	Computer Systems and Networks Describe network devices and how they are connected. Explain how data is transferred through network devices.	Using Technology Safely Explain the rules that protect content online. Explain the rules and identify information explaining how it can be used.	Using Technology Safely Explain the ways people can use information safely online. Explain what to do if information is not safe.
Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning	Prior Learning
Year 5: Pupils learned how to use the internet safely and responsibly, including protecting personal information and recognising online risks,	Year 5: Pupils learned how search engines work and how to assess whether information online is trustworthy.	Year 5: Pupils learned to evaluate online information and identify whether websites and online content are reliable.	Year 5: Pupils learned how online information is shared and the importance of protecting personal information when communicating online.	Year 5: Pupils learned how to communicate safely online and recognise the importance of protecting their digital identity and personal information.	Year 5: Pupils learned how to stay safe online, evaluate online content and make responsible choices when using the internet.
Vocabulary: Internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts					