



Intent

Curriculum Intent

Through our computing curriculum at Tillington Manor we aim to give our pupils the life-skills that will enable them to embrace and utilise new technology in a creative, as well as responsible and safe way in order to flourish. Our curriculum recognises that all children have the right to learning experiences that balance all aspects of Computing. We acknowledge that technological devices and software are an integral part of everyday life and that society is becoming more and more reliant on technology to guide, innovate and develop practice in many sectors of work, education, and daily life.

We want our pupils to be able to operate in the 21st century workplace and we want them to know the career opportunities with Digital organisations around Stafford/Staffordshire including GE, Connexia and Langley Foxall. We want children to become autonomous, independent users of computing technologies, gaining confidence and enjoyment from their activities. We want the use of technology to support learning across the entire curriculum and to ensure that our curriculum is accessible to every child. Not only do we want them to be digitally literate and competent end-users of technology but through our computing lessons we want them to develop creativity, resilience and problem-solving, and critical thinking skills. We want our pupils to have a breadth of experience to develop their understanding of themselves as individuals within their community but also as members of a wider global community and as responsible digital citizens.

At Tillington Manor Primary School teaching and learning is built upon Rosenshine's Principles of Instruction. Prior learning is revisited frequently to ensure skills and knowledge are retained. Planning is well sequenced into small steps, to prevent overloading children's working memory. Learning reviews take place to allow the children to activate learning and questioning encourages children to think deeply. This also promotes children's metacognition and encourages them to be inquisitive. Scaffolds and models are provided to ensure all children can access the curriculum and solve problems.

The national curriculum for computing aims to ensure that all pupils:

Aims

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

Tillington Manor Computing Progression Map - Glossary



Self-image and identity

This strand explores the differences between online and offline identity beginning with self-awareness, shaping online identities and media influence in propagating stereotypes. It identifies effective routes for reporting and support and explores the impact of online technologies on self-image and behaviour.



Online relationships

This strand explores how technology shapes communication styles and identifies strategies for positive relationships in online communities. It offers opportunities to discuss relationships, respecting, giving and denying consent and behaviours that may lead to harm and how positive online interaction can empower and amplify voice.



Online reputation

This strand explores the concept of reputation and how others may use online information to make judgements. It offers opportunities to develop strategies to manage personal digital content effectively and capitalise on technology's capacity to create effective positive profiles.



Online bullying

This strand explores bullying and other online aggression and how technology impacts those issues. It offers strategies for effective reporting and intervention and considers how bullying and other aggressive behaviour relates to legislation.



Managing online information

This strand explores how online information is found, viewed and interpreted. It offers strategies for effective searching, critical evaluation of data, the recognition of risks and the management of online threats and challenges. It explores how online threats can pose risks to our physical safety as well as online safety. It also covers learning relevant to ethical publishing.



Health, well-being and lifestyle

This strand explores the impact that technology has on health, well-being and lifestyle e.g. mood, sleep, body health and relationships. It also includes understanding negative behaviours and issues amplified and sustained by online technologies and the strategies for dealing with them.



Privacy and security

This strand explores how personal online information can be used, stored, processed and shared. It offers both behavioural and technical strategies to limit impact on privacy and protect data and systems against compromise.



Copyright and ownership

This strand explores the concept of ownership of online content. It explores strategies for protecting personal content and crediting the rights of others as well as addressing potential consequences of illegal access, download and distribution.

EYFS - Understanding the World

Computing		
Three and Four-Year-Olds	Personal, Social and Emotional Development	<ul style="list-style-type: none"> Increasingly follow rules, understanding why they are important.
	Physical Development	<ul style="list-style-type: none"> Match their developing physical skills to tasks and activities in the setting.
	Understanding the World	<ul style="list-style-type: none"> Explore how things work.
Reception	Personal, Social and Emotional Development	<ul style="list-style-type: none"> Show resilience and perseverance in the face of a challenge.
	Physical Development	<ul style="list-style-type: none"> Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'.
	Expressive Arts and Design	<ul style="list-style-type: none"> Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	<ul style="list-style-type: none"> Managing Self Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. Explain the reasons for rules, know right from wrong and try to behave accordingly.
	Expressive Arts and Design	<ul style="list-style-type: none"> Creating with Materials Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

SUBJECT: Age related National Curriculum Coverage

Early Learning goals	Reception	Key Stage 1	Key Stage 2
	<ul style="list-style-type: none"> • 	<p>Pupils will be taught about:</p> <ul style="list-style-type: none"> ▪ understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions ▪ create and debug simple programs ▪ use logical reasoning to predict the behaviour of simple programs ▪ use technology purposefully to create, organise, store, manipulate and retrieve digital content ▪ recognise common uses of information technology beyond school ▪ use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. 	<p>Pupils will be taught about:</p> <ul style="list-style-type: none"> • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts ▪ use sequence, selection, and repetition in programs; work with variables and various forms of input and output ▪ use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs ▪ understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration ▪ use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content ▪ select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information ▪ use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Year Group	SUBJECT Units				
Year 1	Technology around us.	Digital Painting.	Moving a Robot.	Grouping Data.	Introduction to Animation.
Big Question	What technology do we have in school?	Can we make art on a computer?	Can I make a robot move?	How do we sort objects?	How can we tell a story on screen?
Prior knowledge					
Year 2	Information Technology Around Us.	Digital Photography.	Robot Algorithms.	Pictograms.	Programming Quizzes.
Big Question	What technology surrounds us in school and beyond?	How do we capture and edit images?	What is an algorithm and how can that make a robot move?	How do we collect and present data using a computer?	How can I create a fun and interactive quiz?
Prior knowledge	<ul style="list-style-type: none"> Recognise technology in school and use it responsibly. 	<ul style="list-style-type: none"> Choose appropriate tools in a program to create art, and make comparisons with working non-digitally. 	<ul style="list-style-type: none"> Write short algorithms and programs for floor robots, and predict program outcomes. 	<ul style="list-style-type: none"> Explore object labels, then using them to sort and group objects by their properties. 	<ul style="list-style-type: none"> Design and program the movement of a character on screen to tell stories.

Year 3	Connecting Computers.	Stop-Frame Animation.	Sequencing Sounds.	Branching Databases.	Events and Actions in Programs.
Big Question	What is an input or output and how are my devices linked?	Can you use stop-frame to tell a story?	How do I make music?	How do I group objects using only Yes/No questions?	How can one event trigger a sequence of actions?
Prior knowledge	<ul style="list-style-type: none"> Identify IT and how its responsible use can improve our world within school and beyond. 	<ul style="list-style-type: none"> Capture and change digital photographs for different purposes. 	<ul style="list-style-type: none"> Create and debug programs, and using logical reasoning to make predictions on how the algorithms may work. 	<ul style="list-style-type: none"> Collect data in tally charts and use attributes to organise and present data on a computer (link to maths scheme in Summer term.) 	<ul style="list-style-type: none"> Design algorithms and programs that use events to trigger a sequence of code which makes an interactive quiz.
Year 4	The Internet.	Audio Production.	Repetition in Shapes.	Data Logging.	Repetition in Games.
Big Question	What is the internet?	What is a podcast and can you create one?	Can we use programming to draw shapes?	How do we investigate using data?	How do we create exciting but repetitive games?
Prior knowledge	<ul style="list-style-type: none"> Identify that digital devices have inputs, processes, and outputs, and how these devices can be connected to make networks. 	<ul style="list-style-type: none"> Create different sequences in a block-based programming language in order to successfully make music. 	<ul style="list-style-type: none"> Capture and edit digital still images to produce a stop-frame animation that tells a story. 	<ul style="list-style-type: none"> Build and use branching databases in order to group objects using yes/no questions. 	<ul style="list-style-type: none"> Write algorithms and programs that use a range of events to trigger sequences of different actions.

Year 5	Systems and Searching.	Video Production	Selection in Physical Computing.	Flat-File Databases.	Selection in Quizzes.
Big Question	What are IT systems?	How do you become a video creator?	Can you control a IT system?	How do we answer questions from data?	Can you create an exciting and interactive quiz?
Prior knowledge	<ul style="list-style-type: none"> Recognise the internet as a network of networks which include the www, and why we should evaluate online content. 	<ul style="list-style-type: none"> Capture and edit audio to produce a simple podcast, ensuring that they understand what copyright is and that it has been considered. 	<ul style="list-style-type: none"> Use a text-based programming language to explore count-controlled loops when drawing different shapes. 	<ul style="list-style-type: none"> Recognise how and why data is collected over time and for what purpose before using data loggers to carry out an investigation. 	<ul style="list-style-type: none"> Use a block based programming language to explore count-controlled and infinite loops when creating a game.
Year 6	Communication and Collaboration.	Webpage Creation.	Variable in Games.	Introduction to Spreadsheets.	Sensing Movement.
Big Question	How can we work with someone in a different country?	Why is designing a webpage so important?	Why do we need variables in games?	Can we organise and calculate data from a spreadsheet?	How do we capture inputs?
Prior knowledge	<ul style="list-style-type: none"> Recognise different IT systems in the world and how some can enable searching on the internet. 	<ul style="list-style-type: none"> Plan, capture and edit video to produce a short film, showing creativity and varying editing skills. 	<ul style="list-style-type: none"> Explore selection in programming to design and code an interactive quiz. 	<ul style="list-style-type: none"> Use a database to order varying data and to create charts to answer different questions based around their data. 	<ul style="list-style-type: none"> Explore different conditions and selections using a programmable microcontroller.

Computing - Learning Challenges/Key Questions/Vocabulary/Expected standards - Y1

	Autumn	Spring	Summer
KS1 Y1	Technology around us	Digital painting & Moving a robot	Grouping data & Introduction to animation
Learning Sequence	<p>To identify technology To identify a computer and its main parts To use a mouse in different ways To use a keyboard to type To use the keyboard to edit text To create rules for using technology responsibly</p> <p>- Copyright and ownership - Health, well-being and lifestyle</p>	<p>Digital painting To describe what different freehand tools do To use the shape tool and the line tools To make careful choices when painting a digital picture To explain why I chose the tools I used To use a computer on my own to paint a picture To compare painting a picture on a computer and on paper</p> <p>Moving a robot To explain what a given command will do To act out a given word To combine forwards and backwards commands to make a sequence To combine four direction commands to make sequences To plan a simple program To find more than one solution to a problem</p>	<p>Grouping data To label objects To identify that objects can be counted To describe objects in different ways To count objects with the same properties To compare groups of objects To answer questions about groups of objects</p> <p>- Copyright and ownership</p> <p>Introduction to animation To choose a command for a given purpose To show that a series of commands can be joined together To identify the effect of changing a value To explain that each sprite has its own instructions To design the parts of a project To use my algorithm to create a program</p>
Prior learning			
Vocabulary	<p>Log in, username, password, log out, my work, tools, save</p>	<p>Pictogram, data, collate, Animation, sound effect, display board</p>	<p>Button, code block, code design, coder, coding, collision detection, command, design mode</p>

Milestones	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • How to use technology in school. 	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • how they can use different software to create digital art. • What an algorithm is and how they can use it. 	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • How to sort objects based on common properties and how to do this within software and which software to use. • Which software they need to use and how to use it to create a short story.
	<p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Recognise technology in school and use it responsibly. 	<p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Choose appropriate tools in a program to create art, and make comparisons with working non-digitally. • Write short algorithms and programs for floor robots, and predict program outcomes. 	<p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Explore object labels, then using them to sort and group objects by their properties. • Design and program the movement of a character on screen to tell stories.

End of Year Expectations

Strand	Y1 – Children will know:	Y1 Greater Depth
Chronology	•	•
Knowledge + Reasons/consequences	•	•
Interpretations	•	•
Enquiry	•	•

Computing - Learning Challenges/Key Questions/Vocabulary/Expected standards - Y2

	Autumn	Spring	Summer
KS1 Y2	Computer Systems and Networks	Creating Media & Programming	Data and Information & Programming
Learning Sequence	<p>Information technology around us To recognise the uses and features of information technology To identify information technology in the home To identify information technology beyond school To explain how information technology benefits us To show how to use information technology safely To recognise that choices are made when using information technology - Health, well-being and lifestyle</p>	<p>Digital photography To know what devices can be used to take photographs To use a digital device to take a photograph To describe what makes a good photograph To decide how photographs can be improved To use tools to change an image To recognise that images can be changed - Self-image and identity</p> <p>Robot algorithms To describe a series of instructions as a sequence To explain what happens when we change the order of instructions To use logical reasoning to predict the outcome of a program (series of commands) To explain that programming projects can have code and artwork To design an algorithm To create and debug a program that I have written</p>	<p>Pictograms To recognise that we can count and compare objects using tally charts To recognise that objects can be represented as pictures To create a pictogram To select objects by attribute and make comparisons To recognise that people can be described by attributes To explain that we can present information using a computer -Privacy and Security</p> <p>Introduction to quizzes To explain that a sequence of commands has a start To explain that a sequence of commands has an outcome To create a program using a given design To change a given design To create a program using my own design To decide how my project can be improved</p>
Prior Learning	<ul style="list-style-type: none"> Recognise technology in school and use it responsibly. 	<ul style="list-style-type: none"> Choose appropriate tools in a program to create art, and make comparisons with working non-digitally. Write short algorithms and programs for floor robots, and predict program outcomes. 	<ul style="list-style-type: none"> Explore object labels, then using them to sort and group objects by their properties. Design and program the movement of a character on screen to tell stories.
Vocabulary	<p>object, properties, repeat, scale, timer, when clicked</p>	<p>internet, sharing, email, attachment, image toolbox, lock tool,</p>	<p>algorithm, bug, code block, code design, command, debug,</p>

Milestones	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • What technology they have access to in school and at home. • How to use this technology safely and securely. <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Identify IT and how its responsible use can improve our world within school and beyond. 	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • Which software they need to use to create digital artwork. • How they can use different tools to create different art effects. <p>• What systems and tools they need to program a robot.</p> <p>• How to make a robot move using algorithms.</p> <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Capture and change digital photographs for different purposes. • Create and debug programs, and using logical reasoning to make predictions on how the algorithms may work. 	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • What a pictogram is and how they can make one on a computer. • What they can use a pictogram for. <p>• Which software they need to use to create a quiz.</p> <p>• How they can create an interactive quiz on a computer.</p> <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Collect data in tally charts and use attributes to organise and present data on a computer (link to maths scheme in Summer term.) • Design algorithms and programs that use events to trigger a sequence of code which makes an interactive quiz.
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Y2 Expected Standards

Strand	Y2 – Children will:	Greater Depth
Chronology	•	•
Knowledge + Reasons/consequences	•	•
Interpretations	•	•
Enquiry	•	•

Computing - Learning Challenges/Key Questions/Vocabulary/Expected standards - KS2 - Y3

	Autumn	Spring	Summer
KS2 Y3	Computer Systems and Networks	Creating Media & Programming	Data and Information & Programming
Learning Sequence	<p>Connecting computers</p> <p>To explain how digital devices function To identify input and output devices To recognise how digital devices can change the way we work To explain how a computer network can be used to share information To explore how digital devices can be connected To recognise the physical components of a network</p>	<p>Stop-frame animation</p> <p>To explain that animation is a sequence of drawings or photographs To relate animated movement with a sequence of images To plan an animation To identify the need to work consistently and carefully To review and improve an animation To evaluate the impact of adding other media to an animation</p> <p>- Copyright and ownership - Managing online information</p> <p>Sequence in music</p> <p>To explore a new programming environment I can identify that each sprite is controlled by the commands I choose To explain that a program has a start To recognise that a sequence of commands can have an order To change the appearance of my project To create a project from a task description</p>	<p>Branching databases</p> <p>To create questions with yes/no answers To identify the object attributes needed to collect relevant data To create a branching database To identify objects using a branching database To explain why it is helpful for a database to be well structured To compare the information shown in a pictogram with a branching database</p> <p>Events and actions</p> <p>To explain how a sprite moves in an existing project To create a program to move a sprite in four directions To adapt a program to a new context To develop my program by adding features To identify and fix bugs in a program To design and create a maze-based challenge</p>
Prior learning	<ul style="list-style-type: none"> Identify IT and how its responsible use can improve our world within school and beyond. 	<ul style="list-style-type: none"> Capture and change digital photographs for different purposes. Create and debug programs, and using logical reasoning to make predictions on how the algorithms may work. 	<ul style="list-style-type: none"> Collect data in tally charts and use attributes to organise and present data on a computer (link to maths scheme in Summer term.) Design algorithms and programs that use events to trigger a sequence of code which makes an interactive quiz.
Vocabulary	<p>debug, input, output, object, repeat, timer, properties,</p>	<p>repeat, timer, properties, computer simulation, selection, variable</p>	<p>Branching database, data, database, question</p>

Milestones	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • What a computer network is. • How computers connect to each other. • How information can be shared digitally. <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Identify that digital devices have inputs, processes, and outputs, and how these devices can be connected to make networks. 	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • What stop frame animation is? • Which software they can use to create it. • How to create stop-frame animation. • How we can create music digitally. • Why sequencing is important. • How we can create a sequence in music. <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Capture and edit digital still images to produce a stop-frame animation that tells a story. • Create different sequences in a block-based programming language in order to successfully make music. 	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • What a branching database is. • How to collect and use relevant data. • How to create and compare data in a pictogram using branching databases. • How to program a stationary object to move? • What software we can use to complete this. • How to fix bugs within a computer system. <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Build and use branching databases in order to group objects using yes/no questions. • Write algorithms and programs that use a range of events to trigger sequences of different actions.
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End of Year Expectations

Strand	Y3 - Children will know:	Greater Depth
Chronology	•	•
Knowledge + Reasons/consequences	•	•
Interpretations	•	•
Enquiry	•	•

Computing - Learning Challenges/Key Questions/Vocabulary/Expected standards - KS2 - Y4

	Autumn	Spring	Summer
KS2 Y4	Computer Systems and Networks	Creating Media & Programming	Data and Information & Programming
Learning Sequence	<p>The internet To describe how networks physically connect to other networks To recognise how networked devices make up the internet To outline how websites can be shared via the World Wide Web To describe how content can be added and accessed on the World Wide Web To recognise how the content of the WWW is created by people To evaluate the consequences of unreliable content.</p>	<p>Audio editing To identify that sound can be digitally recorded To use a digital device to record sound To explain that a digital recording is stored as a file To explain that audio can be changed through editing To show that different types of audio can be combined and played together To evaluate editing choices made - Copyright and ownership</p> <p>Repetition in shapes To identify that accuracy in programming is important To create a program in a text-based language To explain what 'repeat' means To modify a count-controlled loop to produce a given outcome To decompose a program into parts To create a program that uses count-controlled loops to produce a given outcome</p>	<p>Data logging To explain that data gathered over time can be used to answer questions To use a digital device to collect data automatically To explain that a data logger collects 'data points' from sensors over time To use data collected over a long duration to find information To identify the data needed to answer questions To use collected data to answer questions</p> <p>Repetition in games To develop the use of count-controlled loops in a different programming environment To explain that in programming there are infinite loops and count controlled loops To develop a design which includes two or more loops which run at the same time To modify an infinite loop in a given program To design a project that includes repetition To create a project that includes repetition</p>
Prior learning	<ul style="list-style-type: none"> Identify that digital devices have inputs, processes, and outputs, and how these devices can be connected to make networks. 	<ul style="list-style-type: none"> Capture and edit digital still images to produce a stop-frame animation that tells a story. Create different sequences in a block-based programming language in order to successfully make music. 	<ul style="list-style-type: none"> Build and use branching databases in order to group objects using yes/no questions. Write algorithms and programs that use a range of events to trigger sequences of different actions.
Vocabulary	<p>internet browser, search, search engine, spoof website, website</p>	<p>Animation, background, frame, flipbook, onion skinning, stop motion,</p>	<p>tool, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer</p>

Milestones	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • What the internet is and why it is important. • How we can use the internet safely. 	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • Why we record and edit audio. • Which software we can use to record and edit audio. 	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • What a data point is. • Why we use data logging. • How we use data logging. • How we use data to collect information.
	<p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Recognise the internet as a network of networks which include the www, and why we should evaluate online content. 	<ul style="list-style-type: none"> • How we use repetition in software. • Why we use repetition in software. • Which software we can use to create shapes and loops. <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Capture and edit audio to produce a simple podcast, ensuring that they understand what copyright is and that it has been considered. • Use a text-based programming language to explore count-controlled loops when drawing different shapes. 	<ul style="list-style-type: none"> • What a loop in a game is. • Why we use loops in games. • What software we use in order to create games with loops. <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Recognise how and why data is collected over time and for what purpose before using data loggers to carry out an investigation. • Use a block based programming language to explore count-controlled and infinite loops when creating a game.

End of Year Expectations

Strand	Y4 – Children will know:	Greater Depth
Chronology	•	•
Knowledge + Reasons/consequences	•	•
Interpretations	•	•
Enquiry	•	•

Computing - Learning Challenges/Key Questions/Vocabulary/Expected standards - KS2 Y5

	Autumn	Spring	Summer
KS2 Y5	Computer Systems and Networks	Creating Media & Programming	Data and Information & Programming
Learning Sequence	<p>Communication</p> <p>To identify how to use a search engine To describe how search engines select results To describe how search engines select results To explain how search results are ranked To recognise why the order of results is important, and to whom To recognise how we communicate using technology To evaluate different methods of online communication</p> <p>- Managing online information - Online reputation</p>	<p>Video editing</p> <p>To recognise video as moving pictures, which can include audio To identify digital devices that can record video To capture video using a digital device To recognise the features of an effective video To identify that video can be improved through reshooting and editing To consider the impact of the choices made when making and sharing a video</p> <p>- Managing online information - Online relationships - Online reputation - Self-image and identity</p> <p>Selection in physical computing</p> <p>To control a simple circuit connected to a computer To write a program that includes count-controlled loops To explain that a loop can stop when a condition is met, eg number of times To conclude that a loop can be used to repeatedly check whether a condition has been met To design a physical project that includes selection To create a controllable system that includes selection</p>	<p>Flat-file databases</p> <p>To use a form to record information To compare paper and computer-based databases To outline how grouping and then sorting data allows us to answer questions To explain that tools can be used to select specific data To explain that computer programs can be used to compare data visually To apply my knowledge of a database to ask and answer real-world questions.</p> <p>Selection in games</p> <p>To explain how selection is used in computer programs To relate that a conditional statement connects a condition to an outcome To explain how selection directs the flow of a program To design a program which uses selection To create a program which uses selection To evaluate my program</p>
Prior learning	<ul style="list-style-type: none"> Recognise the internet as a network of networks which include the www, and why we should evaluate online content. 	<ul style="list-style-type: none"> Capture and edit audio to produce a simple podcast, ensuring that they understand what copyright is and that it has been considered. Use a text-based programming language to explore count-controlled loops when drawing different shapes. 	<ul style="list-style-type: none"> Recognise how and why data is collected over time and for what purpose before using data loggers to carry out an investigation. Use a block based programming language to explore count-controlled and infinite loops when creating a game.

Vocabulary	<p>Online safety, reputable, encryption, identity theft, shared image,</p>	<p>evaluation, image, instructions, screenshot, texture, perspective,</p>	<p>Avatar, binary tree, charts, collaborative, data, database, group and arrange,</p>
Milestones	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • What a computer network is. • How computers are connected over a network. • How data can be shared via a network. <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Recognise different IT systems in the world and how some can enable searching on the internet. 	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • Why we edit videos. • How to record and edit images and videos. • How to share an edited video. • How to connect a circuit to a computer. • How to control a simple circuit. • How a loop works in regards to a simple circuit. <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Plan, capture and edit video to produce a short film, showing creativity and varying editing skills. • Explore different conditions and selections using a programmable microcontroller. 	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • What a flat-file database is. • Why we collect data and use flat-file databases. • How to compare data. • Answer real-life questions using data collected. • That 'selection' refers to the direction of a game. • How we create selection in a game. • Why we use selection in games. <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Use a database to order varying data and to create charts to answer different questions based around their data. • Explore selection in programming to design and code an interactive quiz.

End of Year Expectations

Strand	Y5 – Children will know:	Greater Depth
Chronology	•	•
Knowledge + Reasons/consequences	•	•
Interpretations	•	•
Enquiry	•	•

Computing - Learning Challenges/Key Questions/Vocabulary/Expected standards - Y6

	Autumn	Spring	Summer
KS2 Y6	Computer Systems and Networks	Creating Media & Programming	Data and Information & Programming
Learning Sequence	<p>Sharing information To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To recognise how information is transferred over the internet To explain how sharing information online lets people in different places work together To contribute to a shared project online To evaluate different ways of working together online</p> <p>- Copyright and ownership-I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.</p>	<p>Web page creation To review an existing website and consider its structure To plan the features of a web page To consider the ownership and use of images (copyright) To recognise the need to preview pages To outline the need for a navigation path To recognise the implications of linking to content owned by other people - Copyright and ownership - Online relationships</p> <p>Variables in games To define a 'variable' as something that is changeable To explain why a variable is used in a program To choose how to improve a game by using variables To design a project that builds on a given example To use my design to create a project To evaluate my project</p>	<p>Spreadsheets To identify questions which can be answered using data To explain that objects can be described using data To explain that formula can be used to produce calculated data To apply formulas to data, including duplicating To create a spreadsheet to plan an event To choose suitable ways to present data</p> <p>Sensing To create a program to run on a controllable device To explain that selection can control the flow of a program To update a variable with a user input To use an conditional statement to compare a variable to a value To design a project that uses inputs and outputs on a controllable device To develop a program to use inputs and outputs on a controllable device</p>
Prior learning	<ul style="list-style-type: none"> Recognise different IT systems in the world and how some can enable searching on the internet. 	<ul style="list-style-type: none"> Plan, capture and edit video to produce a short film, showing creativity and varying editing skills. Explore different conditions and selections using a programmable microcontroller. 	<ul style="list-style-type: none"> Use a database to order varying data and to create charts to answer different questions based around their data. Explore selection in programming to design and code an interactive quiz.
Vocabulary	<p>Internet, world wide web, network, router, local area network, wide area network</p>	<p>Algorithm, code design, command, control, debug, event, flowchart bug,</p>	<p>Alignment, calculate, cell, cell reference, function, range, row, spreadsheet,</p>

Milestones	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • How computer systems are linked via networks. • How we can work collaboratively via networks. • How data/information can be shared via networks. 	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • How to create a webpage. • Why the design of a webpage is so important. • Which features of a webpage make it successful. • Which software we can use to create a webpage. 	<p>By the end of the unit children should know:</p> <ul style="list-style-type: none"> • What a spreadsheet is. • Why we use spreadsheets. • How we can use spreadsheets to calculate data. • What formula is and how we can use it.
	<p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Explore how data is transferred by working collaboratively online together on a group project, completed independently/digitally. 	<ul style="list-style-type: none"> • What a variable is in a game context. • Why we use variables in games. • What makes games with variables successful. • Create games which include variables. <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Design and create different webpages which consider copyrights, aesthetics and navigation for its users. • Explore variables when they design and code a game. 	<ul style="list-style-type: none"> • What sensing is in programming. • How we can use selection or variables in a project. • How to use inputs and outputs in to a device. <p>By the end of the unit children should be able to:</p> <ul style="list-style-type: none"> • Answer questions by using spreadsheets to organise and calculate data. • Design and code a project that captures inputs from a physical device.

End of Year Expectations

Strand	Y6 – Children will know:	Greater Depth
Chronology	•	•
Knowledge + Reasons/consequences	•	•
Interpretations	•	•
Enquiry	•	•