

Netherfield Computing Curriculum

We want the children at Netherfield Primary School to leave us with a knowledge and understanding of computing that will prepare them for an ever-changing digital landscape.

At Netherfield, we follow the National Curriculum for computing. We have built a broad and ambitious curriculum for computing with a wide breadth of knowledge and skills taught from the Early Years to the end of Key Stage Two drawing from advice and guidance from the National Centre for Computing, Computing at School, the National College and Barefoot Computing. All year groups cover a range of computing strands to ensure that they are confident and competent using a range of technology and software for different purposes.

The curriculum helps children understand how computing is used not just in school but in the wider world too. We want the children to have the skills and understanding they need to become, respectful, confident and competent computational thinkers in the digital world we now live in.

The Computing Curriculum is split into three strands:

- Computer Science
- Information Technology
- Digital Literacy

Within Computer Science we focus on how computers work and the theories and concepts around this.

Information Technology is divided into four units including text and images, motion and sound, data and looking at the history of computing.

Digital Literacy is also divided into 4 units including, e-safety, technology in our lives, using the internet and communication. This strand is woven through-out their lessons and when applicable

Within Key Stage One Computing is blocks are taught throughout the year and in Key Stage Two, children are taught computing weekly. Computing is taught using a range of hardware devices, software and unplugged activities. It is taught cross-curricular where applicable, linking to topics being taught. Unplugged activities are evidenced in their computing folders and other work is evidenced in the children's own digital files.

Netherfield KS2 Computing Curriculum

	Computer Science	Information Technology				Digital Literacy			
	How computers work (programming)	Text and Images	Sound and Motion	Data	History	e-safety	Technology in Our Lives	Using the internet	Communicating
Year 6	<p>Scratch – Create a game</p> <ul style="list-style-type: none"> Use logical reasoning to create a solution for a problem and write an algorithm for it Understand that you can have more than one solution for the same problem Use variables (to store data e.g. a score) and various form of inputs and outputs e.g create timing for events, speech bubbles, Use sequence, selection and repetition to create a game in Scratch Plan different scenarios using ‘what if’ questions and conditional statements e.g sprite becomes invisible or hides Use the correct vocabulary in relation to current and previous learning 	<p>TEXT AND IMAGES -3D Modelling</p> <ul style="list-style-type: none"> To recognise and understand that you can work in 3 dimensions on computers To identify and modify 3D objects To combine 3D models To create a 3D model for a given purpose To plan, design and create their own 3D model <p>DATA - Spreadsheets</p> <ul style="list-style-type: none"> Create a spreadsheet for a specific purpose Use keyboard shortcuts and functions to input data on spreadsheets add data to an existing database Collect data and input it into a formula using spreadsheets Use spreadsheets to answer questions and solve problems Know and demonstrate how to interpret and compare data <p>SOUND AND MOTION</p> <ul style="list-style-type: none"> To explain what makes video’s effective To use digital devices to record Identify features on a given video device Plan and record a video Edit video and evaluate <p>Use key vocabulary to demonstrate knowledge and understanding in this strand History Focus: Alan Turning and Codebreaking during WWII</p>				<p>Computer Systems and Networks – Communication</p> <ul style="list-style-type: none"> Recognise that data is transferred using agreed methods Explain that internet devices have addresses Describe how computers use addresses to access websites Identify and explain the main parts of a data packet Explain that data is transferred over networks in packets Recognise how to access shared files stored online Identify different ways of working together online Recognise that working together on the internet can be public or private <p>E-Safety (Taught throughout the year)</p> <ul style="list-style-type: none"> Discuss the positive and negative impacts of the use of ICT in their own lives and those of their peers and family e.g. screen time, discussing what they are doing online Know that content put online is difficult to remove. Understand they should not publish other people’s pictures or tag them on the internet without permission - link back to copyright Suggest different ways that they could deal with Cyberbullying’ Identify and discuss online situations they may need to be careful in and why Explain what a digital footprint is and discuss what their own digital footprint is like and what impact this can have on them in the future 			
Year 5	<p>Scratch – Create a quiz</p> <ul style="list-style-type: none"> Create a consequence to an action using the Selection Command e.g. If then when writing an algorithm Use a variable to increase the value of a score Test an algorithm and use logical reasoning to spot errors and debug Follow an algorithm and predict the outputs for the program Change inputs to create different outputs Use the correct vocabulary in relation to current and previous learning 	<p>TEXT AND IMAGES (Webpage Developer)</p> <ul style="list-style-type: none"> To look at the structure of websites To understand what a webpage To understand copyright and what it means To create their own webpage Explain and discuss software chosen and why <p>Text and Images – Vector Drawings</p> <ul style="list-style-type: none"> To identify drawing tools and how they can produce different outcomes To combine shapes to create a vector drawing To create effects using different drawing tools To understand that vector drawings consist of layers To group and duplicate drawings To create their own vector drawing <p>DATA – Excel</p> <ul style="list-style-type: none"> Discuss the different ways that data can be organised e.g. branching diagrams, data loggers Examine how data can be stored and viewed Use given databases to answer questions and solve problems Know and demonstrate how to interpret and compare data Recognise inaccurate data. Suggests ways to change the table such as change cells, change layout <p>Use key vocabulary to demonstrate knowledge and understanding in this strand History Focus – Tim Berners-Lee inventor of the World Wide Web</p>				<p>Computer Systems and Networks – Sharing Information</p> <ul style="list-style-type: none"> Understand that you make your own choices when using technology e.g. comments Explain how computer systems are built, describe their features and explain how they communicate with other devices Understand how search results are selected and ranked e.g. websites order Compare and analyse information online looking for bias information, fake news, authentic information – How could they check/cross reference it e.g. books ‘Cite’ a website where they have found information <p>E-Safety (Taught throughout the year)</p> <ul style="list-style-type: none"> Know how to report cyberbullying Understand the potential risk of providing personal information online. Know what an ‘alias’ is and when you would use them online Know and explain the rules for creating a strong password Understand the words ‘plagiarism’ and ‘citation’ 			

		Computer Science				Information Technology				Digital Literacy			
		How computers work (programming)				Text and Images	Sound and Motion	Data	History	e-safety	Technology in Our Lives	Using the internet	Communicating
Year 4	<p>Programming Turtle Logo ONLINE</p> <ul style="list-style-type: none"> Write an algorithm to draw letters and regular polygons – Use angle commands to draw an arc and then a circle. To predict the outcome of a given code To modify a given code to create a given outcome <p>Scratch – Create a game</p> <ul style="list-style-type: none"> Add to a sequence of existing commands Use a variable to create a scoring system using Scratch Add features to a Sprite Use repetition to create an effect Predict accurately what will happen and why (Logical reasoning) Keep testing a program and recognise when you need to debug it <p>Use the correct vocabulary in relation to current and previous learning</p>	<p>TEXT AND IMAGES -</p> <ul style="list-style-type: none"> Insert pictures into text and format and edit to create an effect Change the orientation of the page and the size of the page. Use photo editing software to crop photos and add effects Identify how images have been altered and discuss how it makes people feel <p>DATA – Data Loggers</p> <ul style="list-style-type: none"> Use a given data set to answer questions Collect data using data loggers and analyse data Recognise inaccurate data. <p>SOUND AND MOTION – Sound</p> <ul style="list-style-type: none"> Record, create and edit sounds. Change recorded sounds, volume, duration and pauses. Audio Editing Create a Podcast. <p>Use key vocabulary to demonstrate knowledge and understanding in this strand</p> <p>History Focus: The history of computer gaming</p>	<p>Computer Systems and Networks – The Internet</p> <ul style="list-style-type: none"> Understand how computer networks are connected and communicate with other networks To understand why networks should be protected Understand how networks connect and form the internet. Know that the internet contains fact, fiction and opinion and understand the difference Identify which keywords will help them search for information. <p>E-Safety (Taught throughout the year)</p> <ul style="list-style-type: none"> Explain what information shouldn't be shared online Explain how people may be hurt by other people's comments Explain how to respond to other people's comments Show understanding of age ratings relating to games, websites and adverts Be able to discuss the risks of using technology and discuss how to minimise those risks 										
	<p>Programming Turtle LOGO Online</p> <ul style="list-style-type: none"> Write algorithms using more complex commands (angles) Plan and enter a sequence of commands to create a specific outcome e.g. regular shape Use repeat command when drawing certain polygons and patterns <p>Scratch – Create sound and motion</p> <ul style="list-style-type: none"> Understand that sprites are controlled by the commands I choose Create a program following a design Create a sequence of commands that start in different ways Order a sequence of commands including sound Debug programmes and correct your mistakes <p>Use the correct vocabulary in relation to current and previous learning</p>	<p>TEXT AND IMAGES</p> <ul style="list-style-type: none"> Use a range of software to present data and information – Word, PowerPoint, Excel Design and create content to present information Use appropriate keyboard commands to amend text to present e.g. font sizes, effects, align left, right, centre, text boxes and bullet points Evaluate work, making amendments. <p>DATA -Branching Databases (Unplugged)</p> <ul style="list-style-type: none"> To understand what a branching data base is To answer questions To understand what attributes are and use them to group information To create their own branching database <p>SOUND AND MOTION – Animation with pictures</p> <ul style="list-style-type: none"> Create a Comic Book Draw and create a flip book Explain how a flip books works <p>Use key vocabulary to demonstrate knowledge and understanding in this strand</p> <p>History Focus - Animation before Computers</p>	<p>Computer Systems and Networks – Connecting Computers</p> <ul style="list-style-type: none"> Understand how digital devices work e.g input, output, processes Understand the parts of digital devices Understand how computer networks are connected and provide multiple services Search for a specific website <p>E-Safety (Taught throughout the year)</p> <p>Use technology respectfully and responsibly</p> <ul style="list-style-type: none"> Understand how to get help in different ways e.g. parents, school, block buttons Use technology respectfully and responsibly <p>Use keywords to search for information.</p>										

	Computer Science	Information Technology				Digital Literacy			
	How computers work (programming)	Text and Images	Sound and Motion	Data	History	e-safety	Technology in Our Lives	Using the internet	Communicating
Year 2	<p>Bee Bot App.</p> <ul style="list-style-type: none"> Write commands in the correct order Know and explain what an algorithm is, test them and debug simple errors Understand that programmes follow a precise set of instructions Plan and enter a series of simple instructions (left, right, forwards, backwards, rotate - To move the Bee Bot Predict what will happen when programming (logical thinking) <p>Scratch Jr</p> <ul style="list-style-type: none"> To predict the outcome of a sequence or algorithm To create a program from a pre-given design To modify a pre-given design e.g. change the colour of the sprite and move it using motion commands Create a simple algorithm using Scratch Jnr and start the algorithm Use the correct vocabulary in relation to current and previous learning 	<p>TEXT AND IMAGES – Microsoft Word</p> <ul style="list-style-type: none"> Create digital content Retrieve and save digital content – save in file and open and edit and document in file - independently Recognise which devices can take a photo Understand how to take a good photo e.g. lighting, landscape or portrait Edit a photo <p>Data – (Unplugged)</p> <ul style="list-style-type: none"> Create a graph both unplugged Record and represent data in tally Present data in different ways - Pictogram <p>SOUND AND MOTION</p> <ul style="list-style-type: none"> Music making apps – record sounds and edit sounds <p>Use key vocabulary to demonstrate knowledge and understanding in this strand</p> <p>History Focus: Bill Gates Founder of Microsoft</p>	<p>Computer Systems and Network - Information Technology Around Us</p> <ul style="list-style-type: none"> Understand what IT is. Understand IT which is used in school and in the wider world Know different forms of IT – laptops, cameras, card machines, pedestrian crossing Understand how IT devices work together Know different forms of communication e.g. emails, chatrooms Explain what they like and dislike about websites Use websites to complete simple search to find information Use technology safely and respectfully following school rules Explain how to search safely online Understand what unkind behaviour is when online Know and explain what to do if someone is being unkind to them online Understand that pop ups are advertisements which they should ignore them. 						
Year 1	<p>Computer Science Unplugged - Beebots</p> <ul style="list-style-type: none"> Follow a set of instructions Verbally give a set of instructions Write step by step simple instructions e.g. how to make a sandwich Explore what happens when buttons are pressed on a digital device e.g. a bee bot Direct a bee-bot to a toy using forwards, backwards, right turn, left turn Know what an algorithm is Check commands for a mistake and debug if necessary <p>Computer Science -Scratch Jr</p> <ul style="list-style-type: none"> To find and use commands to move a sprite To understand what the blocks do Join blocks together and use 'START' block Use blocks with numbers e.g. make it move more steps Create a backdrop Use the correct vocabulary in relation to current and previous learning 	<p>Paint</p> <ul style="list-style-type: none"> Create digital content – paint program. Use various tools to add detail e.g. brushes, pens, shapes and stamps etc Become familiar with keys on a laptop keyboard e.g. typing Become familiar with keys on a laptop keyboard e.g. typing Understand the different keys on a keyboard including the backspace key, and Caps Lock To understand what the Cursor does on the computer screen To explore different fonts when writing their name Store digital content – save paint work and writing in word in a file <p>DATA – (Unplugged)</p> <ul style="list-style-type: none"> Data – Label and group objects Data - Look at graphs on the IWB and discuss what it shows. <p>Use key vocabulary to demonstrate knowledge and understanding in this strand</p>	<p>Computer Systems and Network - Technology in our Classroom</p> <ul style="list-style-type: none"> Understand what the word technology means Understand the different parts of the computer e.g. power button, mouse, keys Use technology safely following school rules Understand the difference between 'online' and 'offline' Explain how to keep personal information safe when online Understand different ways of communication online. Use a password to connect to the school server Discuss what websites are and look at a range of websites Know who to talk to if something/someone makes them feel unsafe 						
EYFS Computing is embedded in the 7 areas of learning	<p>Understanding the World – Recognise a range of technology</p> <ul style="list-style-type: none"> Use digital devices in role play e.g. mobile phones, laptops, Follow simple instructions given to them To know how to turn a laptop, tablet or other digital devices on 	<ul style="list-style-type: none"> Recognises different purposes for using technology in school and at home e.g. tills, microwaves Recognises that the Internet can be used to play and learn Know the difference between text, image and sound when using ICT. Move things on an Interactive Whiteboard 	<ul style="list-style-type: none"> Show sensitivity towards others and their feelings Talk about how they feel and how others feel Understand that 'unacceptable behaviour' has a consequence and can impact on others Know the importance of keeping safe Understand what personal information is and talk about it Understand that electrical equipment should be looked after and is easily broken Understand basic electrical safety (water around electrical items, fingers in sockets etc.) 						