

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 and 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 their own digital file.

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	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	<u>Scratch – Create a game</u> <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 	<u>TEXT AND IMAGES</u> <ul style="list-style-type: none"> Select software on a range of digital devices to present their own work Use technology to communicate and collaborate on projects in class Choose independently how to present work and evaluate effectiveness after <u>DATA</u> <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 <u>SOUND AND MOTION</u> <ul style="list-style-type: none"> Create and present a short film using History Focus: Alan Turning and Codebreaking during WWII 				<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 Compare and analyse information online looking for bias information, fake news, authentic information – How could they check/cross reference it e.g. books 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	<u>Scratch – Create a Space Invaders Style Game</u> <ul style="list-style-type: none"> Use commands to draw a maze backdrop in Scratch Create a sequence of commands that make two sprites move 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 	<u>TEXT AND IMAGES</u> <ul style="list-style-type: none"> Choose and combine software to present work – excel, Microsoft word, PowerPoint, Publisher Explain and discuss software chosen and why Use photo editing software to crop photos and add effects – (link to e-safety) <u>DATA</u> <ul style="list-style-type: none"> Discuss the different ways that data can be organised e.g excel, charts, branching diagrams 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 <u>SOUND AND MOTION</u> <ul style="list-style-type: none"> Audio Editing Create a Podcast Use key vocabulary to demonstrate knowledge and understanding in this strand History Focus – The history of computer gaming				<ul style="list-style-type: none"> Understand that you make your own choices when using technology e.g. comments 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 how search results are selected and ranked e.g. websites order ‘Cite’ a website where they have found information Identify how images have been altered and discuss how it makes people feel 			
Year 4	<u>Programming Turtle Logo ONLINE</u> <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. <u>Scratch – Create a quiz</u> <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 Use the correct vocabulary in relation to current and previous learning 	<u>TEXT AND IMAGES</u> <ul style="list-style-type: none"> Independently use a range of software to present work – excel, Microsoft word, PowerPoint, Publisher Use automated spell checker to check spellings Insert a text/graph/ hyperlink from the internet or a personal file. Insert pictures into text and format and edit to create an effect Change the orientation of the page and the size of the page. <u>DATA</u> <ul style="list-style-type: none"> Collect and present data using Excel – independently. Recognise inaccurate data. Suggests ways to change the table such as change cells, change layout <u>SOUND AND MOTION</u> <ul style="list-style-type: none"> Record, create and edit sounds. Change recorded sounds, volume, duration and pauses and add to animation Create a short stop motion animation Use key vocabulary to demonstrate knowledge and understanding in this strand History Focus - Animation before Computers				<ul style="list-style-type: none"> Know the difference between search engines used at school and search engines used at home Identify which keywords will help them search for information. Use websites, search for websites, add websites to favourite list Have two or more webpages open at the same time using the tab browsing option. Know that the internet contains fact, fiction and opinion and understand the difference Understand the words ‘plagiarism’ and ‘citation’ Be able to discuss the risks of using technology and discuss how to minimise those risks 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 			

Year 3	<p><u>Programming Turtle LOGO Online</u></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><u>Scratch</u></p> <ul style="list-style-type: none"> Program with some forms of input and output commands (when you press this button [input], your Sprite moves, makes a sound [output]) Debug programmes and correct your mistakes Use the correct vocabulary in relation to current and previous learning 	<p><u>TEXT AND IMAGES</u></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 Insert a picture from the internet Copy and paste an image into a PowerPoint and then crop, resize and rotate the image. Add sound to a PowerPoint <p><u>DATA</u></p> <ul style="list-style-type: none"> Put data into a pre –made excel document <p><u>SOUND AND MOTION</u></p> <ul style="list-style-type: none"> Create a Comic Book Use key vocabulary to demonstrate knowledge and understanding in this strand <p>History Focus: Tim Berners-Lee inventor of the World Wide Web</p>	<ul style="list-style-type: none"> Use technology respectfully and responsibly Understand how to get help in different ways e.g. parents, school, block buttons Understand what a Strong Password is and why it is important Explain what privacy settings are Search for a specific website Use keywords to search for information. Understand copyright exists on digital images Understand what computer networks do and how they provide multiple services Explain how to communicate with others online and in real life – What is the difference? Understand what a digital footprint is and how information can be used online
Year 2	<p><u>Bee Bot App. Scratch Jnr</u></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) Change a backdrop and create a sprite using Scratch Change the colour of the sprite and move it using motion commands Explore the command blocks using Scratch Jnr e.g. look, motion, sound and explain what they do Understand what the 'Repeat' Command is and does. Create a simple algorithm using Scratch Jnr and start the algorithm Use the correct vocabulary in relation to current and previous learning 	<p><u>Microsoft Word</u></p> <ul style="list-style-type: none"> Create digital content – word document, add text and saved images to the document Music making apps – record sounds, edit sounds using Garage band Retrieve and save digital content – save in file and open and edit document in file - independently Create a graph both unplugged and digitally using Little Monkey App. Take a picture on a camera and download it to save in a file Use key vocabulary to demonstrate knowledge and understanding in this strand <p>History Focus: Bill Gates Founder of Microsoft</p>	<ul style="list-style-type: none"> Use technology safely and respectfully following school rules 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 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><u>Computer Science Unplugged</u></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, turn Know what an algorithm is Check commands for a mistake and debug if necessary Use the correct vocabulary in relation to current and previous learning 	<p><u>Paint</u></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 Store digital content – save paint work in a file Take a picture on a camera Look at graphs on the IWB and discuss what it shows. Use key vocabulary to demonstrate knowledge and understanding in this strand 	<ul style="list-style-type: none"> 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. Talk about digital devices 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	<p><u>Understanding the World – Recognise a range of technology</u></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.)