Computing

Curriculum Progression Map

Level expected at the end of EYFS – Although there is no statutory ELG for technology, we are using Birth to 5 Matters non-statutory guidance for the EYFS.

Understanding the world (Technology)	**Personal, Social and Emotional Development (Self-Regulation)**
Children require access to a range of technologies, both digital and non-digital in their early lives. Exploring with different technologies through play provides opportunities to develop skills that children will go on to develop in their lifetimes. Investigations, scientific inquiry and exploration are essential components of learning about and with technology both digitally and in the natural world. Through technology children have additional opportunities to learn across all areas in both formal and informal ways. Technologies should be seen as tools to learn both from and with, in order to integrate technology effectively within early years' practice.	Shows an understanding of their own feelings and those of others and begin to regulate their behaviour accordingly.

Key Stage 1 National Curriculum Expectations	**Key Stage 2 National Curriculum Expectations**
Pupils should be taught to: • 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.	Pupils should be taught to: •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.

Intent

At our school we want pupils to be masters of technology. Technology is everywhere and will have a pivotal role in our children's lives. Therefore, we want to model and educate our pupils on how to use technology positively, effectively, responsibly and safely. We want to provide our children with a broad and engaging curriculum that encompasses computer science, information technology and digital literacy. We also recognise that the best prevention for some of the issues that we currently see with technology/social media is through education.

We aim to achieve a balance between providing a knowledge rich curriculum along with plenty of opportunity for pupils to apply their knowledge creatively so that we help children begin their journey to becoming skilful computer scientists. We encourage staff to try to embed computing skills across the whole curriculum to make learning creative and accessible.

Implementation

We have created a comprehensive progressions document for staff to follow to best embed and cover every element of the computing curriculum for key stage one children. The knowledge/skills statements build year on year to deepen and challenge our learners. We have broken our computing curriculum into the three strands of Information Technology, Computer Science and Digital Literacy. Children in years 1 and 2 have two computing lessons every three weeks, but we also embed computing skills across the curriculum.

Information Technology:

- Word Processing/Typing
- Data Handling
- eBooks and Presentations
- Animation
- Photography and Video

Computer Science:

- Computational Thinking
- Coding and Programing

Digital Literacy and E-Safety: (We also refer to Education for a Connected World Objectives for EYFS and KS1)

Impact

We want our children to enjoy the curriculum we deliver and be able to use technology effectively, confidently and safely. We want our pupils to consider the WHY behind their learning and not just the HOW. We want learners to recognise, discuss and appreciate the impact computing can have on their learning, development and life. Finding the right balance with technology is key to an effective education and a healthy life-style and we hope to provide children with the first early steps that they can then continue to build on in their next stage of education and beyond. We want children to be able to demonstrate their knowledge and skills by showcasing, sharing and celebrating their work.

Knowledge / Skills to be covered

Information Technology:

	Year Group	NC Objectives	Skills / Knowledge
Word Processing / Typing	EYFS	**RANGE 5** Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets **RANGE 6** Completes a simple program on electronic devices Uses ICT hardware to interact with age appropriate computer software	Children can: • play on a touch screen game and use computers / keyboards / mouse • type letters to write names and labels with increasing confidence • dictate short, clear sentences into a digital device (e.g. a talking tin).

		Can create content such as a video recording, stories, and/or draw a picture on screen	
	Year 1 Summer 2 'Young Investigators'	IT1 - Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Children can: • use the keyboard – spacebar, backspace, shift (for capital letters – not caps lock) and return to enter text • be creative with different technology tools to create a postcard
	Year 2 Autumn 2 'We Are Publishers'	IT3 – 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.	Children can: • word process text for an eBook • use shift to add in capital letters • use different font colours • begin to make changes to font size, type and alignment
	Summer 2 'You've Got Mail'	IT1 - Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• use appropriate keys to word process text • explain the purpose of emails/emailing • understand how emails are sent • use email to communicate with other people (Children use Purple Mash '2Mail')

Data Handling	EYFS	**RANGE 5** Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets **RANGE 6** Can create content such as a video recording, stories, and/or draw a picture on screen	Children can: • identify a chart (e.g. tally chart and pictogram) • sort physical objects, take a picture and discuss what they have done
	Year 1 Spring 1 'Let's Count Aliens!'	IT1 - Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Children can: • look at data and understand what data is • collect data on a topic • create a tally chart, pictogram and block graph • input data to create a pictogram • interpret data • begin to select the most appropriate method to display data they have captured (in a graphical format) (Taught through Purple Mash '2Count'', 2Investigate and cross-curricular work)
	Year 2		Children can: • sort digital objects into a range of charts such as Venn diagrams, Carroll diagrams and bar charts using different apps and software

			• interpret and analyse what the data shows them (cross-curricular learning)
eBooks and Presentations	EYFS	**RANGE 5** Knows that information can be retrieved from digital devices and the internet **RANGE 6** Develops digital literacy skills by being able to access, understand and interact with a range of technologies Can use the internet with adult supervision to find and retrieve information of interest to them.	Children can: • use and navigate through online reading books (e.g. ORT books / Bug Club) • use books and online resources to search for information
	Year 1 Autumn 2 'We Are All Connected'	IT 1 - Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Children can: • order images to create a simple storyboard (cross-curricular) • sequence a series of pictures to explain their understanding of a topic (cross-curricular) • understand what an eBook is • produce a simple eBook or presentation incorporating key terminology from their sessions
	Year 2 Autumn 2 'We Are	IT3 – Select, use and combine a variety of software (including internet services) on a range of digital devices to design and	Children can: • create an eBook to retell a story • include illustrations that they create themselves (using

	Publishers'	create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	2PublishXtra) • save and reload files • amend their saved file and talk about the changes they made • use a range of paint tools • word process text and use shift to add in capital letters • use different font colours (Children use Purple Mash 2PublishXtra and Purple Mash 2Create a story)
Animation	EYFS	**RANGE 6** Can create content such as a video recording, stories, and/or draw a picture on screen	Children can: • use technology to create a video recording or make a telephone call
	Year 1		Children can: • draw their own pictures for story animation (cross-curricular learning)
	Year 2 Autumn 1 'Let's Animate'	IT1 : Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Children can: • talk about the history of and different types of animation • produce a flip book to demonstrate how animation works • use software to create an electronic version of a flip book • make a simple animation which has a background and sound and that can playback to make it move • save and retrieve their work independently.

			(Children use Purple Mash '2Animate' and Purple Mash '2Create')
Photography and Video	EYFS	**RANGE 5** Knows how to operate simple equipment, e.g. turns on CD player, uses a remote control, can navigate touch-capable technology with support **RANGE 6** Can create content such as a video recording, stories, and/or draw a picture on screen	Children can: • use a camera and iPad to take photographs • create a video recording
	Year 1 Summer 1 'Photo Mission – Our School'	IT1 - Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Children can: • understand the main functions and buttons of a digital camera • take photos confidently using a digital camera and/or iPad • (with support) download photos, select their image and insert into 2PublishXtra to create pages of a book • add captions to photos • become more familiar with the correct use of a keyboard – using spacebar, backspace, shift (for capital letters – not caps lock) and return • (with support) save and print their work
	Year 2		Children can: • take and edit a photo • take videos using iPads

			• begin to use green screen techniques with support (cross-curricular learning)

Computer Science:

	Year Group	NC Objectives	Skills / Knowledge
Computational Thinking: **Algorithms**	EYFS	Mathematics (Pattern) **Range 5** Creates their own spatial patterns showing some organisation or regularity Explores and adds to simple linear patterns of two or three repeating items, e.g. stick, leaf (AB) or stick, leaf, stone (ABC) **Range 6** Chooses familiar objects to create and recreate repeating patterns beyond AB patterns and begins to identify the unit of repeat	Children can: • follow simple oral algorithms • spot simple patterns • sequence simple familiar tasks
	Year 1 Autumn 1 'Crazy Pirates'	CS1 - Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and	Children can: • give and follow instructions using directional language and numerical units to move around • understand that instructions ned to be given in a correct order

		unambiguous instructions. CS2 - Create and debug simple programs. CS3 - Use logical reasoning to predict the behaviour of simple programs.	• use a bee-bot and describe how to make a bee-bot do what they want • begin to use the word algorithm • begin to predict what will happen for a short sequence of instructions • begin to use software/apps to create movement and patterns on screen. • Use a computer or tablet device to program a character through a series of challenges. (Children use bee-bots)
	Year 2 Spring 1 'Big Robots'	CS4 – Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. CS5 – Use sequence, selection and repetition in programs; work with variables and various forms of input and output. CS6 – Use logical reasoning to explain how some simple algorithms work and to detect	Children can: • use a probot and describe what happens when they press different buttons • press buttons in the correct order to make a probot do what they want • develop their understanding of directional language and programming • understand and explain the meaning of the word algorithm and the importance of order and accuracy • predict what will happen for a short sequence of instructions • use software to create movement and patterns on a screen using a short sequence with minimal support • write their own algorithm • begin to understand that decomposition is breaking objects/processes down and solve problems by decomposing them

	Spring 2 'Codetastic'	and correct errors in algorithms and programs. CS1 - Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. CS2 - Create and debug simple programs. CS3 - Use logical reasoning to predict the behaviour of simple programs.	into smaller parts • begin to use sequence, selection, and repetition in programs (Children use probots/floor robots and Purple Mash 2Go and 2Logo) • use a variety of programming software to develop their understanding of how computer programs run, how a computer follows a sequence of instructions and what to do when a program goes wrong • use clear instructions to make an object move in different ways on screen • understand that the instructions need to be in order • explain what debug/debugging means • explain how to debug a program if it will not work properly • predict what the objects in programs will do based on their knowledge of the objects' limitations. (Children use Purple Mash 'Free Code')
Coding and Programming	EYFS	**Range 5** Knows how to operate simple equipment, e.g. turns on CD player, uses a remote control, can navigate touch-capable technology with support **Range 6** Completes a simple program on	Children can: • use a mouse, touch screen or appropriate device to target and select options on screen • input a simple sequence of commands to control a digital device with support (e.g. a Bee Bot).

		electronic devices Uses ICT hardware to interact with age appropriate computer software Can create content such as a video recording, stories, and/or draw a picture on screen Develops digital literacy skills by being able to access, understand and interact with a range of technologies Can use the internet with adult supervision to find and retrieve information of interest to them	
	Year 1 Spring 2 'Castle Attack'	CS1 - Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. CS2 - Create and debug simple programs.	Children can: • understand and explain the importance of sequencing • become more familiar with the word 'algorithm' • use a simple coding computer program • (with some support) use clear instructions to make an object move and stop on screen • understand that the instructions need to be in order to work properly (Children use Purple Mash '2Code') Other possibilities - Scratch Jnr, Kodable
	Year 2	CS1 - Understand what	Children can:

		algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. CS2 - Create and debug simple programs. CS3 - Use logical reasoning to predict the behaviour of simple programs.	• understand that programs execute by following precise and unambiguous instructions • create programs on a variety of digital devices • debug programs of increasing complexity • use logical reasoning to predict the outcome of simple programs

Digital Literacy:

	Year Group	NC Objectives	Skills / Knowledge
	EYFS	**Range 5** Knows that information can be retrieved from digital devices and the internet **Range 6** Can use the internet with adult supervision to find and retrieve information of interest to them	Children can: • recognise some ways in which the internet can be used to communicate • understand that they should talk to a trusted adult if they feel upset, worried or unsafe.
	Year 1 Autumn 2	DL1 – Recognise common uses of information technology beyond	Children can: Autumn 1: 'We are all connected'

	'We are all connected' Summer 1 'Photo Mission – Our School' Summer 2 'Young Investigators'	school DL2 – 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 (Digital Citizenship & Technology 1.3)	• begin to understand how the web works and know that we are all connected and contactable via access to the Internet. • develop a better understanding of the Internet by using a selection of different websites • use a search engine on the internet to view different sites and find information • navigate around websites using links, forward, back and Home buttons • understand that the internet holds information on web pages and that there is a need for an awareness of safety when using the internet Summer 1: 'Photo Mission – Our School' • take photos • use photos appropriately and safely Summer 2: 'Young Investigators' • use several links to websites to find information / don internet searches in relation to a specific topic • understand the importance of telling an adult if/when they see something unexpected or worrying online. • recognise what an age appropriate website is • follow sensible e-Safety rules

	Year 2 Autumn 1 'Let's Animate!' Autumn 2 'We Are Publishers' Summer 1 'Super Gamer' Summer 2 'You've Got Mail'	DL2 – 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 DL1 – Recognise common uses of information technology beyond school (Digital Citizenship & Technology 1.3, 1.4 and 1.5)	Children can: • speak about stranger danger • explain why they should not enter their personal information into the computer • create an eBook to retell a story • create digital graphics and export them safely to use in a game that they create using advanced settings • understand the purpose and benefits of emails • use email to communicate with other people • explain why they need to keep personal information private • describe the things that could happen online that they must tell an adult about

Digital Literacy and E-Safety (linked to 'Education For a Connected World' Objectives)

	Year Group	NC Objectives	Skills / Knowledge
Self-Image and Identity	EYFS	Personal, Social and Emotional Development (Self-Regulation) Shows an understanding of their own feelings and those of others and begin to regulate their behaviour accordingly	Children can: • understand that they should talk to a trusted adult if they feel unsafe • click on the dolphin on the computer if they are worried about something
	Year 1	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 material on the internet or other online technologies.	Children can: • recognise that there may be people online who could make them feel sad, embarrassed or upset • give examples of what they should do if something happens that makes them feel sad, worried, uncomfortable or frightened
	Year 2		Children can: • explain how other people's identity online can be different to their identity in real life • describe ways in which people might make themselves look different online • give examples of issues online that might make them feel sad, worried, uncomfortable or frightened and give examples of how they might get help

Online Relationships	EYFS	**Range 5** Knows that information can be retrieved from digital devices and the internet **Range 6** Can use the internet with adult supervision to find and retrieve information of interest to them	Children can: • recognise some ways in which the internet can be used to communicate • give examples of how they could use technology to communicate with people they know
	Year 1	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 material on the internet or other online technologies.	Children can: • use the internet with adult support to communicate with people they know • explain why it is important to be considerate and kind to people online
	Year 2		Children can: • use the internet to communicate with people • give examples of how they might use technology to communicate with others they don't know well
Online Bullying **(Links with PSHE)**	EYFS	Personal, Social and Emotional Development (Self-Regulation) Shows an understanding of their own feelings and those of others and begin to regulate their behaviour accordingly	Children can: • identify if someone is being "cold and prickly". • explain what they can do if someone is being unkind
	Year 1	Recognise common uses of	Children can:

		information technology beyond school	• describe how to behave online in ways that do not upset others and can give examples
	Year 2	Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about material on the internet or other online technologies.	Children can: • give examples of bullying behaviour and what that could look like online • understand how bullying can make someone feel • talk about how someone could get help if they were being bullied online or offline
Managing Online Information	EYFS	**RANGE 5** Knows that information can be retrieved from digital devices and the internet **RANGE 6** Develops digital literacy skills by being able to access, understand and interact with a range of technologies Can use the internet with adult supervision to find and retrieve information of interest to them	Children can: • talk about how they can use the internet to find things out • identify devices they could use to access information on the internet • give simple examples of how to find information (e.g. search engines)
	Year 1	Recognise common uses of information technology beyond school Use technology safely and respectfully, keeping personal	Children can: • use the internet to find things out • use simple keywords in search engines • describe and demonstrate how to get help from a trusted adult if they find content that makes them feel sad, uncomfortable, worried

		information private; identify where to go for help and support when they have concerns about material on the internet or other online technologies.	or frightened
	Year 2		Children can: • use keywords in search engines • demonstrate how to navigate a simple webpage to get to information they need (e.g. home, forward, back buttons; links, tabs and sections) • use a website to send emails and reply to messages and attach documents to their emails (Purple Mash '2Mail') • explain what voice activated searching is and how it might be used (e.g. Alexa, Google Now, Siri) • explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real' • explain why some information they find online may not be true
Health, Well-being and Lifestyle	EYFS		Children can: • identify rules that help keep us safe and healthy in and beyond the home when using technology • give some simple examples
	Year 1	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	Children can: • explain rules to keep themselves safe when they are using technology both in and beyond the home • give example of some of these rules
	Year 2		Children can: • explain simple guidance for using technology in different

		material on the internet or other online technologies.	environments and settings • say how those rules/guides can help them
Privacy and Security	EYFS		Children can: • identify some simple examples of personal information (e.g. name, address, birthday, age, location) • describe the people they can trust and can share this information with
	Year 1 and Year 2	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 material on the internet or other online technologies.	Children can: • recognise more detailed examples of information that is personal to them (e.g. where they live, their family's names, where they go to school) • explain why they should always ask a trusted adult before they share any information about themselves online • explain how passwords can be used to protect information and devices
Copyright and Ownership	EYFS	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	Children can: • name their work so that others know it belongs to them

	Year 1	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 material on the internet or other online technologies.	Children can: • save their work so that others know it belongs to them (e.g. filename, name on content)
	Year 2	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 material on the internet or other online technologies.	Children can: • describe why other people's work belongs to them • recognise that content on the internet may belong to other people

	Year R		Year 1		Year 2	
	Topic	**NC link & Skills**	**Topic**	**NC link & Skills**	**Topic**	**NC link & Skills**
Autumn 1	Getting to know You	The different strands of Information Technology, Computer Science and Digital Literacy are embedded throughout the EYFS curriculum and the continuous provision.	Pirates 'Crazy Pirates'	Computer Science Computational Thinking: Algorithms	Rainforests 'Let's Animate'	Information Technology Animation E-Safety
Autumn 2	Autumn Looking At The Past Christmas		Around the World 'We are all connected'	Digital Literacy / E-Safety Information Technology eBooks/Presentations	Poles Apart 'We are publishers'	Information Technology eBooks/Presentations
Spring 1	Winter People Who Help Us		Space 'Let's Count Aliens'	Information Technology Data Handling	The Great Fire 'Big Robots'	Computer Science Computational Thinking: Algorithms
Spring 2	Traditional Tales Spring Easter		Farms 'Castle Attack'	Computer Science Coding/Programming Digital Literacy	It's Good To Be Me! 'Codetastic'	Computer Science Computational Thinking: Algorithms - create and debug
Summer 1	The Lost World		Castles 'Photo Mission - Our School'	Information Technology Photography / Video	Marvellous Machines 'Super Gamer'	Digital Literacy E-Safety Gaming
Summer 2	Mighty Minibeasts		Journeys with Julia Donaldson 'Young Investigators'	Digital Literacy E-safety Information Technology Word Processing	Summer Fun 'You've Got Mail'	Information Technology Word Processing Digital Literacy E-safety