

**Computing
learning experience at Merry Hill**

Our Vision (Intent)

At Merry Hill we recognise that computing is a significant part of our daily lives and therefore it is our intention to provide a strong foundation of the knowledge and understanding needed to equip all children with the capability to actively and safely use technology in our rapidly changing digital world.

We believe it is essential to develop and secure a good knowledge and understanding of the subject as well as the skills required for computational thinking. We retain prior learning and build on knowledge and understanding through a carefully sequenced curriculum. By making links to previous learning we seek to create meaningful connections within computing. This along with overlearning opportunities will allow children to apply what they have learnt to a range of real life situations.

E-safety is at the heart of our teaching not just in Computing but across the curriculum. All adults, supported by our Digital Leaders Council, work continually to raise the profile of Computing and E-safety across the school. This allows our children to become responsible, respectful and competent users of technology, whilst being able to minimise risk to themselves or others. Where risks cannot be avoided we aim to provide children with the ability and confidence to approach situations, such as unwanted messages and pop ups, and ensure they know who they can go to for help.

We believe that technology can provide enhanced collaborative learning opportunities, better engagement of pupils, easier access to rich content and support conceptual understanding of new concepts. We aim to use technology imaginatively and creatively to enhance learning, supporting those with SEN as well extending the more able, and to inspire and engage all pupils throughout the whole curriculum.

Our goal is for all pupils to leave Merry Hill as confident, creative and independent users of technology.

How we plan and teach Computing (Implementation)

Computing is taught throughout the year and focuses on the knowledge and skills within the Statutory Framework for the Early Years Foundation Stage, Development Matters (Non-statutory framework for the Early Years Foundation stage) and the National Curriculum whilst also building on the interests of our children.

Each year group has a long term plan to map out when each topic will be taught and the areas of the curriculum that will be covered in each half term. Teachers then use the long term plans together with their knowledge of the children's current attainment and interests to plan each unit in more detail. Knowledge organisers are used in each classroom to highlight the knowledge they are learning and the topic specific vocabulary. We make use of high quality resources such as Purple and Mini Mash, Tapestry, Seesaw and Childnet.com to support children, teachers and parents. Assessments are used to inform future planning to ensure work is suitably pitched to support and extend.

In the Early Years, Computing is taught throughout the curriculum. Children start to gain the computational knowledge and thinking skills that they'll build on throughout their education and into their adult lives. Through continuous provision children are given opportunities to explore a range of technological equipment and begin to understand their purposes. Children are also introduced to the importance of online safety. In the EYFS children's interests lead the curriculum and enhancements to continuous provision are added as they arise.

In Key Stage 1 Computing is taught as discrete units and lessons. We have chosen to adopt the Purple Mash Computing Scheme of Work as a basis for our computing lessons. The scheme of work supports our teachers in delivering fun and engaging lessons and allows all pupils, including those with SEN and the higher achieving children, to reach their full potential. The scheme allows good flexibility, allowing us to build on the interests of our children and provide strong cross curricular links facilitating the development of good curriculum connections. As well as discrete computing sessions in Key Stage 1, teachers provide opportunities for children to use technology throughout the curriculum to enhance learning, e.g. when making a weather report in Geography and designing and making cars in Design and Technology.

Online safety has a high profile at Merry Hill and we continually ensure this profile is maintained in numerous ways. Every year we celebrate National Online Safety Day and the Digital Leaders Council, made up of Year 1 and 2 children, work hard to educate others on the importance of E-safety throughout the year. Online safety information is repeatedly disseminated and discussed during staff briefings and is threaded throughout the curriculum and embedded in the day to day lives of our pupils. Termly e-safety updates are shared with families and our website has further information and suggested activities for children to support e-safety at home.

Opportunities include:

- Use of technology across the curriculum
- Group work
- Outdoor learning
- Continuous provision
- Outside visitors
- Parental body involvement
- Safer Internet Day

- Digital leaders council
- Tapestry and Seesaw

Intended Impact on...

Pupil Voice

Children understand and can explain how to keep themselves safe online and when using technology. They are retaining and correctly applying subject specific vocabulary. Children can articulate how their prior learning has helped them within that lesson and can talk about how they may use this learning in the future.

Evidence in Knowledge and Understanding

Pupils have a secure understanding of the different areas of computing. Each term and year their knowledge and understanding is built upon and links to real life are made.

Application

Children successfully apply the knowledge and understanding they have gained within their Computing lessons and across the curriculum.

Outcomes

At the end of each year we expect the children to achieve at least ARE for their year group. Some children will progress further and achieve greater depth. Children who have gaps in their knowledge receive appropriate support and interventions to enable them to keep up with our curriculum. Children will be well prepared for their next phase of learning.

An overview of our Merry Hill topics						
Units of Study	Autumn Term Time Travellers		Spring Term Dig a Little Deeper		Summer Term Summer Fun	
EYFS	<i>Nursery and Reception continue to explore Understanding the World Skills throughout the year</i>					
Nursery						
Reception	Journeys / Space		Recording Change over Time		Places / Maps	
Year One	Online Safety	Pictograms	Technology outside school	Animated stories	Spreadsheets	Coding
	Grouping and Sorting	Lego Builders	Maze Explorers		Coding	
Year Two	Creating Pictures	Online Safety	Spreadsheets	Questioning-Pictograms and tree diagrams	Making Music	Coding
		Effective searching	Questioning-Pictograms and tree diagrams	Presenting Ideas-fact files	Coding	
Continuous Provision	Technology is used to enhance learning across the curriculum. QR codes displayed in classes and in reading areas					
Extra-curricular Activities	Online Safety day					

	Progression of knowledge and understanding		
	EYFS	Year 1	Year 2
Digital Literacy, including Online Safety	<p>Birth to 5 – Technology</p> <p>Range 5</p> <ul style="list-style-type: none"> Knows that information can be retrieved from digital devices and the internet <p>Range 6</p> <ul style="list-style-type: none"> Develop digital literacy skills by being able to access, understand and interact with a range of technologies Use the internet with adult supervision to find and retrieve information of interest to them Know who to tell if something they see makes them worried or uncomfortable Understand they should ask permission when capturing an image or recording a sound of others. Take sensible pictures 	<ul style="list-style-type: none"> Understand what is meant by technology and identify a variety of examples both in and out of school Know how to log in safely Start to understand the idea of 'ownership' of their creative work Create their own avatar and understand why they are used Add pictures and text, including their name to work Save work into the My Work folder in Purple Mash and on to Seesaw and understand that this is a private saving space just for their work Know how to find their saved work on Purple Mash and Seesaw Search Purple Mash to find resources Know and use common icons on Purple Mash and Seesaw e.g. save, print, open, new, undo Understand why it is important to log out when finished. 	<ul style="list-style-type: none"> Know how to refine searches using the search tool on Purple Mash With adult support, search for answers to questions on the internet Begin to understand how things can be shared electronically for others to see on school based programs and the Internet Know how to share work electronically - using the display boards on Purple Mash and the journal feed on Seesaw Understand what an e-mail is used for – know how we talk to others when they are not there in front of us Send and receive e-mails on Purple Mash Understand why the teacher approves work before it is displayed Know what a digital footprint is and identify things they would and would not want to be in their digital footprint Know the steps that can be taken to keep personal data and hardware secure Recall the meaning of key internet terms Use Purple Mash and Seesaw to communicate and connect with others
Coding and computational thinking	<p>Birth to 5 – Technology</p> <p>Range 5</p> <ul style="list-style-type: none"> Know how to operate simple equipment e.g. turn on CD player, uses a remote control, can navigate touch-capable technology with support Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets 	<ul style="list-style-type: none"> Understand that an algorithm is a set of instructions used to solve a problem or achieve an objective Know that an algorithm written for a computer is called a program Explain what a block of code is. Use this knowledge to write their own simple algorithm - make a character move when clicked, use collision detection to make objects interact, program a sound to play Understand the importance of sequence and work out what is wrong with a simple 	<ul style="list-style-type: none"> Explain that an algorithm is a set of instructions to complete a task Explain that for the computer to make something happen, it needs to follow clear, precise instructions Use this knowledge to <i>create</i> a simple algorithm that achieves a purpose Use repeat and timer commands in own algorithms Explain what debugging means Identify and correct some errors in simple programs – debugging

	<ul style="list-style-type: none"> Show skill in making things work by pressing parts or lifting flaps to achieve effects such as sound, movement or new images Play with a range of materials to learn cause and effect, for example, makes a string puppet using dowels and strings to suspend the puppet <p>Range 6</p> <ul style="list-style-type: none"> Completes a simple program on electronic devices Uses ICT hardware to interact with age appropriate computer software Develops digital literacy skills by being able to access, understand and interact with a range of technologies Know that technology can make things happen and to coordinate actions accordingly e.g. click on icon, touch screen and use a mouse Select and use technology for a particular purpose 	<p>algorithm when the steps are out of order and then debug</p> <ul style="list-style-type: none"> Know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code Read code one line at a time and make a good attempt to envision the bigger picture of the overall effect of the program 	<ul style="list-style-type: none"> Be aware of the need for logical, programmable steps Identify and use cause and effect events e.g. collision detection on Purple Mash
<p>Collecting and Presenting Data</p>	<p>Birth to 5 – Technology</p> <p>Range 5</p> <ul style="list-style-type: none"> Knows how to create content such as a video recording, stories, and/or draw a picture on screen Know that technology can be used to find out about things Know that information can be saved onto and retrieved from computers Explore simple programs where they can input data in a range of ways Select and use technology for particular purposes Know that technology can be used to communicate with others. 	<ul style="list-style-type: none"> Contribute to the collection of class data and know how to show the results in a pictogram Understand what a pictogram shows Collect own data and represent the results as a pictogram Navigate around a spreadsheet and explain what rows and columns are Know how to enter data onto a spreadsheet Know how to add pictures to a spreadsheet Move data on a spreadsheet using the ‘move cell’ tool Understand how to use the lock tool on a spreadsheet to prevent changed to cells Add and use the count and speak tools Use a spreadsheet to help work out a fair way to share items Sort, collate, edit and store digital content 	<ul style="list-style-type: none"> Understand that the information on pictograms cannot be used to answer more complicated questions Organise information on a database and use it to retrieve specific data Use a range of yes/no questions to separate different items Understand what is meant by a binary tree Understand that questions are limited to ‘yes’ and ‘no’ in a binary tree Design a binary tree to sort given pictures Use a database to answer simple and more complex search questions Navigate around a spreadsheet and explain what rows and columns are. Create a table of data on a spreadsheet Add images to a spreadsheet and allocate them a value

		<ul style="list-style-type: none"> • Identify similarities and differences in a traditional tale presented as a mind map, quiz, e-book and fact file. • Make a quiz about a story • Understand how to edit and improve their work based on feedback received • Create a fact file on a given non-fiction topic, include clipart and photos • Know how to use drawing tools to create a picture • Add text and change the colour, font and size of the text • Add an animation, sound and voice recording to a picture • Create own music and add it to a picture • Add a background to a picture • Enhance the features of a story book by adding additional pages and animations 	<ul style="list-style-type: none"> • Use copy and paste to help make a spreadsheet • Use tools in a spreadsheet to automatically total rows and columns • Use a spreadsheet to solve a mathematical puzzle • Use the data on a spreadsheet to create a block graph • Create own art work based upon different styles – impressionist, pointillism • Create a picture using a repeating patterns in a variety of ways – William Morris • Combine more than one effect when creating a picture to enhance a pattern • Use the e-Collage function in 2Paint a Picture to create own surrealist art using drawing and clipart
--	--	---	---

Autumn Term: Time Travellers				
Progression of knowledge and understanding within this topic				
	Nursery	Reception	Year 1	Year 2
Digital Literacy, including Online Safety		<ul style="list-style-type: none"> • Know how to map a journey • Identify places of interest on a map • Know how to give instructions to a Beebot • Understand how to find and retrieve information, e.g. on Google Earth, and use the internet with adult supervision • Know the difference between an E-book and a physical book 	<ul style="list-style-type: none"> • Know how to log in safely • Know how to find saved work in the Online Work area and find teacher comments • Know how to search Purple Mash to find resources • Become familiar with the icons and types of resources available in the Topics section • Begin to add pictures and text to work • Explore the Tools and Games section of Purple Mash • Know how to open, save and print • Understand the importance of logging out 	<ul style="list-style-type: none"> • Know how to refine searches using the Search tool • Understand how to use digital technology to share work on Purple Mash to communicate and connect with others locally • Have some knowledge and understanding about sharing more globally on the Internet • Begin to understand Email as a communication tool using 2Respond simulations • Understand how we should talk to others in an online situation • Open and send simple online communications in the form of email • Understand that information put online leaves a digital footprint or trail • Know the steps that can be taken to keep personal data and hardware secure • Understand the terminology associated with searching • Know how to use a search engine on the Internet
Coding and computational thinking		<ul style="list-style-type: none"> • Know how to operate simple equipment e.g. turn on CD player, use a remote control, navigate touch-capable technology with support 	<ul style="list-style-type: none"> • Compare the effects of adhering strictly to instructions to completing tasks without complete instructions • Follow and create simple instructions on the computer • Understand how the order of instructions affects the result 	

Collecting and Presenting Data		<ul style="list-style-type: none"> • Understand that technology can be used for particular purposes, e.g. thermometers, timers 	<ul style="list-style-type: none"> • Sort items using a range of criteria • Sort items on the computer using the 'Grouping' activities in Purple Mash • Understand that data can be represented in picture format • Contribute to a class pictogram • Use a pictogram to record the results of an experiment 	<ul style="list-style-type: none"> • Know the functions of the 2Paint a Picture tools • Learn about and recreate the Impressionist style of art (Monet, Degas, Renoir) • Learn about pointillism and the work of artist such as Seurat, then use this knowledge to recreate Pointillist art • Learn about the work of Piet Mondrian and recreate the style using the lines template • Learn about the work of William Morris and recreate the style using the patterns template • Explore surrealism and eCollage
Key Vocabulary		Internet, eBook, temperature, on, off, power, touchscreen, timer, arrow, clear memory, forward, turn, backward, go, instruction	log in, username, password, log out, my work, notification, avatar, topics, tools, save, sort, criteria, pictogram, data, collate, instruction, algorithm, computer, program, debug	impressionism, palette, pointillism, surrealism, share, template, search, display board, internet, sharing, e-mail, attachment, digital footprint, search engine

Spring Term: Dig a Little Deeper				
Progression of knowledge and understanding within this topic				
	Nursery	Reception	Year 1	Year 2
Digital Literacy, including Online Safety		<ul style="list-style-type: none"> Know how to access and interact with a range of technologies, e.g. CD player, camera, programmable toys 	<ul style="list-style-type: none"> Understand what is meant by 'technology' Identify examples of technology in school and in the local community Know how to save additional changes and overwrite a file 	
Coding and computational thinking		<ul style="list-style-type: none"> In role play use technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets 	<ul style="list-style-type: none"> Understand the functionality of the direction keys and use these as part of an algorithm. Understand how to create and debug a set of instructions (algorithm) Understand how to change and extend the algorithm list Create a longer algorithm for an activity Know how to set challenges for peers and access peer challenges set by the teacher as 2Dos 	
Collecting and Presenting Data		<ul style="list-style-type: none"> Know that technology can be used to communicate with others. Know how to take photos and videos with support. 	Know how to: <ul style="list-style-type: none"> Use 2Create a Story Add animation to a story Add sound to a story, including voice recording and music the children have composed Add backgrounds and copy and paste pages Share eBooks on a class display board 	Know and understand how to: <ul style="list-style-type: none"> Use 2Calculate image, lock, move cell, speak and count tools to make a counting machine Copy and paste in 2Calculate Use the totalling tools. Use a spreadsheet for money calculations Use the 2Calculate equals tool to check calculations Use 2Calculate to collect data and produce a graph Use yes/no questions to separate information

				<ul style="list-style-type: none"> • Construct a binary tree to identify items • Use 2Question (a binary tree database) to answer questions • Use a database to answer more complex search questions • Use the Search tool to find information • Present a story in different ways • Make a quiz about a story or class topic • Make a fact file on a non-fiction topic • Present information to the class • Learn about data handling tools that can give more information than pictograms
Key Vocabulary		technology, photo, video, device, Internet, eBook, temperature, on, off, power, touchscreen, timer, arrow, clear memory, forward, turn, backward, go,	direction, challenge, arrow, undo, rewind, forward, backward, right turn, left turn, debug, instruction, algorithm, animation, e-book, font, file, sound effect, display board, technology	pictogram, question, data, collate, binary tree, avatar, database, backspace key, copy and paste, columns, cells, count tool, delete key, equals tool, image toolbox, lock tool, move cell tool, rows, speak tool, spreadsheet, mind map, quiz, presentation, node, animated, non-fiction, narrative, audience

Summer Term: Summer Fun				
Progression of knowledge and understanding within this topic				
	Nursery	Reception	Year 1	Year 2
Digital Literacy, including Online Safety		<ul style="list-style-type: none"> Understand they should ask permission when capturing an image or recording a sound of others Take sensible pictures 		
Coding and computational thinking		<ul style="list-style-type: none"> Know that technology can make things happen and to coordinate actions accordingly e.g. click on icon, touch screen Select and use technology for a particular purpose 	<ul style="list-style-type: none"> Understand what instructions are and predict what might happen when they are followed Know how to use code to make a computer program Understand what object and actions are Understand what an event is and use an event to control an object Begin to understand how code executes when a program is run Understand what backgrounds and objects are Use this knowledge to plan and make a computer program 	<ul style="list-style-type: none"> Understand what an algorithm is and use this knowledge to create a computer program using an algorithm Create a program using a given design Understand the collision detection event Understand that algorithms follow a sequence Design an algorithm that follows a timed sequence Understand that different objects have different properties Understand what different events do in code. Understand the function of buttons in a program Understand and debug simple programs
Collecting and Presenting Data		<ul style="list-style-type: none"> Know that technology can be used to find out about things Know that information can be saved onto and retrieved from computers 	<ul style="list-style-type: none"> Know what a spreadsheet program looks like Know how to enter data into spreadsheet cells Know how to use 2Calculate image tools to add clipart to cells Know how to use 2Calculate control tools: lock, move cell, speak and count. 	<ul style="list-style-type: none"> Make music digitally using 2Sequence Explore, edit and combine sounds using 2Sequence Edit and refine composed music Think about how music can be used to express feelings and create tunes which depict feelings

				<ul style="list-style-type: none"> • Upload a sound from a bank of sounds into the Sounds section • Record and upload environmental sounds into Purple Mash • Use these sounds to create tunes in 2Sequence
Key Vocabulary		technology, photo, video, device, Internet, eBook, temperature, on, off, power, touchscreen, timer, arrow, clear memory, forward, turn, backward, go, save	action, algorithm, background, code, command, debug/ debugging, event, execute, input, instructions, object, properties, output, run, scale, sound, scene, when clicked, arrow keys, backspace key, cursor, columns, cell, clipart, count tool, delete key, image toolbox, lock tool, move cell tool, tools, speak tool, spreadsheet	BPM, composition, digitally, instrument, music, sound effects, soundtrack, tempo, volume, action, algorithm, background, button, collision detection, debug/ debugging, design mode, event, key pressed, nesting, object, predict, properties, run, scale, scene, sound, when clicked/ swiped, test, text, timer