Merrydale Infants Primary School

Progression Map and Long-Term Plan – Computing

Merrydale Infants - Computing Long-Term Plan

Intent	A high-quality computing education allows pupils to use computational thinking and creativity to understand and make a difference in the world. Computing has vast links with mathematics, science, design, and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to apply this knowledge through programming. Building on this knowledge and understanding, pupils are equipped to apply information technology to create programs, systems, and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through information and communication technology – at a level suitable to be active participants in a vastly growing digital world. At Merrydale Infant School, we aim to prepare learners for their future by providing them with high-quality computing lessons that will teach them the knowledge and Procedural Knowledge they will need to equip them in later life. We understand that our children are living in a world surrounded by devices and technology and they need to be taught how to thrive as digital citizens. We want to ensure children become confident and competent at using a range of technology positively, responsibly, and safely. We ensure at our school that Online Safety is at the forefront of everything we do. We provide e-safety lessons throughout school so that children can use technology responsibly and safely in school and at home. Our children are taught what to do if they are concerned or worried about anything they see on their devices and where they can go to get help or support.
Implementation	In the Early Years, ICT is taught to enable our children to gain a greater understanding of the world by recognizing that a range of technology is used in their homes and at school. In each Early Years classroom, there are computing resources available at all times as part of continuous provision. Chrome books and other digital technologies are available for teachers to deliver aspects of the early year's curriculum. The children will learn how to operate simple equipment. They will have opportunities to experiment and explore using technology, including the use of real equipment such as ipads, programmable toys, and

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	microphones. The children will explore how things work and how things happen. Children in the Early Years will use a range of age-appropriate computer software and learn how to complete simple computer programs. In KS1 we follow the national curriculum guidance. The computing curriculum builds upon children's prior knowledge and Procedural Knowledge. We recognize that ICT can be taught both discreetly and taught to enhance or provide extra learning opportunities in other areas of the curriculum. Our children have regular computing lessons practising their computing Procedural Knowledge using IPAD' s, chrome books, or other technological software. Children learn how to use a range of computing programs, apps and software. By the end of KS1 pupils will be able to; ● Understand what algorithms are; how they are implemented as programs on digital devices; and how programs execute by following precise and unambiguous instructions to 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 and 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.
Impact	Learning in computing will be enjoyed across the school. Teachers will have high expectations and quality evidence will be presented in a variety of forms. Children will use digital and technological vocabulary accurately, alongside a progression in their technical Procedural Knowledge. They will be confident using a range of hardware and software and will produce high-quality purposeful products. Children will see the digital world as part of their world, extending beyond school, and understand that they have choices to make. They will be confident and respectful digital citizens going on to lead happy and healthy digital lives. Monitoring of the teaching and learning of computing takes place using pupil voice, through professional dialogue and the scrutiny of children's work. By the end of KS1, all children are competent and confident using a range of technology safely. They have learnt Procedural Knowledge that are transferable and can support their learning in other areas of the curriculum. Furthermore, our children will have learnt Procedural Knowledge to support them in later life whether in their place of work or further study.

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As a Confident user of technology in Reception I will…		
Computer Science	Information Technology	Digital Literacy
Key Vocabulary		
Instruction *Order* *turn, left, right*	Size *Move* *Screen* *Close* *Click* *Drag* *Keyboards* *Mouse* *Click* *Button* *image*	*internet* *safe* *secure*

Coverage	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Key Declarative Knowledge & Procedural Knowledge	Use a camera to take pictures of people around the school Gingerbread counting – Topmarks what technology is used at home at school – , link in with homework – what technology is used at home Painting software - to make a firework picture (Jamie to organise software) Shape patterns on topmarks CD player with headphones – listen to stories, nursery rhymes Homework – children to take pictures of things in their local area		Programmable device e.g.: can you get your beebot to the healthy foods remote control cars under the sea – topmarks create an under the sea picture Oral hygiene – games on teeth brushing, you tube clips of how to brush your teeth Record a video of facts that they can share of people who help them in the community Subtraction game – top marks Take pictures of themselves planting their seeds Jamie to do time lapse for seed growing – safety around equipment		Cameras – take pictures of bugs that they find outside Programmable toys e.g.get the programmable toy to the bug Create a space picture using a painting tool – focus on detail Remote control cars – make a course that they must drive through	

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Objectives	To use technology to support and create links to all aspects of the ELG's and the EYFS curriculum in place at Merrydale

Year 1 Computing

As a Confident user of technology in Year 1 children will know…		
Computer Science	Information Technology	Digital Literacy
Prior Knowledge:		
National Curriculum Objectives (End Of KS1)		
• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • To 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.
Declarative Knowledge **I know how to match a command to an outcome** **I know how to predict the outcome of a command on a device** **I know how to run a command on a device** **I know how to follow an instruction** **I know how to give directions** **I know how to recall words that can be acted out** **I know how to compare forwards and backwards movements**	**Declarative Knowledge** **I know how to draw lines on a screen and explain which tools I used** **I know how to make marks on a screen and explain which tools I used** **I know how to use the paint tools to draw a picture** **I know how to make marks with the square and line tools**	**Declarative Knowledge** **I know how to explain how these technology examples help us** **I know how to explain technology as something that helps us** **I know how to locate examples of technology in the classroom** **I know how to name the main parts of a computer** **I know how to switch on and log into a computer** **I know how to use a mouse to click and drag**

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I know how to predict the outcome of a sequence involving forwards and backwards commands	I know how to use the shape and line tools effectively	I know how to click and drag to make objects on a screen
I know how to start a sequence from the same place	I know how to use the shape and line tools to recreate the work of an artist	I know how to use a mouse to create a picture
I know how to compare left and right turns	I know how to choose appropriate shapes	I know how to use a mouse to open a program
I know how to experiment with turn and move commands to move a robot	I know how to create a picture in the style of an artist	I know how to save my work to a file
I know how to predict the outcome of a sequence involving up to four commands	I know how to make appropriate colour choices	I know how to say what a keyboard is for
I know how to choose the order of commands in a sequence	I know how to choose appropriate paint tools and colours to recreate the work of an artist	I know how to type my name on a computer
I know how to debug my program	I know how to say which tools were helpful and why	I know how to delete letters
I know how to explain what my program should do	I know that different paint tools do different jobs	I know how to open my work from a file
I know how to identify several possible solutions	I know how to change the colour and brush sizes	I know how to use the arrow keys to move the cursor
I know how to plan two programs	I know how to make dots of colour on the page	I know how to discuss how we benefit from these rules
I know how to use two different programs to get to the same place	I know how to use dots of colour to create a picture in the style of an artist on my own	I know how to give examples of some of these rules
I know how to compare different programming tools	I know how to explain that pictures can be made in lots of different ways	I know how to identify rules to keep us safe and healthy when we are using technology in and beyond the home
I know how to find which commands to move a sprite	I know how to say whether I prefer painting using a computer or using paper	I know how to identify and find keys on a keyboard
I know how to use commands to move a sprite	I know how to spot the differences between painting on a computer and on paper.	I know how to open a word processor
I know how to run my program		I know how to recognise keys on a keyboard
I know how to use a Start block in a program	I know how to describe objects using labels	I know how to enter text into a computer
I know how to use more than one block by joining them together	I know how to identify the label for a group of objects	I know how to use backspace to remove text
I know how to change the value	I know how to match objects to groups	I know how to use letter, number, and space keys
I know how to find blocks that have numbers	I know how to count a group of objects	I know how to explain what the keys that I have learnt about already do
I know how to say what happens when I change a value	I know how to count objects	I know how to identify the toolbar and use bold, italic, and underline
I know how to add blocks to each of my sprites	I know how to group objects	I know how to type capital letters
I know how to delete a sprite	I know how to describe an object	I know how to change the font
		I know how to select all of the text by clicking and dragging
		I know how to select a word by doubleclicking
		I know how to decide if my changes have improved my writing
		I know how to say what tool I used to change the text
		I know how to use ‘undo’ to remove changes

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I know how to show that a project can include more than one sprite **I know how to choose appropriate artwork for my project** **I know how to create an algorithm for each sprite** **I know how to decide how each sprite will move** **I know how to add programming blocks based on my algorithm** **I know how to test the programs I have created** **I know how to use sprites that match my design**	**I know how to describe a property of an object** **I know how to find objects with similar properties** **I know how to count how many objects share a property** **I know how to group objects in more than one way** **I know how to group similar objects** **I know how to choose how to group objects** **I know how to describe groups of objects** **I know how to record how many objects are in a group** **I know how to compare groups of objects** **I know how to decide how to group objects to answer a question** **I know how to record and share what I have found**	**I know how to explain the differences between typing and writing** **I know how to make changes to text on a computer** **I know how to say why I prefer typing or writing**
Procedural Knowledge To express simple linear (nonbranching) algorithms symbolically To explain that computers need precise instructions to avoid errors. To give a set of instructions to follow To give commands one at a time to control direction and movement, including straight, forwards, backward, and turn. To create a simple program To run, check and change a program	**Procedural Knowledge** To use a computer mouse/trackpad to launch an application (i.e. paint) To drag objects and organise folders To follow a link to access information/resources on the world wide web. To create digital content and talk about their work To use software to record sounds, video, and images To use tools on paint such as brushes, pens, erasers, stamps/shapes and set the size, colour and shape To recognise ways that technology is used in the home and community, e.g. taking photos, blogs, shopping.	**Procedural Knowledge** To switch on or shut down a computer To seek help from an adult when they see something that is unexpected or worrying. To use safe search filters

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Key Vocabulary		
Computer Science	***Information Technology***	***Digital Literacy***
Algorithm *Instruction* *Order* *Debug* *Program* *turn, left, right, clockwise, anticlockwise* *blocks* *sequence*	*Size* *Move* *Screen* *Close* *Click* *Drag* *Log on/off* *Keyboards* *Mouse* *Click (double click)* *Button* *Google* *search engine* *image* *email*	*internet* *safe* *Secure* *Mouse* *Keyboard* *PC* *file*

Unit Overviews/Strand Coverage

Unit	Half Term	Unit Title	Lesson	Lesson Objective
1	1	Computing systems and networks – Technology around us	1	-To identify technology
1	1	Computing systems and networks – Technology around us	2	-To identify a computer and its main parts
1	1	Computing systems and networks – Technology around us	3	-To use a mouse in different ways

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1	1	Computing systems and networks – Technology around us	4	-To use a keyboard to type on a computer
1	1	Computing systems and networks – Technology around us	5	-To use the keyboard to edit text
1	1	Computing systems and networks – Technology around us	6	-To create rules for using technology responsibly
1	2	– Digital painting	1	-To describe what different freehand tools do
1	2	– Digital painting	2	-To use the shape tool and the line tools
1	2	– Digital painting	3	-To make careful choices when painting a digital picture
1	2	– Digital painting	4	-To explain why I chose the tools I used
1	2	– Digital painting	5	-To use a computer on my own to paint a picture
1	2	– Digital painting	6	-To compare painting a picture on a computer and on paper
1	3	Programming A – Moving a robot	1	-To explain what a given command will do
1	3	Programming A – Moving a robot	2	-To act out a given word
1	3	Programming A – Moving a robot	3	-To combine forwards and backwards commands to make a sequence
1	3	Programming A – Moving a robot	4	-To combine four direction commands to make sequences
1	3	Programming A – Moving a robot	5	-To plan a simple program

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1	3	Programming A – Moving a robot	6	-To find more than one solution to a problem
1	4	Data and information – Grouping data	1	-To label objects
1	4	Data and information – Grouping data	2	-To identify that objects can be counted
1	4	Data and information – Grouping data	3	-To describe objects in different ways
1	4	Data and information – Grouping data	4	-To count objects with the same properties
1	4	Data and information – Grouping data	5	-To compare groups of objects
1	4	Data and information – Grouping data	6	-To answer questions about groups of objects
1	5	– Digital writing	1	-To use a computer to write
1	5	– Digital writing	2	-To add and remove text on a computer
1	5	– Digital writing	3	-To identify that the look of text can be changed on a computer
1	5	– Digital writing	4	-To make careful choices when changing text
1	5	– Digital writing	5	-To explain why I used the tools that I chose
1	5	– Digital writing	6	-To compare typing on a computer to writing on paper
1	6	Programming B - Programming animations	1	-To choose a command for a given purpose
1	6	Programming B - Programming animations	2	-To show that a series of commands can be joined together

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1	6	Programming B - Programming animations	3	-To identify the effect of changing a value
1	6	Programming B - Programming animations	4	-To explain that each sprite has its own instructions
1	6	Programming B - Programming animations	5	-To design the parts of a project
1	6	Programming B - Programming animations	6	-To use my algorithm to create a program

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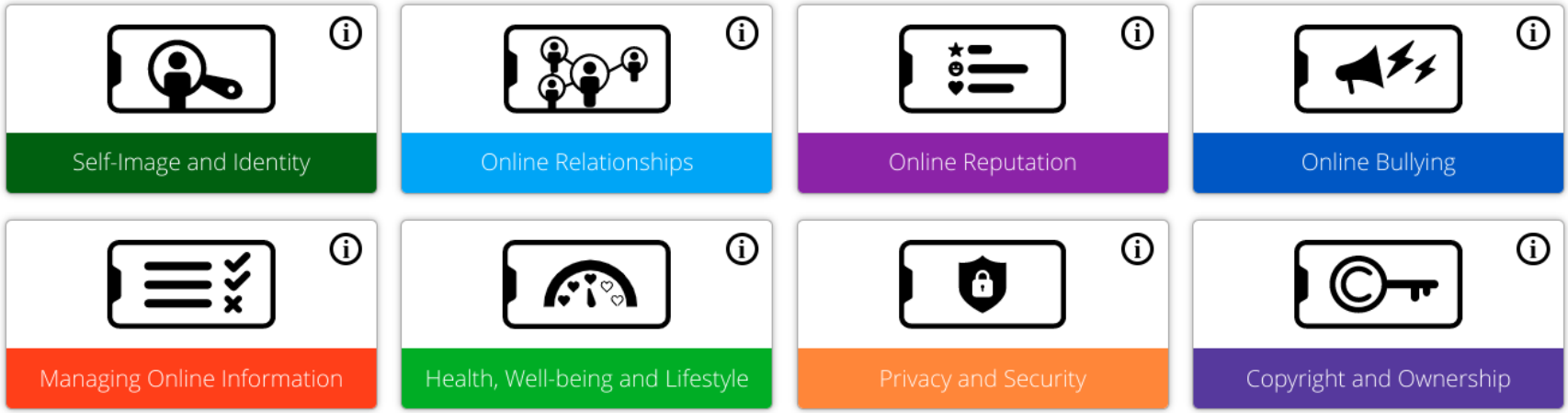
Online Safety Provision(Year 1)

To be covered as part of the computing curriculum and PHSE. At the start of each half term cover an online safety concept, when possible, which is relevant to the new unit of work.



Self-Image and Identity

- I know how to recognise that there may be people online who could make someone feel sad, embarrassed or upset.
- If something happens that makes me feel sad, worried, uncomfortable or frightened I know how to give examples of when and how to speak to an adult I know how to trust and how they can help.

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Online Relationships

- I know how to give examples of when I should ask permission to do something online and explain why this is important.
- I know how to use the internet with adult support to communicate with people I know (e.g. video call apps or services).
- I know how to explain why it is important to be considerate and kind to people online and to respect their choices.
- I know how to explain why it is important to be considerate and kind to people online and to respect their choices.
- I know how to explain why things one person finds funny or sad online may not always be seen in the same way by others.

Online Reputation

- I know how to recognise that information can stay online and could be copied
- I know how to describe what information I should not put online without asking a trusted adult first.

Online Bullying

- I know how to describe how to behave online in ways that do not upset others and can give examples.

Manage Online Information

- I know how to give simple examples of how to find information using digital technologies, e.g. search engines, and voice-activated searching.
- I know/understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make-believe / a joke.

- I know how to get help from a trusted adult if I see content that makes us feel sad, uncomfortable, worried or frightened.

Health, Wellbeing and Lifestyle

- I know how to explain rules to keep myself safe when using technology both in and beyond the home.

Privacy & Security

- I know how to explain how passwords are used to protect information, accounts and devices.
- I know how to recognise more detailed examples of information that is personal to someone (e.g where someone lives and goes to school, family names).
- I know how to explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.

Copyright and Ownership

- I know how to explain why the work I create using technology belongs to me
- I know how to save my work under a suitable title or name so that others know it belongs to me
- I understand that work created by others does not belong to me even if I save a copy

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Long-term Plan – Year 1

Coverage	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Key question/area	Computing systems and networks – Technology around us	Creating media – Digital painting	Programming A – Moving a robot	Data and information – Grouping data	Creating media – Digital writing	Programming B - Programming animations
Online Safety Concepts	Online Bullying Health, Wellbeing & Lifestyle	Privacy & Security	Online Relationships	Managing Online information	Coynright and ownership	Online reputation and self image and identity
Curriculum Strand	Digital Literacy	Information Technology	Computer Science	Information Technology	Digital Literacy	Computer Science
Lessons	-To identify technology	-To describe what different freehand tools do	-To explain what a given command will do	-To label objects	-To use a computer to write	-To choose a command for a given purpose
	-To identify a computer and its main parts	-To use the shape tool and the line tools	-To act out a given word	-To identify that objects can be counted	-To add and remove text on a computer	-To show that a series of commands can be joined together
	-To use a mouse in different ways	-To make careful choices when painting a digital picture	-To combine forwards and backwards commands to make a sequence	-To describe objects in different ways	-To identify that the look of text can be changed on a computer	-To identify the effect of changing a value
	-To use a keyboard to type on a computer	-To explain why I chose the tools I used	-To combine four direction commands to make sequences	-To count objects with the same properties	-To make careful choices when changing text	-To explain that each sprite has its own instructions
	-To use the keyboard to edit text	-To use a computer on my own to paint a picture	-To plan a simple program	-To compare groups of objects	-To explain why I used the tools that I chose	-To design the parts of a project

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	-To create rules for using technology responsibly	-To compare painting a picture on a computer and on paper	-To find more than one solution to a problem	-To answer questions about groups of objects	-To compare typing on a computer to writing on paper	-To use my algorithm to create a program
Links to other subjects	PSHE & Safeguarding	Art		Maths	Art	

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Year 2 Computing

As a Confident user of technology in Year 2 children will know…		
Computer Science	Information Technology	Digital Literacy
Prior Knowledge: (Year 1)		
Declarative Knowledge I know how to match a command to an outcome I know how to predict the outcome of a command on a device I know how to run a command on a device I know how to follow an instruction I know how to give directions I know how to recall words that can be acted out I know how to compare forwards and backwards movements I know how to predict the outcome of a sequence involving forwards and backwards commands I know how to start a sequence from the same place I know how to compare left and right turns I know how to experiment with turn and move commands to move a robot I know how to predict the outcome of a sequence involving up to four commands I know how to choose the order of commands in a sequence I know how to debug my program I know how to explain what my program should do I know how to identify several possible solutions I know how to plan two programs	**Declarative Knowledge** I know how to draw lines on a screen and explain which tools I used I know how to make marks on a screen and explain which tools I used I know how to use the paint tools to draw a picture I know how to make marks with the square and line tools I know how to use the shape and line tools effectively I know how to use the shape and line tools to recreate the work of an artist I know how to choose appropriate shapes I know how to create a picture in the style of an artist I know how to make appropriate colour choices I know how to choose appropriate paint tools and colours to recreate the work of an artist I know how to say which tools were helpful and why I know that different paint tools do different jobs I know how to change the colour and brush sizes I know how to make dots of colour on the page	**Declarative Knowledge** I know how to explain how these technology examples help us I know how to explain technology as something that helps us I know how to locate examples of technology in the classroom I know how to name the main parts of a computer I know how to switch on and log into a computer I know how to use a mouse to click and drag I know how to click and drag to make objects on a screen I know how to use a mouse to create a picture I know how to use a mouse to open a program I know how to save my work to a file I know how to say what a keyboard is for I know how to type my name on a computer I know how to delete letters I know how to open my work from a file I know how to use the arrow keys to move the cursor I know how to discuss how we benefit from these rules I know how to give examples of some of these rules I know how to identify rules to keep us safe and healthy when we are using technology in and beyond the home I know how to identify and find keys on a keyboard I know how to open a word processor

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I know how to use two different programs to get to the same place I know how to compare different programming tools I know how to find which commands to move a sprite I know how to use commands to move a sprite I know how to run my program I know how to use a Start block in a program I know how to use more than one block by joining them together I know how to change the value I know how to find blocks that have numbers I know how to say what happens when I change a value I know how to add blocks to each of my sprites I know how to delete a sprite I know how to show that a project can include more than one sprite I know how to choose appropriate artwork for my project I know how to create an algorithm for each sprite I know how to decide how each sprite will move I know how to add programming blocks based on my algorithm I know how to test the programs I have created I know how to use sprites that match my design	I know how to use dots of colour to create a picture in the style of an artist on my own I know how to explain that pictures can be made in lots of different ways I know how to say whether I prefer painting using a computer or using paper I know how to spot the differences between painting on a computer and on paper. I know how to describe objects using labels I know how to identify the label for a group of objects I know how to match objects to groups I know how to count a group of objects I know how to count objects I know how to group objects I know how to describe an object I know how to describe a property of an object I know how to find objects with similar properties I know how to count how many objects share a property I know how to group objects in more than one way I know how to group similar objects I know how to choose how to group objects I know how to describe groups of objects I know how to record how many objects are in a group I know how to compare groups of objects I know how to decide how to group objects to answer a question I know how to record and share what I have found	I know how to recognise keys on a keyboard I know how to enter text into a computer I know how to use backspace to remove text I know how to use letter, number, and space keys I know how to explain what the keys that I have learnt about already do I know how to identify the toolbar and use bold, italic, and underline I know how to type capital letters I know how to change the font I know how to select all of the text by clicking and dragging I know how to select a word by doubleclicking I know how to decide if my changes have improved my writing I know how to say what tool I used to change the text I know how to use 'undo' to remove changes I know how to explain the differences between typing and writing I know how to make changes to text on a computer I know how to say why I prefer typing or writing

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National Curriculum Objectives (End Of KS1)		
Computer Science	Information Technology	Digital Literacy
• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • To 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.
Knowledge **" -I know how to choose a series of words that can be enacted as a sequence** **- I know how to follow instructions given by someone else** **- I know how to give clear instructions"** **" -I know how to show the difference in outcomes between two sequences that consist of the same commands** **- I know how to use an algorithm to program a sequence on a floor robot** **- I know how to use the same instructions to create different algorithms"** **" -I know how to compare my prediction to the program outcome**	**Knowledge** **" -I know how to explain what I did to capture a digital photo** **- I know how to recognise what devices can be used to take photographs** **- I know how to talk about how to take a photograph"** **" -I know how to explain the process of taking a good photograph** **- I know how to explain why a photo looks better in portrait or landscape format** **- I know how to take photos in both landscape and portrait format"** **" -I know how to discuss how to take a good photograph**	**Knowledge** **" -I know how to describe some uses of computers** **- I know how to identify examples of computers** **- I know how to identify that a computer is a part of IT"** **" -I know how to identify examples of IT** **- I know how to identify that some IT can be used in more than one way** **- I know how to sort school IT by what it's used for"** **" -I know how to find examples of information technology** **- I know how to sort IT by where it is found** **- I know how to talk about uses of information technology"** **" -I know how to demonstrate how IT devices work together**

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- I know how to follow a sequence - I know how to predict the outcome of a sequence" " -I know how to explain the choices I made for my mat design - I know how to identify different routes around my mat - I know how to test my mat to make sure that it is usable" " -I know how to create an algorithm to meet my goal - I know how to explain what my algorithm should achieve - I know how to use my algorithm to create a program" " -I know how to plan algorithms for different parts of a task - I know how to put together the different parts of my program - I know how to test and debug each part of the program" " -I know how to identify that a program needs to be started - I know how to identify the start of a sequence - I know how to show how to run my program" " -I know how to change the outcome of a sequence of commands - I know how to match two sequences with the same outcome - I know how to predict the outcome of a sequence of commands"	- I know how to identify what is wrong with a photograph - I know how to improve a photograph by retaking it" " -I know how to experiment with different light sources - I know how to explain why a picture may be unclear - I know how to explore the effect that light has on a photo" " -I know how to explain my choices - I know how to recognise that images can be changed - I know how to use a tool to achieve a desired effect" " -I know how to apply a range of photography Procedural Knowledge to capture a photo - I know how to identify which photos are real and which have been changed - I know how to recognise which photos have been changed" " -I know how to describe music using adjectives - I know how to identify simple differences in pieces of music - I know how to say what I do and don't like about a piece of music" " -I know how to create a rhythm pattern - I know how to explain that music is created and played by humans - I know how to play an instrument following a rhythm pattern" " -I know how to connect images with sounds	- I know how to recognise common types of technology - I know how to say why we use IT" " -I know how to list different uses of information technology - I know how to say how rules can help keep me safe - I know how to talk about different rules for using IT" " -I know how to explain the need to use IT in different ways - I know how to identify the choices that I make when using IT - I know how to use IT for different types of activities" " -I know how to compare totals in a tally chart - I know how to record data in a tally chart - I know how to represent a tally count as a total" " -I know how to enter data onto a computer - I know how to use a computer to view data in a different format - I know how to use pictograms to answer simple questions about objects" " -I know how to explain what the pictogram shows - I know how to organise data in a tally chart - I know how to use a tally chart to create a pictogram" " -I know how to answer 'more than'/'less than' and 'most/least' questions about an attribute - I know how to create a pictogram to arrange objects by an attribute - I know how to tally objects using a common attribute" " -I know how to choose a suitable attribute to compare people - I know how to collect the data I need - I know how to create a pictogram and draw conclusions from it"

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" -I know how to build the sequences of blocks I need **- I know how to decide which blocks to use to meet the design** **- I know how to work out the actions of a sprite in an algorithm"** **" -I know how to choose backgrounds for the design** **- I know how to choose characters for the design** **- I know how to create a program based on the new design"** **" -I know how to build sequences of blocks to match my design** **- I know how to choose the images for my own design** **- I know how to create an algorithm"** **" -I know how to compare my project to my design** **- I know how to debug my program** **- I know how to improve my project by adding features"**	**- I know how to relate an idea to a piece of music** **- I know how to use a computer to experiment with pitch"** **" -I know how to explain how my music can be played in different ways** **- I know how to identify that music is a sequence of notes** **- I know how to refine my musical pattern on a computer"** **" -I know how to add a sequence of notes to my rhythm** **- I know how to create a rhythm which represents an animal I've chosen** **- I know how to create my animal's rhythm on a computer"** **" -I know how to explain how I changed my work** **- I know how to listen to music and describe how it makes me feel** **- I know how to review my work"**	**" -I know how to give simple examples of why information should not be shared** **- I know how to share what I have found out using a computer** **- I know how to use a computer program to present information in different ways"**
Procedural Knowledge To verbally explain that computers have no intelligence and computers can do nothing unless a program is executed To verbally explain that programs specify the function of a general-purpose computer To design a simple algorithm using repeat, loops, single events and add and delete features; To show care and precision to avoid errors To detect and correct simple errors To use logical reasoning to predict what will happen to various commands and scenarios whilst coding.	**Procedural Knowledge** **Create** To demonstrate ways of communicating with others online To obtain content from the world wide web using a web browser create digital content to achieve a given goal through combining software packages (Paint, Word) To show awareness for the quality of digital content collected. **Organise/Store** To save, retrieve and organise work using file and folder names	**Procedural Knowledge** To identify what things, count as personal information. Respond appropriately when concerned about content online or being contacted. To recognise age-appropriate websites

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	Manipulate To change/edit media recorded To talk about, retrieve and edit work based on feedback received	
Key Vocabulary		
Computer Science *Algorithm* *Precise* *Intelligence* *Predict* *Execute* *Design* *Repeat, loops, events* *Detect* *Correct* *Logical Reasoning*	***Information Technology*** *Application* *Window* *Software* *Minimise* *Content* *Save, retrieve, organise* *Quality* *Change/Edit* *Launch* *Poster* *Project* *Function* *Behaviour* *Manipulate* *Feature*	***Digital Literacy*** *Personal information* *Response* *Report* *Concern* *Content* *Appropriate* *Contact*

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Unit Overviews/Strand Coverage

Unit	Half Term	Unit Title	Lesson	Lesson Objective
2	1	Computing systems and networks – IT around us	1	-To recognise the uses and features of information technology
2	1	Computing systems and networks – IT around us	2	-To identify the uses of information technology in the school
2	1	Computing systems and networks – IT around us	3	-To identify information technology beyond school
2	1	Computing systems and networks – IT around us	4	-To explain how information technology helps us
2	1	Computing systems and networks – IT around us	5	-To explain how to use information technology safely
2	1	Computing systems and networks – IT around us	6	-To recognise that choices are made when using information technology
2	2	Creating media – Digital photography	1	-To use a digital device to take a photograph
2	2	Creating media – Digital photography	2	-To make choices when taking a photograph
2	2	Creating media – Digital photography	3	-To describe what makes a good photograph

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2	2	Creating media – Digital photography	4	-To decide how photographs can be improved
2	2	Creating media – Digital photography	5	-To use tools to change an image
2	2	Creating media – Digital photography	6	-To recognise that photos can be changed
2	3	Programming A – Robot algorithms	1	-To describe a series of instructions as a sequence
2	3	Programming A – Robot algorithms	2	-To explain what happens when we change the order of instructions
2	3	Programming A – Robot algorithms	3	-To use logical reasoning to predict the outcome of a program
2	3	Programming A – Robot algorithms	4	-To explain that programming projects can have code and artwork
2	3	Programming A – Robot algorithms	5	-To design an algorithm
2	3	Programming A – Robot algorithms	6	-To create and debug a program that I have written
2	4	Data and information – Pictograms	1	-To recognise that we can count and compare objects using tally charts
2	4	Data and information – Pictograms	2	-To recognise that objects can be represented as pictures
2	4	Data and information – Pictograms	3	-To create a pictogram
2	4	Data and information – Pictograms	4	-To select objects by attribute and make comparisons
2	4	Data and information – Pictograms	5	-To recognise that people can be described by attributes

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2	4	Data and information – Pictograms	6	-To explain that we can present information using a computer
2	5	Creating media - Digital music	1	-To say how music can make us feel
2	5	Creating media - Digital music	2	-To identify that there are patterns in music
2	5	Creating media - Digital music	3	-To experiment with sound using a computer
2	5	Creating media - Digital music	4	-To use a computer to create a musical pattern
2	5	Creating media - Digital music	5	-To create music for a purpose
2	5	Creating media - Digital music	6	-To review and refine our computer work
2	6	Programming B - Programming quizzes	1	-To explain that a sequence of commands has a start
2	6	Programming B - Programming quizzes	2	-To explain that a sequence of commands has an outcome
2	6	Programming B - Programming quizzes	3	-To create a program using a given design
2	6	Programming B - Programming quizzes	4	-To change a given design
2	6	Programming B - Programming quizzes	5	-To create a program using my own design
2	6	Programming B - Programming quizzes	6	-To decide how my project can be improved

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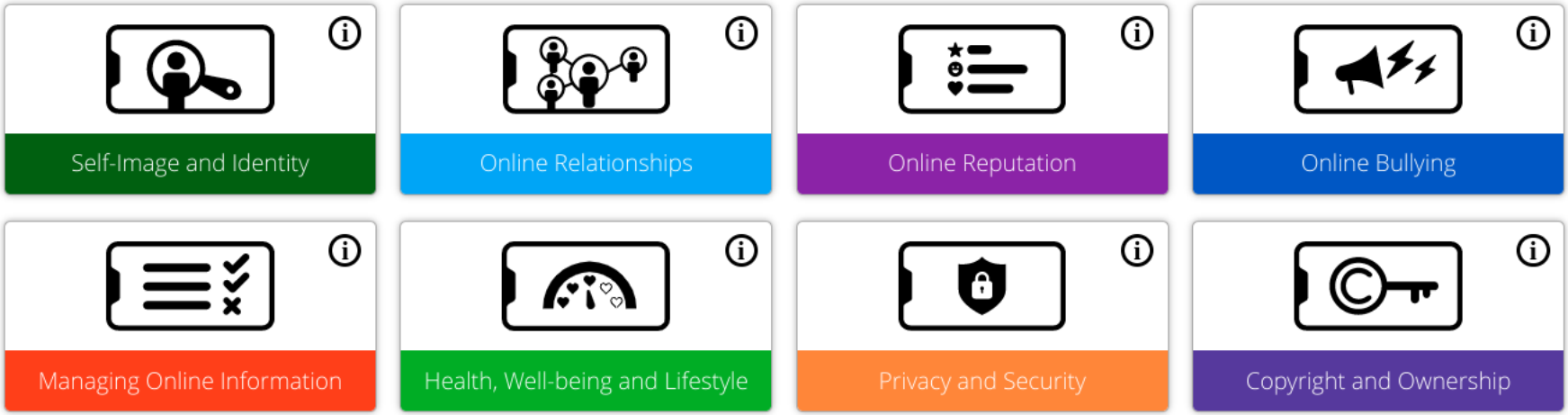
Progression Map and Long-Term Plan – Computing

Online Safety Provision(Year 2)

To be covered as part of the computing curriculum and PHSE. At the start of each half term cover an online safety concept, when possible, which is relevant to the new unit of work.



Self-Image & Identity

- I know how to explain how other people's identities online can be different to their identities in real life.
- I know how to describe ways in which people might make themselves look different online.
- I know how to give examples of an online issue that might make me feel sad, worried, uncomfortable or frightened. I know how to give examples of how I might get help.

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Online Relationships

- I know how to use the internet to communicate with people I don't know well (e.g. email a pen pal in another school/country)
- I know how to give examples of how I might use technology to communicate with others I don't know well.

Online Reputation

- I know how to explain how information put online about me can last for a long time.
- I know who to talk to if I think someone has made a mistake about putting something online.

Online Bullying

- I know how to give examples of bullying behaviour and how it could look online.
- I understand how bullying can make someone feel.
- I know how to talk about how someone can/would get help about being bullied online or offline.

Managing Online Information

- I know how to use keywords in search engines.
- I know how to demonstrate how to navigate a simple webpage to get the information I need (e.g. home, forward, and back buttons; links, tabs and sections)

- I know how to explain what voice-activated searching is and how it might be used (e.g. Alexa, Google Now, Siri)
- I know how to explain the difference between things that are imaginary, 'made up', or 'make believe' and things that are 'true' or 'real'.
- I know how to explain why some information I find online may not be true.

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Health, Well-Being & Lifestyle

- I know how to explain simple guidance for using technology in different environments and settings.
- I know how to say how those rules/guides can help me.
- Covered when children complete the AUP (acceptable use policy) at the start of the year.

Privacy & Security

- I know how to describe and explain some rules for keeping my information private.
- I know how to explain what passwords are and can use passwords for my accounts and devices.
- I know how to explain how many devices in my home could be connected to the internet and can list some of those devices.

Copyright & Ownership

- I know how to describe why other people's work belongs to them.
- I know how to recognise that content on the internet may belong to other people.

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Progression Map and Long-Term Plan – Computing

Long-term Plan – Year 2

Coverage	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Key question/area	Computing systems and networks – IT around us	Creating media – Digital photography	Programming A – Robot algorithms	Data and information – Pictograms	Creating media - Digital music	Programming B - Programming quizzes
Online Safety Concepts						
Curriculum Strand	Digital Literacy	Information Technology	Computer Science	Digital Literacy	Information Technology	Computer Science
Lessons	-To recognise the uses and features of information technology	-To use a digital device to take a photograph	-To describe a series of instructions as a sequence	-To recognise that we can count and compare objects using tally charts	-To say how music can make us feel	-To explain that a sequence of commands has a start
	-To identify the uses of information technology in the school	-To make choices when taking a photograph	-To explain what happens when we change the order of instructions	-To recognise that objects can be represented as pictures	-To identify that there are patterns in music	-To explain that a sequence of commands has an outcome
	-To identify information technology beyond school	-To describe what makes a good photograph	-To use logical reasoning to predict the outcome of a program	-To create a pictogram	-To experiment with sound using a computer	-To create a program using a given design

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	-To explain how information technology helps us	-To decide how photographs can be improved	-To explain that programming projects can have code and artwork	-To select objects by attribute and make comparisons	-To use a computer to create a musical pattern	-To change a given design
	-To explain how to use information technology safely	-To use tools to change an image	-To design an algorithm	-To recognise that people can be described by attributes	-To create music for a purpose	-To create a program using my own design
	-To recognise that choices are made when using information technology	-To recognise that photos can be changed	-To create and debug a program that I have written	-To explain that we can present information using a computer	-To review and refine our computer work	-To decide how my project can be improved
Links to other subjects						

Progression Of Knowledge in Computing		
Nursery & EYFS	**Year 1**	**Year 2**
Statutory ELG: None • Children require access to a range of technologies, both digital and non-digital in their early lives. • Exploring different technologies through play provides opportunities to develop	**T1: To know what algorithms are and how they are implemented as programs on digital devices, and those programs execute by following precise and unambiguous instructions.** **T2: To know how to Create & debug simple programs**	**T1: To know what algorithms are and how they are implemented as programs on digital devices, and those programs execute by following precise and unambiguous instructions.** **T2: To know how to Create & debug simple programs - deepen - independently** **T3: To know how to use technology purposefully to *create, and organise***

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Procedural Knowledge 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 from and integrate technology effectively within the early year's practice.	**T3: To know how to use technology purposefully to create and retrieve digital content** **T4: To know and Recognise common uses of information technology beyond school** **T5: To know how to 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.**	**T4: To know how to use technology to store, manipulate & create** **T5: To know how to 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 and to begin to think critically about their safety online.**
KS1 Computing Knowledge Breakdown		
Unit of Work	**Year 1**	**Year 2**
Project Evolve - Online Safety		
Creating Media	**-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**	**-To use a digital device to take a photograph -To make choices when taking 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 photos can be changed**
Programming A	**-To explain what a given command will do -To act out a given word**	**-To describe a series of instructions as a sequence**

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	-To combine forwards and backward 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	-To explain what happens when we change the order of instructions -To use logical reasoning to predict the outcome of a program -To explain that programming projects can have code and artwork -To design an algorithm -To create and debug a program that I have written
Data & Information	-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	-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
Creating Media	-To use a computer to write -To add and remove text on a computer -To identify that the look of text can be changed on a computer -To make careful choices when changing text -To explain why I used the tools that I chose -To compare typing on a computer to writing on paper	-To say how music can make us feel -To identify that there are patterns in music -To experiment with sound using a computer -To use a computer to create a musical pattern -To create music for a purpose -To review and refine our computer work
Programming B	-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	-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

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Progression Of Vocabulary at Merrydale		
EYFS	**Year 1**	**Year 2**
Computer Science • Instruction • Order • turn, left, right **Information Technology** • Size • Move • Screen • Close • Click • Drag • Keyboards • Mouse • Button • image **Digital Literacy** • internet • safe • secure	**Computer Science** • Algorithm • Instruction • Order • Debug • Program • turn, left, right, clockwise, anticlockwise • blocks • sequence **Information Technology** • Size • Move • Screen • Close • Click • Drag • Log on/off • Keyboards • Mouse	**Computer Science** • Algorithm • Precise • Intelligence • Predict • Execute • Design • Repeat, loops, events • Detect • Correct • Logical Reasoning **Information Technology** • Application • Window • Software • Minimise • Content • Save, retrieve, organise • Quality • Change/Edit

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	• Click (double click) • Button • Google • search engine • image • email **Digital Literacy** • internet • safe • secure	• Launch • Poster • Project • Function • Behaviour • Manipulate • Feature **Digital Literacy** • Personal information • Response • Report • Concern • Content • Appropriate • Contact