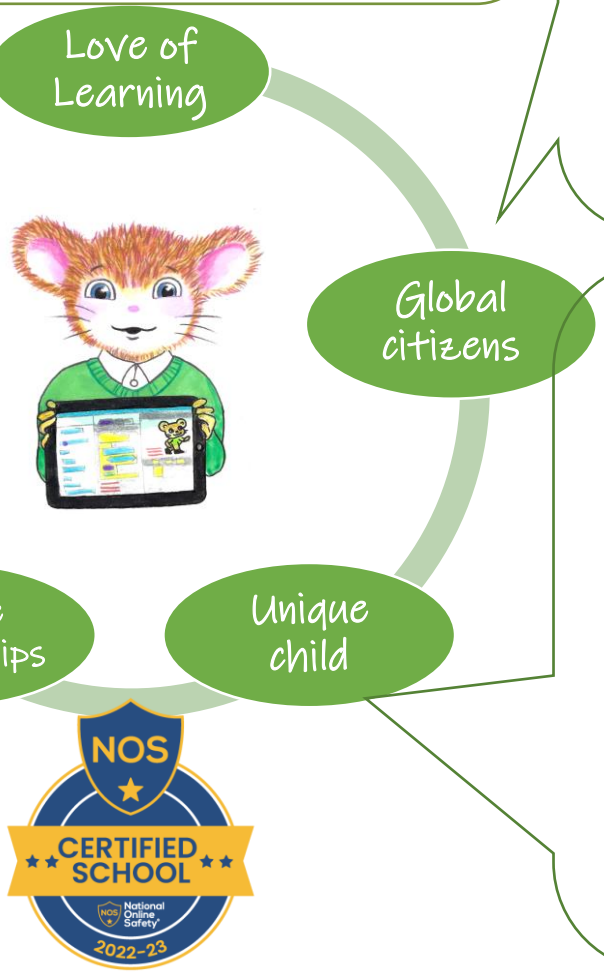
Computing at Meadows First School (Vision and Ethos)

The 5 principles of our curriculum are: ***Unique Child, Positive Relationships, Key Knowledge & Skills, Love of Learning, Global Citizens*** *We embed these 5 principles within our* ***Computing Curriculum*** *as follows:*

We equip children with the physical and digital computing **skills, vocabulary and knowledge** necessary for the next stage of their learning journey. Knowledge and skills are sequential and built upon to develop progress in Computing across the school. Vocabulary development plays a vital role in this. We want children to be able to computing as a logical and scientific means for problem solving through programming and to use terminology purposefully and skilfully. Both Key Stages also have a physical skill to develop. Key Stage 1's focus is on mouse manipulation and control: clicking and dragging, as well as single and double clicks. Key Stage 2's main focus is typing. Year 3 will complete a beginner's module on touch typing developing use of home keys and 2-hand typing. Throughout Key Stage 2, all children will partake in regular typing testing encouraging typing as a lifelong skill alongside reading and writing.

Our **digital and physical systems** curriculum embeds deep learning, ignites curiosity and broadens our children's awareness of cultural capital in Computing. For example, our children are introduced to coding and robotics with beebots and 2code in Key Stage 1. In Key Stage 2, children apply their coding knowledge into more complex crumble robotics and take part in a coding competition with a local game designer. We want children to develop a thirst for learning by using memorable and purposeful learning experiences: creating their own games through a variety of coding programs, linking the creative to the scientific. Through our digital platform Purple Mash, children have the opportunity to continue and grow their enjoyment of computing at home, sharing and creating projects with family and friends as well as working collaboratively in school.

We want our children to use the vibrancy of our great country, to learn from other cultures, respect diversity, and appreciate what they have. We achieve this by providing a strong SMSC curriculum, with British Values and our core values placed at the heart of everything we do. This feeds into the Computing curriculum where children learn to become kind and responsible digital citizens of the world. Understanding the benefits and uses of a World Wide Web to promote togetherness and collaboration across boundaries and cultures. We want children to feel empowered to make a difference and affect changes as **global citizens** to their community and the world in which they live. E.g. children design games and other digital content aimed at educating people to the importance of bees and the challenges they face.



The Computing curriculum at Meadows supports the development of positive, respectful relationships. We encourage children to work together in Computing, supporting and encouraging each other, as well as reflecting on and critically evaluating each other's work. We enable parents to support and encourage their children's computing work by investing in a digital platform which can be viewed and accessed at home.

Life in 21st Century has become dominated by our use of technology and children face a unique challenge growing up not just with the opportunities of technology provides but also the pitfalls and dangers, especially with cyber-bullying and negative effects of social media. Allowing children to access simulated scenarios to help them gain practical hands-on experience of the challenges and potential dangers of using the internet form a key part of our digital literacy content within our curriculum. All children also spend time during internet safety day exploring how their individual actions can help to create a kinder digital world as well as building the resilience necessary to tackle cyber-bullying and not only support themselves on their digital journey but protect the interests and feelings of others too.

At Meadows First School we can all become Computer programmers! We develop the holistic child, acknowledging their unique needs and ensuring all children are able to access the Computing curriculum. EG: we support all of our children with a range of equipment that caters for all needs. All of our children will have the opportunity to explore digital and physical systems at their own pace in tinkering sessions, all have the chance to develop their physical skills that help them to interact with a wide range of technologies, and all have the opportunity to share their work with teachers and students. Children use Meadows Mouse to develop lifelong learning habits to be;

Enthusiastic: to have a go and experience a range of interfaces and systems and to talk enthusiastically about their content.

Determined: We encourage a growth mindset, with high expectations, so children are proud to share and talk about their computing work.

Focused: We want them to have no ceiling to their achievements and to grow up wanting to be programmers, content producers, creators or enjoy an exciting STEM career!

Organised: We aim for our children to be independent and confident to use equipment safely as well as selecting the right equipment for the right piece of work.

We are proud of what we can achieve!

		Marvellous Me	Celebrations	Machines!	My Wonderful World	My wonderful World	Fantasy Fun
		CS Select and use activities and resources, with help when needed. (PSED)	IT ipads, interactive Whiteboard	DL Online safety	DL Children to be encouraged to interact with beebots and codeapillar	CS Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen, or one which is suggested to them (PSED)	
Reception		Marvellous Me		Around the World & Beyond		Once Upon a Tale	Great and Small
		IT digital painting, tablet technology (ipads and interactive whiteboards) Codeapillar /IWB	DL Children should use Mini Mash to engage with a range of simple programs	DL Online safety Using SimpleCity in MiniMash,	CS Children should use Mini Mash Can understand and explore how things work (UW)	CS Can understand and explore how things work (UW)Children should use Mini Mash	DL Children should use Mini Mash to engage with a range of simple programs
Year 1		SENSES	Memory box	Our Town,	Animal Allsorts	Let's Explore Africa	Intrepid Explorers
		NOS DL Copyright and Ownership Online bullying Online relationships Privacy and Security	PM – 2paint IT & DL Purple Mash Orientation – learn login and interface, create avatar and create first digital artwork.	PM – 2go CS *Maze explorers – create pathway algorithms* Reinforce with beebots	PM – 2code CS 2code orientation – building simple scenes using events, objects and actions	PM – 2count IT Create simple spreadsheets to represent data fields	Unplugged IT Recognize electrical systems in school and around town that use computer programs to run automatically.
Year 2		**Beside the Seaside**	**Keeping Healthy**	**Queens**	**Castles**	**Plants and Animals**	**The Fire of London**
		NOS DL Health, Wellbeing & Lifestyle Managing Online Information Online reputation Self Image and Identity	PM – 2code CS Linear sequence game writing algorithms with timers	PM – 2calculate IT Spreadsheets – adding values, copy and pasting information, graph creation	PM – 2quiz, 2create a story IT Presenting Ideas in quizzes and presentations	PM – search engines DL Digital booklet how to guide of search engines	PM – 2paint a picture IT Digital artwork
Year 3		**Stone Age to Iron Age**	**Can I Run Faster Than Usain Bolt?**	**Forces & Magnets Light**	**Rocks and Soils**	**Romans**	**European Neighbours**
		NOS DL Health, Wellbeing & Lifestyle Online reputation Self Image and Identity Copyright and Ownership	PM – 2code CS Create sequence programs with timers, repeating and nesting. If commands	PM – 2calculate IT Pictograms and formal charts from data input in cells	Crumble Robotics – crumble kits CS Set as, If/else commands and variable data values	PM – 2email IT Compose and respond to emails	PM / Powerpoint IT Presenting information – key mouse skills
Year 4		**the Dark Ages**	From Source to Sea	**Rainforests of the World**	**TUDORS**	**The Good, The Bad, the Ugly**	**Switch it Off**
		NOS DL Managing Online Information Online bullying Online relationships Privacy and Security	PM – 2code CS Coordinate targets, If/else commands Number variables	PM – 2logo CS Create cad designs through degree pen repeat algorithms	PM – 2Calculate IT Formulae and cell formatting. Numerical variation output (spinners)	PM – 2animate IT Stop motion animation	PM – 2type DL Develop touch typing skills - learn home key positioning.

Platform program/hardware Computing curriculum strand Brief outcome

MEADOWS FIRST SCHOOL LONG TERM PLAN - Computing

Intent (National Curriculum Aim/School Curriculum aims i.e global etc)

For all children to be able to access and interact with a range of computing devices appropriately and confidently. Becoming increasingly fluent with physical control manipulation of keyboard, mouse and touchscreen. Enjoying and identifying the benefits and positive effects of technology in daily life and developing a passion for solving problems through technology. To Become literate in computing language and coding sequences and nurture a caring attitude towards others through communication technology.

		Autumn Term		Spring Term			Summer Term	
Implementation		Autumn 1	Autumn 2	Spring 1	Spring 2		Summer 1	Summer 2
Rights Respecting		*I have the right to Friends. Article 15*	*I have the right to be safe. Article 19.*	*I have the right to be listened to. Article 12:*	*I have the right to play and rest. Article 31*		*I have the right to water/ food. Article 24*	*The right to a good quality education. Article 28*
Reception	Theme:	Marvellous Me		Around the World & Beyond			Once Upon a Tale	All Creatures Great and Small
	National Curriculum	***Understanding the World – Technology: R1*** *Completes a simple program on a computer.*	***Understanding the World – Technology: R2*** *Uses ICT hardware to interact with age-appropriate computer software.*	***Understanding the World – Technology: R3*** *Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.*	***Understanding the World – Technology: R2*** *Uses ICT hardware to interact with age-appropriate computer software.*		***Understanding the World – Technology: R2*** *Uses ICT hardware to interact with age-appropriate computer software.*	***Understanding the World – Technology: R1*** *Completes a simple program on a computer.* ***Understanding the World – Technology: R2*** *Uses ICT hardware to interact with age-appropriate*

							computer software.
	Skills	*Children should (with guidance) complete a simple creative document such as digital painting, to achieve a specific objective. Children should focus on tablet technology (ipads and interactive whiteboards) to achieve this through touch interface to select and change colours, brush sizes etc when colouring in templates. Children can place a target in the room and create a correct sequence on Codeapillar to reach that target with simple directional blocks. Children can complete a digital jigsaw by dragging correct pieces together to create a digital image.*	*Children should use Mini Mash to engage with a range of simple programs that are primarily visual based: digital jigsaws and painting projects, to help strengthen and stimulate touch interfaces. Children should be given opportunity to select variables within these tasks e.g. colour and interact with selection menus.*	*Using SimpleCity in MiniMash, children can identify technological equipment in a chosen environment and understand how the technology is useful in this area, eg. Thermometer for taking temperature of pets at the vets, cement mixer for mixing the cement.* *How do you think the builder might use technology? - Measuring things with digital measure. - Using machinery to cut, mix and measure. - Machinery to lift and move the materials. - Websites to give information to the customers.* *There are lots of different environment to explore together including, building site, farm and vets. Provide children with a range*	*Children should use Mini Mash to engage with a range of simple programs that are primarily visual based: digital jigsaws and painting projects, to help strengthen and stimulate touch interfaces. Children should be given opportunity to select variables within these tasks e.g. colour and interact with selection menus*	*Children should use Mini Mash to engage with a range of simple programs that are primarily visual based: digital jigsaws and painting projects, to help strengthen and stimulate touch interfaces. Children should be given opportunity to select variables within these tasks e.g. colour and interact with selection menus.*	*Children should (with guidance) complete a simple creative document such as digital painting, to achieve a specific objective. Children should focus on tablet technology (ipads and interactive whiteboards) to achieve this through touch interface to select and change colours, brush sizes etc when colouring in templates. Children can place a target in the room and create a correct sequence on Codeapillar to reach that target with simple directional blocks. Children can complete a digital jigsaw by dragging correct pieces together to create a digital image.* *Children should use Mini Mash to*

				of household tools to interact with.			*engage with a range of simple programs that are primarily visual based: digital jigsaws and painting projects, to help strengthen and stimulate touch interfaces. Children should be given opportunity to select variables within these tasks e.g. colour and interact with selection menus.*
	Program /interface	All about me Pin Interactive Whiteboard / tablets		Purplemash Simple city Interactive Whiteboard / tablets		Fairytale Pin Interactive Whiteboard / tablets	Farm & Minibeasts Pins Purplemash simple city Interactive Whiteboard / tablets
	Activity	*Allow children to select from the following activities from inside the all about me pin:* *Digital art projects: face colouring, feeling drawer, clothing drawing* *Matching pair cards game* *Jigsaw game*		*Simple city – children to explore the areas of interest to them within simple city and complete the action animation, colouring and placement activities to create tableaus of these areas.* *There are multiple pin areas that focus on different climates and celebrations around the world.*		*Guide children to choose and engage with activities within the fairytale pin:* *Image completion activities: dressing the fairy or completing the castle involve*	*Simple city – children to explore the farm and vet areas of simple city and engage with creating these spaces by manipulating objects.* Farm and minibeast

						dragging actions to move objects into their correct places.	pins – children to engage with activities within these pins.
Year 1	Theme	Making SENSE of our world (our senses)	Memory box (Toys including materials)	Our Town, Bromsgrove	Animal Allsorts	Let's Explore Africa	Famous for More than Five Minutes
	National Curriculum	*DL1: 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: 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.* *IT1: use technology purposefully to create, organise, store, manipulate and retrieve digital content*	*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*	*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*	*IT1: use technology purposefully to create, organise, store, manipulate and retrieve digital content*	*IT2: recognise common uses of information technology beyond school*
	Skills Curric obj. code	***DL1*** ***Scenario Exploration*** *Children will learn to identify what*	***DL1, IT1*** ***Tap and drag, typing*** *Children understand the*	***CS1,2,3*** ***tap and drag*** *Children can work out what is wrong with a simple*	***CS1,2,3*** ***tap and drag*** *Children can work out what is wrong with a simple*	***IT1*** ***Numerical keys – /tap interface*** *Children are able to sort, collate,*	***IT2*** *Children understand what is meant by technology and*

		work is there's and when it belongs to others. *Children will learn which behaviours are considered kind/unkind in digital scenarios.* *Children will be able to identify trusted aduts both at and away from school who can support them with technology.* *Children will learn which information about themselves is safe/unsafe to share on the internet through a whole class sorting game.*	*importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space.*	*algorithm when the steps are out of order.. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code* *When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.* *Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that an algorithm written for a computer is called a program.*	*algorithm when the steps are out of order.. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code.* *When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.* *Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that an algorithm written for a computer is called a program.*	*edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources, create databases and charts for information*	*can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not.*
	Program/ interface	*NOS resources*	*Purple Mash*	*PM - 2go*	*PM – 2code*	*Ipad/computer PM 2calculate*	*Computer PM - Writing templates*
	Activity	*NOS video lessons – grouped and individual tasks*	*Online Safety – logging in and keeping personal*	*Maze explorers – using directional commands in*	*Coding – explore algorithm language, create setting and*	*Spreadsheets Numerical input – representing*	*Technology outside of schools – local walk –*

			information safe – saving and retrieving work	*coding – explicit instructions and creating programs with direction commands*	*sprites for program – interaction within code*	*date through images on spreadsheets*	*examples of technology in locality – how do they benefit us?*
Year 2	Theme	Oh I do like to be Beside the Seaside	Keeping Healthy	Chocolate: That's Not fair!	Knights and Castles	Plants and Animals	Pirates
	National Curriculum	*DL1: 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.*	*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*	*IT1: use technology purposefully to create, organise, store, manipulate and retrieve digital content*	*IT1: use technology purposefully to create, organise, store, manipulate and retrieve digital content*	*IT2: recognise common uses of information technology beyond school*	*IT1: use technology purposefully to create, organise, store, manipulate and retrieve digital content*
	Skills Curric obj. code	***DL1*** ***online safety scenarios*** *Children learn through character scenarios about healthy online*	***CS1,2,3*** ***Tap and drag, selecting from droplists*** *Children can create a simple program that*	***IT1*** ***Numerical keys Tap input*** *Children demonstrate an ability to organise data using, for*	***IT1*** ***Information input*** *Children demonstrate an ability to organise data using, for example, a database*	***IT2*** ***Browser interface, typing Evaluating sources*** *Children can effectively*	***IT1*** ***tap and drag*** *Children demonstrate an ability to organise data using, for example, a*

		habits. They will learn how to judge if things are real or fake on the internet. Children evaluate what information shouldn't be shared and identify trusted adults. Children will look at how people's online and real-life identities can differ from one another.	*achieves a specific purpose. They can also identify and correct some errors. Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program. Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.*	*example, a database and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.*	*and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.*	*retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.*	*database and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.*
	Program/ interface	*NOS*	*Ipad – tap interface 2code*	*Ipad/computer 2calculate*	*Ipad – 2quiz, 2create a story*	*Ipad, Internet browser, 2quiz*	*Computer/laptop 2paint*

	Activity	Health and Wellbeing Managing online information Online Reputation Self-image and Identity	Coding – repetition and timer objects, debug and predict behavior of programs – create a story game	Spreadsheets Copy and paste for repeat values – wider range of charts and graphs to represent pictorial data	Presentation Combining images from banks and text to present information as quizzes and 'slide' pages.	Effective searching Create a leaflet for terminology of search engine interfaces and learn how to interact with browsers and search engines	Creating pictures Create collage, repetitive patterns and impressionist artworks digitally.
Year 3	Theme	Stone Age to Iron Age	Can I Run Faster Than Usain Bolt? Happy, Healthy Bodies	Forces and Magnets Light	Rocks and Soils Year 3 Production	Life of Plants Romans vs Britain	European Neighbours
	National Curriculum	IT2: use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content DL1: use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	CS1: design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts CS2: use sequence, selection, and repetition in programs; work with variables and various forms of input and output	IT1: 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	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	CS1: design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	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

			CS3: use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs				
	Focus- Physical skills/ knowledge *Curric obj. code*	***DL1 IT2 Digital communication – typing, evaluating information*** *Children demonstrate an understanding of using online content that does not belong to them. Children will be able to explain healthy/unhealthy habits around screen time and learn about age restrictions on games and platforms. Children will learn what content goes into creating an online reputation. Children will demonstrate how an online avatar can be*	***CS1,2,3 Algorithms – sequence, selection and repetition*** *Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it. Children demonstrate the ability to design and code a program that*	***IT1 Appropriate communication – evaluating information, typing*** *Children can list a range of ways that the internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails. They can describe appropriate email conventions when communicating in this way.*	***IT3 numerical input – drop menu selection*** *Children can collect, analyse, evaluate and present data and information using a selection of software. Given a choice, children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails.*	***CS1 – controlling physical systems Crumble Robotics program*** *Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it.*	***IT3 information (text and image) input – drag and double click mouse control*** *Children can collect, and present data and information using a selection of software. Given a choice, children can consider what software is most appropriate for a given task. They can create presentation slides using Powerpoint combining text and images formatted to be visually striking and present on their information.*

		altered from your real-life image.	*follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. Children understand how variables can be used to store information while a program is executing. Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They make good attempts to 'step through' more complex code in*				

			order to identify errors in algorithms and can correct this.				
	Program/ interface	*NOS - unplugged*	*Ipads – 2Code*	*Laptop – 2email*	*Ipads – 2calculate*	*Laptop – Crumble robotics*	*Laptop – Powerpoint*
	Activity	*NOS-Copyright* *NOS-Online reputation* *NOS-Health and wellbeing* *NOS-Self identity*	*Create simple flowchart based programs that use nesting, repetition and selection*	*Email* *How to correctly open and respond to email, add attachments and respond to email scenarios*	*Spreadsheets* *Pie charts and bar graphs – more than and less than quotas*	*Use a computer program to control a physical system – automatic and push switch nightlight DT project* *Coding contest*	*Presentation* *Combine text and image to create a presentation – mouse skills*
Year 4	**Theme**	**Were the Dark Ages really dark?**	**Switch it Off Sound and Electricity**	**Amazon**	**Beautiful Bromsgrove/ animals and habitats**	**The Good, The Bad, the Ugly States of Matter**	**Where does my Food go?**
	National Curriculum	*IT1: 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* *DL1: use technology safely, respectfully and responsibly; recognise*	*CS1: design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts* *CS2: use sequence, selection, and*	*CS1: design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts* *CS2: use sequence, selection, and repetition in programs; work with variables and*	*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*	*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,*	*DL1: use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.*

		acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. IT2: use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	*repetition in programs; work with variables and various forms of input and output CS3: use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs*	*various forms of input and output CS3: use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs*		*analysing, evaluating and presenting data and information*	
	Focus- Physical skills/ knowledge Curric obj. code	*DL1, IT1, IT2 Caring communication, typing, Safe search – browser interface - Identifying uses of computer hardware as part of network system* *Children will learn how to create secure passwords. Children will learn safe searching and explore how pop-up ads are created to entice users. Children will be able to name various organisations they can use when experiencing online*	*CS1,2,3 Algorithm If/Else values repetition and abstraction in code* *When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.*	*CS1,2,3 Algorithm – if values and repetition* *When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.*	*IT3 Numerical input – drag and drop* *Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software. Children share digital content within their community.*	*IT3 Image capture, sequence and selection* *Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software. Children share digital content*	*DL1: use home keys to develop confidence with keyboard typing.* *Children quickly identify the location on home keys, resting their index fingers on them without sight.* *Children type with both hands using their thumbs on space bars.*

		bullying. Children will demonstrate a working knowledge on how to foster and maintain positive relationships with others online. *IT1* *Safe search – browser interface* *Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.* *Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.*	*Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs. Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of*	*Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs. Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps*		*within their community.*	

			coding structures. For example, 'if' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. *Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software. Children share digital content within their community.*	*and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this.*			
	Program/ interface	*NOS* *Laptop/ipad – web browser, 2quiz, 2connect*	*Laptop – 2Code*	*Laptop - 2logo*	*Laptop – 2calculate*	*iPad – 2animate*	*Laptops - 2type*
	Activity	*Online Safety* *NOS:* *Online relationships* *Privacy and security* *Online bullying* *Managing online information*	*2code* *Using if/else statements and numerical variable inputs to create more complex programming.*	*Logo* *Explore Logo interface to create directional algorithms to create letters and more complex shapes.*	*Spreadsheets* *Add formulae to cells, timers and spin buttons, create a budget spreadsheet and explore place value.*	*Animation* *Create paper nickelodeon – transfer to onion skin tool to create simple animation – explore stop*	*Touch-typing* *Locate and use home keys and develop left and right hand specific typing.*

		Effective Searching – search for relevant information using targeted search queries – evaluate quality of information. Hardware investigators – identify features of computer networking system.	*Use of coordinates for object placement.*			*motion animation.*	

Key Stage 1 objectives code key

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
IT1: use technology purposefully to create, organise, store, manipulate and retrieve digital content
IT2: recognise common uses of information technology beyond school
DL1: 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.

Key Stage 2 objectives code key

CS1: design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
CS2: use sequence, selection, and repetition in programs; work with variables and various forms of input and output
CS3: use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
IT1: 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
IT2: use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
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
DL1: use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Computing Skills Document			
Nursery Technology Objective	***30-50 Months skill/knowledge outcome***	***EYFS 40-60 month Technology Objective***	***40-60+ months skill/knowledge outcome***
Understanding the World – Technology: N1 *Knows how to operate simple equipment, e.g. turns on CD player and uses remote control.*	*Children can identify key generic interface technological symbols that appear on remote controls and electrical devices including but not limited to: play button (triangle symbol) stop button (square), pause (two lines) On/off master switch (circle cut with line) tracking (horizontal arrow buttons) and can predict what should happen to a device when pressed.*	*Understanding the World – Technology: R1* *Completes a simple program on a computer.*	*Children should (with guidance) complete a simple creative document such as digital painting, to achieve a specific objective. Children should focus on tablet technology (iPad and interactive whiteboards) to achieve this through touch interface to select and change colours, brush sizes etc. when colouring in templates. Children can place a target in the room and create a correct sequence on Codeapillar to reach that target with simple directional blocks. Children can complete a digital jigsaw by dragging correct pieces together to create a digital image.*
Understanding the World – Technology: N2 *Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.*	*Children to be encouraged to interact with beebots and Codeapillar and comment on what happens when they input directional commands.*	*Understanding the World – Technology: R2* *Uses ICT hardware to interact with age-appropriate computer software.*	*Children should use Mini Mash to engage with a range of simple programs that are primarily visual based: digital jigsaws and painting projects, to help strengthen and stimulate touch interfaces. Children should be given opportunity to select variables within these tasks e.g. colour and interact with selection menus.*
Understanding the World – Technology: N3 *Shows an interest in technological*	*Children to be encouraged to describe the effect of interacting with knobs and pulleys on simple toys (input/output).*	*EYFS ELG Technology Objective*	*Using Simple City in MiniMash, children can identify technological equipment in a chosen environment and understand how the technology is useful in this area, e.g. Thermometer for taking temperature of pets at the vets, cement mixer for mixing the cement.*

toys with knobs or pulleys,				*How do you think the builder might use technology? - Measuring things with digital measure. - Using machinery to cut, mix and measure. - Machinery to lift and move the materials. - Websites to give information to the customers.* *There are lots of different environment to explore together including, building site, farm and vets. Provide children with a range of household tools to interact with.*	
Understanding the World – Technology: N4 *Knows that information can be retrieved from computers*	*Children should be able to identify a desktop/laptop & tablet and understand these to be computers. Children should also understand that interactive whiteboards and the content displayed through them (including sound) is coming from the computer it is connected to.*		***Understanding the World – Technology: R3*** *Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.*		
KS1 Objective	***Year 1 skill/knowledge outcome***	***Year 2 skill/knowledge outcome***	***KS2 Objective***	***Year 3 skill/knowledge outcome***	***Year 4 skill/knowledge outcome***
Computer Science *Create and debug simple programs.*	*Children can work out what is wrong with a simple algorithm when the steps are out of order. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code*	*Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors.*	***Computer Science*** *Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.*	*Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it.*	*When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.*
			Computer Science *Use sequence, selection and repetition in programs; work with variables and various forms of input and output.*	*Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. Children understand how variables can be*	*Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to*

				used to store information while a program is executing.	*use and manipulate the value of variables. Children can make use of user inputs and outputs.*
Computer Science *Use logical reasoning to predict the behaviour of simple programs.*	*When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.*	*Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.*	***Computer Science*** *Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.*	*Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this.*	*Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this.*
Computer Science *Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions*	*Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that an algorithm written for a computer is called a program.*	*Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.*	***Computer Science*** *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.*	*Children can list a range of ways that the internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails. They can describe appropriate email conventions when communicating in this way.*	*Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.*
Information Technology *Use technology purposefully to create, organise, store, manipulate and retrieve digital content.*	*Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources, create databases and charts for information*	*Children demonstrate an ability to organise data using, for example, a database and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions. Children are confident when creating, naming, saving and*	***Information Technology*** *Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*	*Children can carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine.*	*Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.*

		retrieving content. Children use a range of media in their digital content including photos, text and sound.			
Digital Literacy *Recognise common uses of information technology beyond school.*	*Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not.*	*Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.*	***Information Technology*** *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 collect, analyse, evaluate and present data and information using a selection of software. Given a choice, children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails.*	*Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software. Children share digital content within their community.*
Digital Literacy *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.*	*Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space.*	*Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically. They develop an understanding of using email safely by and know ways of reporting inappropriate behaviours and content to a trusted adult.*	***Digital Literacy*** *Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.*	*Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as e-mail or chat forums. They know more than one way to report unacceptable content and contact.*	*Children can explore key concepts relating to online safety. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.*

Meadows First School Computing Curriculum
Year 2 Knowledge Organisers
Unit 2.1 CODING

Key Learning

To understand what an algorithm is.

To design algorithms and then code them.

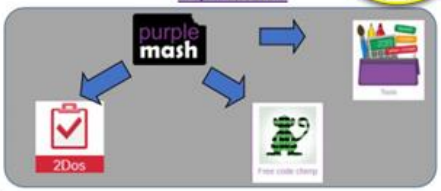
To compare different object types.

To use the repeat command.

To use the timer command.

To know what debugging is and debug programs.

Key Resources



Key Vocabulary

Action - Types of commands, which are run on an object. They could be used to move an object or change a property.

Algorithm - A precise step by step set of instructions used to solve a problem or achieve an objective.

Bug - A problem in a computer program that stops it working the way it was designed.

Character - A type of object in 2Code that can be programmed to change actions or properties.

Code block - A group of commands that are joined together and are run when a specific condition is met or when an event occurs.

Code Design – Design what your program will look like and what it will do.

Command - A single instruction in a computer program.

Debug/Debugging - Looking for any problems in the code, fixing and testing them.

Design Mode - Used to create the look of a 2Code computer program when it is run.

Input - Information going into the computer. Can include moving or clicking the mouse, using the keyboard, swiping and tilting the device.

Object - An element in a computer program that can be changed using actions or properties.

Properties – All objects have properties that can be changed in design or by writing code e.g. image, colour and scale properties.

Repeat - This command can be used to make a block of commands run a set number of times or forever.

Scale - The size of an object in 2Code.

Timer - Use this command to run a block of commands after a timed delay or at regular intervals.

When clicked - An event command. It makes code run when you click on something (or press your finger on a touchscreen).

When Key - An event command. It makes code run when you press the specified key on the keyboard.

Meadows First School Computing/DT/Science Curriculum
Year 3 Knowledge Organisers
Unit 3.R PHYSICAL SYSTEM ROBOTICS

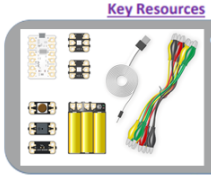
Key Learning

Design, write and debug programs that accomplish specific goals, including **controlling or simulating physical systems**

Learn Crumble Robotics software interface

Observe and manipulate computer system interacting with physical system

Key Resources



Crumble Robotics kit (1 to 3 children)

Crumble programming software

Key Vocabulary

Hardware

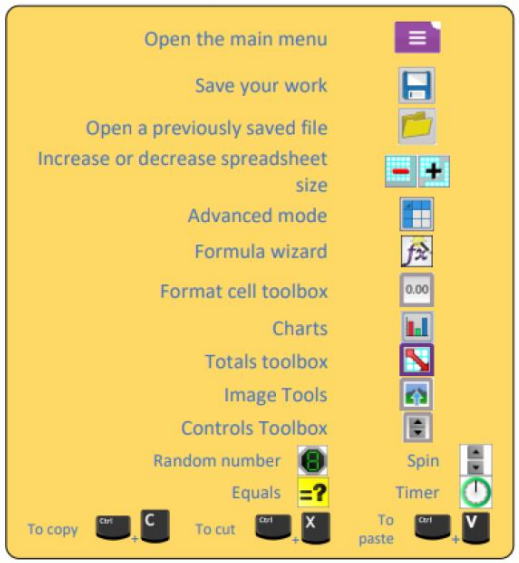
Battery pack—provides the power to the circuit, 3xAA batteries sit inside the battery pack.
LED—Light emitting diode, a modern style of lightbulb that is much smaller and can be programmed to change colour and turn on and off. An electrical current passes through two parts inside the LED to cause it to glow.
Sparkle—a programmable LED that you can connect with crocodile clips.
Crocodile clips—electrical wires wrapped in plastic with metal grips at either end to connect electrical devices together.
Crumble Motherboard—the central processing chip that controls everything in the circuit. Essentially a very small computer that everything connects to and listens to. Your program is stored on the motherboard.
Data cable—allows you to connect the motherboard chip to a computer so that you can transfer your code from the computer to the motherboard.
Light sensor—an input that measures how much light is in the air and gives this information to a computer.
Buzzer—an output device that vibrates when an electrical current is passed through to make a sound.
'Push To Make' switch—a switch that only allows the electrical current to pass through when the button is pushed down. These can be used to control when the program runs and stops.

Software

Code blocks—colour coded programming blocks that click together to create coding sequences.
Algorithms—the step by step processes needed to complete a task
Code—the language algorithms are written in for computer systems to understand.

Meadows First School Computing Curriculum
Year 4 Knowledge Organisers
Unit 4.3 SPREADSHEETS

Key Images



Key Questions

How would you add a formula so that the cell shows the percentage score for a test?

Click on the cell where you want the percentage score to be displayed then click the formula wizard button. Select eh cell with the score, choose the divide symbol and select the total score cell.

Which tools would you use to create a times tables test in 2calculate?

Random tool, spin tool, equal tool and timer tool

What sorts of data groups would be best represented by a line graph?

Data where both axis show continuous data

Give a real life scenario you could use a spreadsheet for?

Budgeting for a party, monitoring spending pocket money etc.

Our knowledge organisers show the key knowledge, vocabulary and concepts for each unit. Here are some examples of our knowledge organisers across the school. Each unit's knowledge organiser can be found within the half-term's documents folders in each year group's website page.

Computing

At Meadows, our aim is to prepare the children of today for the exciting, ever-more technological world around them. We believe in the importance of all pupils becoming digital citizens, learning how to use technology safely and responsibly, enjoying the many benefits technology has to offer in their lives.
Our computing curriculum is predominantly delivered through the ***Purple Mash*** online educational platform. This whole-school approach allows children to retain their interface knowledge and build upon their computing skills as they progress through Meadows. All children at Meadows will explore computing through the use of laptops, tablets and physical robotic systems. Reflecting the National Curriculum objectives, our approach follows 3 key strands:

Coding and Programming

Coding and Programming Children will begin their journey into programming by interacting with and learning to control Bee-bot robots in EYFS. When they enter Key Stage 1, they will develop their understanding of creating instructions (algorithms) to achieve specific goals using programs like 2Code in Purple Mash. Our pupils will develop their knowledge of controlling digital systems towards the end of Key Stage 1 applying greater complexity in their own coding as well as developing problem solving skills when debugging incorrect programs. Once they have a confident foundation in Key Stage 1, our pupils extend their knowledge of digital systems and begin to create their very own computer games in Year 3 as they learn to abstract their code into more succinct patterns and sequences. Through guided projects children will learn to identify and debug increasingly complex digital systems that require multiple-step solutions. Year 3 will then transfer their new knowledge into physical system robotics and learn to control light circuits through programming to create real-world computing projects. As they progress through Key Stage 2, children will then extend their programming skills with Logo, a Purple Mash programme designed to teach children the basic principles of CAD design, combining their knowledge of algorithms with mathematical precision and reasoning.
Throughout their time at Meadows, children will also learn about how technology has helped solved many problems in our modern day society and, in turn, will learn to problem solve like a computer and think about the positive impact technology has on our everyday lives in the hopes of inspiring and encouraging our pupils to become active producers of technology and not just passive consumers.

Interfaces and Information Technology.

Technology comes in all sorts of shapes and sizes and experiencing a wide range of physical and digital platforms is vital to help our children become digital citizens and develop a mastery of skills across a wide context range. In Key Stage 1, children develop gross motor control using tablet interfaces which better reflect our pupils' early technology interactions and experiences at home. In Key Stage 2, children will explore using laptops and develop their use of tracker-pads and computer mouse control. Before leaving Meadows, all children will have touch typing lessons to help build their confidence in faster typing ready to prepare them for their Key Stage 3 computing curriculum and beyond. In all year groups, children will also learn how to input numerical data and apply formulas in data entry platforms. Children will also learn to manipulate images and text to create posters using Purple Mash programmes. Our range of hardware and software ensures our children are exposed to a rich technological diet which will safeguard them for future technological advances as well as enabling all of our children to become digitally literate with the technology of today.

Digital Literacy and Internet Safety

As the internet becomes a more increasing presence in our lives, we believe it is more vital than ever that our current generation of children learn how to responsibly interact with the online networks within the safe environment of school. In line with the increased importance and prevalence of online safety within the *Keeping Children Safe in Education 2022* whitepaper, we have strengthened our online safety provision across our setting to provide a more robust, practical and engaging curriculum aimed at better empowering our students with the tools and knowledge required to keep themselves safe on the internet. Across each key stage, children explore the 8 topics outlined in the UKCIS Education for a Connected World Framework: Self-image & identity, Online relationships, Online reputation, Online bullying, Managing online information, Health, wellbeing & lifestyle, Privacy & security and Copyright & ownership. Children will explore these key areas through scenario-based exploration, enabling them to approach and evaluate problems confidently and develop a repertoire of skills and knowledge to help them safely navigate the internet. All children have to complete an acceptable use policy before using school equipment and online safety is further supplemented in other areas of the computing curriculum such as safe internet searching and emailing.