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 tablet touch and fine motor control of interfaces: pinching & dragging, as well as single and double taps. Key Stage 2's main focus is typing. Across the key stage, children will complete touch typing modules.

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 digital and physical robotics using microbits. 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.

Love of Learning

key knowledge & skills

Global citizens

Positive Relationships

Unique child

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!

Year 1		SENSES	Memory box	Our Town,	Animal Allsorts	Let's Explore Africa	Intrepid Explorers
		2besafe 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**
		2besafe 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**
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Year 4		**the Dark Ages**	From Source to Sea	**Rainforests of the World**	**TUDORS**	**The Good, The Bad, the Ugly**	**Switch it Off**
		2besafe 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 – Microbits CS Physical robotics mini-projects

Platform program/hardware Computing curriculum strand Brief outcome

1. Nursery Technology Objective			2. EYFS Reception		
Nursery utilizes technology within their wider scope of provision and is accessible daily to the students in our setting. Primarily, technology is implemented as a tool to promote children's communication and social skills. Technology plays a big part in developing our children's understanding of cause and effect as they interact with physical technologies including typewriters and phones. Additionally, children use technology to support their sensory exploration.			*Reception utilizes technology within their wider scope of provision and is accessible daily to the students in our setting. Progressing on from Nursery, children in Reception interact more creatively with technology in expressive ways through art creation as well as supplementing key knowledge through interactive games and platforms to support early maths and reading. Children in Reception also begin their computer science journey through the use of self-directed and programmable robotics – developing further from Nursery, their understanding of cause and effect as they play greater roles in controlling and dictating physical computer programs.*		
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 scenario 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 scenario 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 used to store information while a program is executing.*	*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.*

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 retrieving content. Children use a range of media in their digital*	***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.*

		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.*

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