Matlock and Dales Primary Partnership

Computing

Intent, Implementation and Impact Statement

	Key Points
Our Intent	As stated in the National Curriculum, *"a high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world… 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 for the future workplace and as active participants in a digital world".* At Matlock and Dales Primary Partnership, we aim to provide a curriculum which enables our children to: know more, experience more, remember more and do more. The use of computers and computer systems is an integral part of the National Curriculum and knowing how they work is a key life skill. In our increasingly digital world, exists a wealth of technology and software that can be used to communicate, collaborate, express ideas and create digital content. In Matlock and Dales Partnership we recognise that pupils are entitled to a broad and balanced computing education with a structured, progressive approach to learning. We will explore how computing systems work, the use of IT and gain the skills necessary to become digitally literature and participate fully in the modern world.
Our Implementation	At Matlock and Dales Partnership we recognise that our curriculum planning must allow for all children to gain a progressively deeper level of knowledge, understanding and skill competency as they move throughout the school. Across all schools, computing is taught as a discrete subject as well as linking across the curriculum, using a variety of teaching and learning styles. In Early Years Foundation Stage opportunities for computing occur through continuous provision. Systematic enquiry opportunities are provided in Foundation Stage, based upon all areas of Development Matters, but primarily in 'Understanding the World'. In Key Stage 1 and 2, we believe in whole-class teaching methods and combine this with practical learning. In Foundation Stage we use a combination of topic related and child-centred learning to facilitate our children's exploration of technology. We support all children across the Matlock and Dales Partnership by tailoring our teaching and learning for individual children by following recommendations from our SENDCO and external advisers. Teach Computing's curriculum is underpinned by 12 key principles which we believe are fundamental. These principles are: lead with concepts, work together, get hands-on, unplug unpack and repack, model everything, foster program comprehension, create projects, add variety, challenge misconceptions, make concrete, structure lessons and read and explore code first. Mixed year groups will be taught in 2 year cycles.

The Impact	The impact and measure of this is to ensure that our children progress to reach their full potential as they: know more, experience more, remember more and do more.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum		Understand what algorithms are: how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs. Use technology to purposefully create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond schools. 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.		Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.		

Learning (fundamental skills – what will constantly revisited?)	Observe technology around us. Explore a range of real and play technology. Know how to operate simple equipment and show skill in this. Children take photographs, record voices and capture their learning. Use age appropriate computer software. Complete a simple program on a computer. Use an app and a website appropriately.	Term 1: Computing systems and networks					
		Technology around us Recognising technology in school and using it responsibly	**Information technology around us** Identifying IT and how its responsible use improves our world in school and beyond.	**Connecting computers** Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks	**The internet** Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	**Sharing information** Identifying and exploring how information is shared between digital systems.	**Internet communication** Recognising how the WWW can be used to communicate and be searched to find information.
		Term 2: Creating Media					
		Digital painting Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally Tuxpaint on iPads	**Digital photography** Capturing and changing digital photographs for different purposes Use filters on Gallery View	**Stop-frame animation** Capturing and editing digital still images to produce a stop-frame animation that tells a story.	**Audio editing** Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	**Video editing** Planning, capturing, and editing video to produce a short film.	**Webpage creation** Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.
		Term 3: Programming A					
		Moving a robot Writing short algorithms and programs for floor robots, and predicting program outcomes.	**Robot algorithms** Creating and debugging programs, and using logical reasoning to make predictions	**Sequencing sounds** Creating sequences in a block-based programming language to make music.	**Repetition in shapes** Using a text-based programming language to explore count-controlled loops	**Selection in physical computing** Exploring conditions and selection using a programmable	**Variables in games** Exploring variables when designing and coding a game

	Retrieve information from a computer device using QR codes.				when drawing shapes.	microcontroller or online coding builder. Y5 will use scratch to create a space rocket racing game – using 'if' and 'when' conditions. Use the class login to scratch to save each game.	
		Term 4: Data and Information					
		Grouping data Exploring object labels, then using them to sort and group objects by properties.	**Pictograms** Collecting data in tally charts and using attributes to organise and present data on a computer.	**Branching databases** Building and using branching databases to group objects using yes/no questions.	**Data logging** Recognising how and why data is collected over time, before using data loggers to carry out an investigation. Data Loggers or Audrino Science	**Flat-file databases** Using a database to order data and create charts to answer questions.	**Introduction to spreadsheets** Answering questions by using spreadsheets to organise and calculate data.
		Term 5: Creating Media					
		Digital writing Using a computer to create and format text, before comparing to writing non-digitally.	**Making music** Using a computer as a tool to explore rhythms and melodies, before creating a	**Desktop publishing** Creating documents by modifying text, images, and page	**Photo editing** Manipulating digital images, and reflecting on the impact of changes and whether the	**Vector drawing** Creating images in a drawing program by using layers and groups of objects	**3D modelling** Planning, developing, and evaluating 3D computer models of physical objects.

			musical composition.	layouts for a specified purpose	required purpose is fulfilled.		
		Term 6: Programming B					
		Programming animations Designing and programming the movement of a character on screen to tell stories	**Programming quizzes** Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.	**Events and actions in programs** Writing algorithms and programs that use a range of events to trigger sequences of actions.	**Repetition in games** Using a block-based programming language to explore count-controlled and infinite loops when creating a game.	**Selection in quizzes** Exploring selection in programming to design and code an interactive quiz.	**Sensing** Designing and coding a project that captures inputs from a physical device. Microbit online Extra microbit resources
E Safety	Refer to the M&D E-Safety Document						
Vocab	Internet World Wide Web Search	Programme Sequence	Digital content Data Information	Input Output Computing network Algorithms	Services Simulation Software	Logical reasoning Debug	Selection Control Variables
Approach to assessment	Teacher Assessment – record on class monitoring sheet.	1. Refer to summative assessment for each module on Teach Computing 2. Record on Class Summative assessment sheet and share with Computing leads each term.					

Key learning - Sticky knowledge	Explore and use technology.	I can use a mouse and a key board. I can use software to paint. I can plan a route using directions. I can classify labelling and using groups. I can use a word processing software to add and remove text. I can use an on-screen programming software to instruct a sprite.	I know what Information Technology is, the benefits and the risks. I can capture, edit and improve photographs. I can sequence a programme. I can collect data using a tally chart and compare it. I understand that music is a sequence of notes. I know that a sequence of demands has an outcome.	I can explain how information can be passed between devices. I can create a stop-frame animation using a tablet. I recognise that a sequence of commands needs an order. I can create questions that enable objects to be uniquely identified. I can choose appropriate page settings and layout on a publishing software. I can test a programme against a given design.	I can explain that websites and their content are created by people and are not always true. I can identify the input (microphone) and output devices (speakers and headphones) to work with sound digitally. I can design a programme that includes count controlled loops. I can plan how to collect data using a data logger. I can use software to crop, rotate and edit an image I can create a programme using a loop.	I know that components can work together to create a computer system. I can use a device to record a video shot with different camera angles. I can programme using 'if', 'then', 'else' conditions. I know what a field and a record is and how they are used in flat file databases. I can create lines and shapes and layer these objects to build a vector drawing.	I understand that data is transferred in an agreed method to each device which has an address. I can evaluate the common features of a webpage. I know what a variable is and have programmed using one in a game. I can use a formular to add data in a spreadsheet. I can use software to create and duplicate a 3D object. I can combine sensing and variables in a programming project.