COMPUTING

Heronshaw SCHOOL

COMPUTING			
EYFS	**Year 1**	**Year 2**	**Year 3** (KS2)
COMPUTER SCIENCE			
Knows how to turn on an electronic device and navigate touch capable technology with support.	**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 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 Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	
KNOWLEDGE			
	An algorithm is a sequence of steps, instructions or rules that is used to perform a specific task. Algorithms can be followed by people or digital equipment. For algorithms to achieve the end goal, instructions have to be accurate and followed sequentially. Mistakes are called bugs and finding and fixing them is called debugging. An algorithm is a sequence of steps, instructions or rules that is used to perform a specific	**Computers' behaviour can be predicted and the outcome tested by following the steps of an algorithm and recognising that the computer will follow instructions precisely.** **Robots can be programmed to follow a series of instructions, using an algorithm.**	**Several pieces of hardware can be used together to complete one task, such as using a camera to take a photograph, uploading it to a computer and then printing it using a printer**. Sequencing instructions is the step-by-step process that robots or other devices follow to achieve specific outcomes. This can be a single algorithm or series of algorithms called a program. Sequencing instructions is the step-by-step process that robots or other devices follow to achieve specific outcomes. This can be a single algorithm or series of algorithms called a program.

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SKILLS			
Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or images.	Follow a sequence of steps to solve a problem and create instructions that others can follow. Observe and explore outcomes when buttons are **pressed in sequences** on a robot and identify and debug a simple algorithm. Follow a sequence of steps to **solve a problem** and create instructions that others can follow. Observe and explore outcomes when buttons are pressed in sequences on a robot and identify and **debug a simple algorithm.**	Plan and enter a sequence of instructions using a robot, specifying **distance and angle of turn**. Create a simple solution that tests **an idea,** predict the outcome and test that the intended solution works. **Create a simple solution** that tests an idea, predict the outcome and test that the intended solution works.	Plan and enter a sequence of instructions using a robot or other device to achieve **specific outcomes**. Use familiar computer hardware to successfully complete a task. Plan and enter a sequence of instructions using a robot or other device to **achieve specific outcomes and debug them.**

PROJECTS			

Vocabulary			
Unit 1.2 - Grouping and sorting Sort, criteria	Unit 1.4 - Lego builders Instruction, algorithm , computer, program, debug	Unit 1.5 - Maze explorers Direction, challenge, arrow, undo, rewind, forward, backwards, right turn, left turn, debug, instruction, algorithm	Unit 1.7 - coding Action, algorithm background, code , command, debug/debugging, event, execute, input, instruction, object, properties, output, run, sound , scale when clicked

Unit 2.1 – coding Action, algorithm, background, button, collision detection, deb/debugging, design mode, event, key pressed, nesting, object, predict, properties, run, scale, scene, sound, when clicked/swiped, sequence, test, text, timer			

INFORMATION TECHNOLOGY			
Knows information can be retrieved from digital devices and the internet.	**Use technology purposefully to create, organise, store, manipulate and retrieve 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.

KNOWLEDGE			
	Software is the programs that are used by a computer, such as word processing software, presentation software or image editing software. **It can be used to create and combine digital content for different audiences and purposes**. Hardware is the parts of a computer that you can touch, such as a mouse, tablet or floor robot. To search for digital content, the user needs to know the file name, file type and folder name or keywords and search terms to find the correct information.	Software is available that can be used to represent collected data digitally, such as in a pictogram or bar chart. Each type of software, such as word processing, presentation and image editing, can be used for different purposes, including writing reports and creating slide shows or posters. Hardware, such as cameras, scanners and data loggers, can be used to collect data. Multimedia components, such as text, images, audio and video clips, can be created, edited and combined to create content for a range of tasks.	Several pieces of software can be used together to complete one task, such as adding a video to a word processed document. Some programs or apps have special types of technology, such as a built in camera or microphone, or sensors that measure light level, temperature or sound level. Text, images, animation, audio and video clips can be combined using tools within a piece of software or by using a range of software. For example, an image could be inserted into a word processing document or a video could be inserted into a presentation.

	Digital technology is used in all parts of everyday life, such as on a tablet to play a game or using a microwave to heat food. Some of this digital technology can be used to connect with others locally, such as sharing digital work in the classroom, or globally, such as using Skype on a computer to speak to a friend overseas.	A device is online if it is connected to the internet or a network and can communicate with other devices. A device is offline if it is not connected to the internet or network and cannot connect to other devices. Computers and devices can be linked in different ways, such as through a network, the internet and Bluetooth. This allows the sharing of resources.	Digital technology can be used for a range of purposes in different settings, such as using a tablet in the classroom to access educational material, in the home to access entertainment and in the community to share local news.
SKILLS			
Log in and navigate with support on an electronic device.	Select appropriate software to complete tasks using text, images, audio, videos. **Begin to use a range of software** for different purposes. Use a range of computing hardware for **different purposes**. Search for or retrieve digital content, including images and information, in digital folders and, with supervision, online. Explain simply that digital technology can be used to connect with others locally and globally.	Create and edit multimedia components for a range of tasks. Use **different types of software** and identify their purpose. Use computing hardware in different ways to **collect data.** Recognise and demonstrate that some digital content can be found online and some offline. Use data handling skills to represent data digitally. Recognise that computers can be linked to share resources.	Combine a range of text, images, animation and audio and video clips for given purposes. Use a **range of different software** to successfully complete a project. Use digital technology in different ways in the classroom, home and community. Log light level, temperature or sound level using a program or app.
Vocabulary			
Unit 1.3 - Pictograms Pictogram, data, collate	Unit 1.6- Animated story books animation, E-Book, Font, File Sound Effect, Display board	Unit 1.8 - Spread sheets arrow keys, backspace, cursor, columns, cells, clipart, count tool,	Unit 2.3 – spreadsheets Backspace, copy and paste, columns, cells, count tool, delete key, equals tool, image

		delete key, image toolbox, lock tool, move cell tool, rows, spreadsheet, speak tool	toolbox, lock tool, move cell tool, rows, speak tool, spreadsheet.
Unit 2.4- questioning Pictogram, question, data, collate, binary tree, avatar, database	Unit 2.6– creating pictures Impressionism, palette, pointillism, share, surrealism, template	Unit 2.7 – making music Bpm, composition, digitally, instrument, music, sound effects, soundtracks, tempo, volume	Unit 2.8 – presenting ideas Concept map (mind map), quiz, presentation, node, animated, non-fiction, narrative, audience

DIGITAL LITERACY			
Use technology safely and begin to understand that information should be looked after. Know who to talk to about having worries about something they have seen or done.	**Recognise common uses of information technology beyond school.** **Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.**		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. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

KNOWLEDGE			
	Digital technology is used in all parts of everyday life, such as on a tablet to play a game or using a microwave to heat food. Some of this digital technology can be used to connect with others locally, such as sharing digital work in the classroom, or globally, such as using Skype on a computer to speak to a friend overseas.	The internet is used to connect computers or devices around the world. Digital technology is used in everyday life and can be used to support learning and connect with others. Digital technology, such as email, social media platforms or blogs, can be used by individuals to communicate and connect	When work is saved, it is stored on a storage device, such as the computer's hard drive, a USB flash drive, a shared server or online. This work can then be retrieved from another device (except if it is saved on the computer's hard drive). Different software, websites and apps can be used to collaborate and communicate online. Each one has different terms and

	Software available online, such as email, social media platforms or blogs, can be made by individuals to communicate their ideas. Technology is used in many ways to do different jobs, such as using an interactive whiteboard in the classroom, using a tablet to do online shopping at home or using scanners in a shop in the community. **Private information includes name, address, date of birth or school and this information should not be shared online. Any concerns or worries should be reported to a trusted adult.**	with others but should be used appropriately, including using language that is not hurtful or disrespectful to others, having adult supervision or following the school's acceptable use policy. **Some websites are not age-appropriate and so it is important to tell a trusted adult about any concerns or worries.**	conditions that need to be adhered to stay safe, such as age restrictions. The World Wide Web is a collection of web pages that are run via the internet. The information requested can be displayed as text, images or videos. Advantages of communicating electronically are that it is available at any time, instant and global. Disadvantages include easier misunderstandings, lack of privacy (once something is published online, it cannot be removed) and a threat to personal safety (access to personal information). Concerns should be reported to a trusted adult. Images and data should not be shared online without the permission of the owner. Personal information, such as full name, age, school and address, should not be shared online. Different software, websites and apps can be used to collaborate and communicate online. Each one has different terms and conditions that need to be adhered to stay safe, such as age restrictions.
SKILLS			
	Explain simply that digital technology can be used to connect with others locally and globally.	Recognise some uses of the internet, in simple terms. Recognise why digital technology is used in the classroom, home and community.	Recognise that saved work can be retrieved from another device on the same network. *

	Understand that there are online tools that can help people to create and communicate. Recognise the ways digital technology can be used in the classroom, home and community. Recognise that some websites ask for private information and discuss how to handle these requests. Talk as a class about communication over the internet and what is it useful for locally e.g. text/email.	Use digital technology appropriately to communicate and connect with others locally and globally. Stay safe online by choosing websites that are appropriate to visit.	Use appropriate tools (software, websites and apps) to collaborate and communicate safely online. Explain that the World Wide Web contains lots of web pages about different subjects that can be searched. Use appropriate tools (software, websites and apps) to collaborate and communicate safely online. Describe simple rules for sharing images and data safely. Explain the advantages and disadvantages of communicating electronically and strategies for preventing issues.
Vocabulary			
Unit 1.9 - Technology outside school Technology	Unit 1.1 - online safety and exploring purple mash. Login, username, password, log out, my work, avatar, notification, topics , tools, save	Unit 2.2- Online safety Search, display board, internet, sharing, email, attachment, digital footprint.	Unit 2.5 – effective searching Internet, search, search engine