COMPUTING Year A

EYFS	Y1	Y2	Y3/4	Y5/6
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Procedural knowledge (from NC)

EYFS	Y1	Y2	Y3/4	Y5/6
E- Safety •Using technology safely **Computer Science** •Introduction to the word Algorithm and what it means •Following instructions and looking at order. •Using simple commands to control a Beebot's direction **Information Technology** •Use technology purposefully to achieve a given objective •Selecting the correct app	**E-safety** • use technology safely and respectfully • keeping personal information private • recognise common uses of information technology beyond school **Computer Science** •Understand what algorithms area • Create and debug simple programs **Information Technology** • use technology purposefully to create, store and retrieve digital content .	**E-safety** •use technology safely and respectfully • identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. **Computer Science** •Understands how they are implemented as programs on digital devices; • That programs execute by following precise and unambiguous instructions create • Debug simple programs • Uses logical reasoning to predict the behaviour of simple programs **Information Technology** •To learn the basics of photo editing and how images are layered. •Uses technology purposefully to manipulate and organise digital content	**E-safety** • identify a range of ways to report concerns about content and contact •use technology safely, respectfully and responsibly recognises acceptable/unacceptable behaviour **Computer Science** • use sequence in programs • work with various forms of input and output • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems • use repetition in programs • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs **Information Technology** • use search technologies effectively • Select, uses and combines internet services. • 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 goal including collecting, analysing, evaluating and presenting data and information .	**E-safety** •Understand, prevent and respond to Cyberbullying threats. **Computer Science** • solve problems by decomposing them into smaller parts • use selection 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 **Information Technology** • Select, use and combine a variety of software on a range of digital devices to design and create a range of systems and content that accomplish given goals, including analysing, evaluating data.

Unit and declarative knowledge (specific information we want children to know and remember)

EYFS	Y1	Y2	Y3/4	Y5/6
E-safety *Using the internet safely* •Understanding who our trusted adults are •Understanding of only talking online to people we know •How to deal with upsetting images **Information Technology** **Interactive Smartboard/Computer/IPAD** •Learn how to use a mouse and keyboard •Use different digital devices. •Explore the Interactive Smartboard to create drawings, shapes, manipulate images to control size, colour, orientation. • Recognise that you can access content on a digital device. • Use a mouse, touchscreen, or appropriate access device to target and select options on screen. • Recognise a selection of digital devices. **Computer Science** •Explore age appropriate interactive games *CrickWeb* Learn how to use computing basic skills linked to reading, writing and maths etc *Computer Discovery – Early Years*	**E-safety** *Using the internet safely* Private information includes names, addresses, dates of birth or schools and this information should not be shared online. That it is never Ok to share and that they have a right to say no. Any concerns or worries should be reported to a trusted adult. Discover that the internet can be used to visit faraway places and learn new things. - Compare how staying safe online is similar to staying safe in the real world. - Explain rules for traveling safely on the internet. **Information Technology** *Using a computer and ipad*	**E-safety** *Sharing pictures and playing safely* Digital technology is used in everyday life and can be used to support learning and connect with others. To understand what being online may look like, the different feelings we can experience online and how to identify adults who can help. To understand that photos can be shared online, the importance of seeking permission before sharing a photo. **Information Technology**	**E-safety** *Be internet brave* Understand what types of situations call for getting help or talking things out with a trusted adult. Consider what options there are for being brave and why bringing adults into the conversation is important. **Information Technology** *Researching on the internet* Digital technology can be used in different ways and settings to achieve a specific goal, such as using data collection in the community and home to answer a classroom based question. *Word, powerpoint, presentations Applications (During topic work)* 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. Several pieces of software can be used together to complete one task, such as adding a video to a word processed document. 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.	**E-safety** *Cyberbullying – Google be internet brave* Recognize that seeking help for oneself or others is a sign of strength. Think out loud together about situations where talking it out can really help. Know about apps and services' community standards, or terms of service. Be aware of online tools for reporting abuse. Consider when to use them. Talk about why and when to report the abuse. Using cloud networks to share documents. **Information Technology** imovie – make a video Using prior knowledge and experience of computing skills can be applied to create content using unfamiliar programs or apps. Creating, selecting and combining a range of texts, images, sound clips and videos for given purposes could include creating a web page, slide show presentation, short film or an animation. *Website design & Animation* A variety of software, such as word processing software, image editing software or internet services, can be selected, used and combined to meet a goal.

Children can learn how to use computers and digital devices but also understand how computers help us, the differences between different types of digital technology and recognise basic component *2 Simple* •2 Simple - using simple mouse controls to select and place items, draw/paint, select game options, exit program *Beebot (Physical) Beebot (Interactive Game)* •Explore Beebot commands and controls •Understanding simple computer commands to control Beebots direction and how this links to position *Phonics Play* Interact with and use IT skills linked to reading/writing *Splat* Interact with and use IT skills linked to Maths *Digital Art* Interactive Smartboard Everyone can create *Digital Music* Everyone can create	To log on to a windows computer To develop mouse and keyboard skills. To type, copy and paste and save work to a file. To explore how iPad touch, select, copy and paste is different to Windows functions. *Potty painters* To create and edit images. That 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. *Bug hunters* Data can be collected manually or using digital technology. It can be represented in different electronic forms, including charts and tables. Saving images from the internet creating, moving and renaming files. Computer Science *Tynker Jnr* 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. *Scratch Jnr* To add variables: movement, speed, sound and repeat a sequence of steps to perform tasks.	*Using a computer* Recognise why digital technology is used in the classroom, home and community. 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. To type without looking at the keyboard with correct finger placement 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. Computers and devices can be linked in different ways, such as through a network, the internet and Bluetooth. This allows for the sharing of resources. *Photo editing* Multimedia components, such as text, images, audio and video clips, can be created, edited and combined to create content for a range of tasks. Hardware, such as cameras, can be used to collect data. Computer Science *Scratch Jnr* To use variables move, show, hide, wait, repeat, dialogue, size, broadcast and messaging to control a sprite. 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. Create a simple solution that tests an idea, predict the outcome and test and debug the solution to ensure that it works.	Manipulating a range of text, images, sound or video clips and animation may include changing their style, size, colour, effect, shape, location or format. Interacting regularly with hardware enables users to recognise common features and become confident in working with new or unfamiliar hardware. New computing software commonly has features that should be familiar to users, such as icons or terminology. Computer Science 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. *Tynker* Build sequences and understand coding with loops, events and actions. Understand and identify bugs and how to approach fixing them (decomposition and abstraction).	Some software or apps are designed to help increase creativity by saving time or making tasks easier, such as being able to combine text, images, audio or video content into one place. Creating, selecting and combining a range of texts, images, sound clips and videos for given purposes could include creating a web page, slide show presentation, short film or an animation. *Goggle sketch up 3D Drawing & Excel spread sheets* A range of technologies can be selected, used and combined, such as using different hardware and software to create a solution that will have an impact on others. Computer Science (Advancing from 2D to 3D control within a game building environment.) Lightbot Hour and Tynker Online – Code using commands and sequences. Know how to use functions and loops. Scratch -create assets and multiple programs for 3 characters including the variables: timer and score for a collection game. To make a music file and incorporate this into the game. To use variables and how they are used to code a scoreboard, timer and life counter. Use logical reasoning to detect and correct errors in algorithms. Use decomposition is breaking down a problem down into smaller parts to make it easier to process and following a sequence of instructions. Decomposition is useful for checking programs and debugging because it saves time. Kodu – Use the above skills in a 3D gaming environment MIT App Inventor - Using prior knowledge and experience of computing skills can be applied to create content using unfamiliar programs or apps. Use algorithms to create an app that links to the pupils' secondary schools website. HTML Hacking and Python Coding - To use different program languages and understand that Python is the language that powers websites and apps and that web pages are written using HTML; use basic HTML tags; remix webpages using X-Ray Goggles. Swift Playgrounds- Describe, demonstrate and code: Using commands and sequences Debug Use functions and loops Problem solve with functions and loops Use conditional code and logic - use sequences of instructions (algorithms) that contain IF, THEN and OTHERWISE statements are called selections. Know that the computer will complete operations based on whether the conditions of these selections are met or not.