New computing vocabulary to introduce at EYFS

Algorithm - A precise, step-by-step guide to solve a problem or achieve a particular objective.

Camera - A piece of technology used to capture photographs or video. It could be a standalone device or embedded in a device such as a laptop, tablet or smartphone.

Computer - Any device that takes input, processes it, then produces output.

Control – using computers to move or otherwise change 'physical' systems. The computer can be hidden inside the system or connected to it.

Information – the meaning or interpretation given to a set of data by its users, or which results from data being processed.

Instructions - A guide how to do something. Instructions can be put into a sequence to create an algorithm

Internet – the global collection of computer networks and their connections, all using shared protocols (TCP/IP) to communicate.

Keyboard - An input device for a keyboard made up of many keys including the letters of the alphabet, numbers and a range of special characters.

Printer - An output device that transfers a document or image from the screen of a device to paper by printing it with ink.

Program - (verb) To give a series of instructions to a machine so that it will perform a task automatically.

QR code - A QR code (short for "quick response" code) is a type of barcode that contains a matrix of dots. It can be scanned using a QR scanner or a smartphone with built-in camera**Robot** - A machine that is programmable to carry out a series of actions automatically. Robots usually have the ability to sense, think and act with the help of sensors and a computer in, or attached to it.

Sequence - To place programming instructions in order, with each executed one after the other.

Tablet - A type of computer that is very slim and primarily operated by a touchscreen. Tablets usually have motion sensors and a camera built into them and run software called apps (applications).

Technology - machinery and equipment developed from the application of scientific knowledge.

Year 1 and Year 2 Vocabulary

Algorithm – an unambiguous procedure or precise step-by-step guide to solve a problem or achieve a particular objective. A set of instructions for achieving a goal or solving a problem.

Data – a structured set of numbers, representing digitised text, images, sound or video, which can be processed or transmitted by a computer.

Debug – to detect and correct the errors in a computer program.

Format (text) - Text formatting refers to the attributes of text other than the actual text itself. For example: bold, italics, underlining, colour, and size, are all formatting attributes of text.

Online - using a digital device to visit a website or app that makes use of the internet.

Repeat (Also referred to as a 'Loop' or 'Iteration' in upper KS2 & KS3) – a programming construct in which one or more instructions are repeated, perhaps a certain number of times, until a condition is satisfied or until the program is stopped.

Search – to identify data that satisfies one or more conditions, such as web pages containing supplied keywords, or files on a computer with certain properties.

Selection – 'when things happen' - A programming construct in which the instructions that are executed are determined by whether a particular condition met. A question is asked, and depending on the answer, the program chooses between two or more possible courses of action.

Sequence – to place programming instructions in order, with each executed one after the other.

Computer networks – the computers and connecting hardware (wifi access points, cables, fibres, switches and routers) that make it possible to transfer data using an agreed method ('protocol').

Execute – to follow a series of instructions. The computer or robot follows the instructions in order to complete the program.

Input – data provided to a computer system, such as via a keyboard, mouse, microphone, camera or physical sensors. Information which is received by the computer from a keyboard, mouse or sensor e.g. pressing the left mouse button or space bar creates an input.

Loop - a programming construct in which one or more instructions are repeated, perhaps a certain number of times, until a condition is satisfied or until the program is stopped.

Multimedia - Content that uses a combination of different content forms such as text, audio, images, animations, video and interactive content.

Output – the information produced by a computer system for its user, typically on a screen, through speakers or on a printer, but possibly though the control of motors in physical systems. Also an action performed by the computer e.g. switching on a light, moving a turtle or sprite across the screen.

Software – computer programs, including both application software (such as office programs, web browsers, media editors and games) and the computer operating system. The term also applies to 'apps' running on mobile devices and to web- based service

World Wide Web – a service provided by computers connected to the internet (web servers), in which pages of hypertext (web pages) are transmitted to users; the pages typically include links to other web pages and may be generated by programs automatically.

Web browser - A web browser, or simply "browser," is an application used to access and view websites. Common web browsers include Microsoft Internet Explorer, Google Chrome, Mozilla Firefox, and Apple Safari.

Year 3 and Year 4 Vocabulary

Abstraction - Removing unnecessary detail to help you solve a problem (a computational thinking concept)

Block – a 'chunk' of programming or a particular graphic block or piece found in a graphical programming language such as Scratch. Blocks linked together are called a script in Scratch. To find out what a block does, right-click on it, then select help from the pop-up menu.

Blocks Palette – (in Scratch) – the library of blocks in most graphical programming languages.

Command – a step or line of programming.

Condition - a programming rule to dictate when something in a program will happen. Sometimes referred to as an If-Then statement, because IF a condition is met, THEN an action is performed.

Costume – The costume is the appearance of a sprite on the screen. These are usually editable. A sprite can often have multiple costumes that are changed by programming the sprite. Database - A database is an organised collection of data, generally stored and accessed electronically from a computer system.

Decomposition - Breaking a problem down into smaller parts (a computational thinking concept)

Digital content – any media created, edited or viewed on a computer, such as text (including the hypertext of a web page), images, sound, video (including animation), or virtual environments, and combinations of these (i.e. multimedia).

Evaluation - Making judgements (a computational thinking concept)

Logic - Predicting and analysing. Computational logic is used to allow a program to decide what to do and when. For example you may write code that says: "When the user clicks this button, perform this calculation."

Logical reasoning – a systematic approach to solving problems or deducing information using a set of universally applicable and totally reliable rules.

PageRank – A way of ordering the results of a search on the internet. Google uses a PageRank algorithm, which determines the quality and rank of a page based on the quality of the pages that link to it. Their quality is, in turn, determined by the quality of the pages that link to them, and so on.

Patterns - Spotting and using similarities to solve problems (a computational thinking concept)

Processor - (CPU or Central Processing Unit) The microprocessor is the brain of the computer. It deals with inputs, thinks what to do with them, and then sends commands to the outputs of the computer. It is very smart and fast at calculating things, most processors will deal with millions of instructions per second. Other factors come into it as well, but a better, faster CPU will help your computer run faster and let it carry out more tasks at the same time.

Procedure - A procedure/function is used in programming to break a complex task down into simple steps or sections. Many different types of programming languages

can be used to build a procedure. Depending on the programming language, a procedure may also be called a subroutine, subprogram or function.

Repetition (Also referred to as a 'Loop' or 'Iteration' in upper KS2 & KS3) – a programming construct in which one or more instructions are repeated, perhaps a certain number of times, until a condition is satisfied or until the program is stopped.

Script – (In Scratch) blocks are snapped together into stacks, called scripts. When you click on a script, Scratch runs the blocks from the top of the script to the bottom. You can program sprites and the stage using scripts.

Scripts area - (In Scratch) – blocks are dragged from the block palette onto the script area in order to programme a sprite or stage.

Server - A server is a computer that serves up information to other computers on a network. Schools and many businesses will have a file server that pupils and employees can use to store and share files. A server can look like a regular desktop computer, or it can be much larger.

Services – programs running on computers, typically those connected to the internet, which provide functionality in response to requests; for example, to transmit a web page, deliver an email or allow a text, voice or video conversation.

Simulation – using a computer to model the state and behaviour of real-world (or imaginary) systems, including physical and social systems; an integral part of most computer games.

Software – computer programs, including both application software (such as office programs, web browsers, media editors and games) and the computer operating system. The term also applies to 'apps' running on mobile devices and to web- based services.

Sprite – A graphical object that can be controlled by programming. In Scratch projects are made up of objects called sprites. You can change how a sprite looks by giving it a different costume.

Stage – (in Scratch) - the Stage is where you see your stories, games, and animations come to life. Sprites move and interact with one another on the Stage. The Stage is 480 units wide and 360 units tall. It is divided into an x-y grid. The middle of the Stage has an x-coordinate of 0 and a y-coordinate of 0.

Variables – A variable is a piece of information in a program that we want to store, but are able to change, such as a score, the time left, or the user's name.

Year 5 and Year 6

Array (or list) - A tool that can be used to store multiple pieces of information at once. It can also be defined as a variable containing multiple other variables. A list consists of numbers paired with items. Each item can be retrieved by its paired number.

CPU - (Central Processing Unit) The microprocessor is the brain of the computer. It deals with inputs, thinks what to do with them, and then sends commands to the outputs of the computer. It is very smart and fast at calculating things, most processors will deal with millions of instructions per second. Other factors come into it as well, but a better, faster CPU will help your computer run faster and let it carry out more tasks at the same time.

CSS - (Cascading Style Sheets) A language used to describe reusable styles for presenting documents written in a markup language. CSS allows web developers to alter the layout and appearance of their web pages. For example, CSS may be used to change the font used in certain HTML element, as well as its size and colour. A single CSS file may be linked to multiple pages, which allows a developer to change the appearance of all the pages at the same time.

GPU - (Graphics Processing Unit), like the CPU it is a single-chip processor. The GPU is used for computing graphics (screen images). This includes things such as lighting effects, object transformations, and 3D motion. Because these types of calculations are rather taxing on the CPU, the GPU can help the computer run more efficiently by doing this work for it, especially if it's part of an external graphics card (not built into the motherboard) as these can have their own RAM as well.

Hard drive - A drive on a computer that stores data. It houses the hard disk, where all your files and folders are physically located. A typical hard drive is only slightly larger than your hand, yet can hold huge amounts of data.

Hardware - Any part of your computer that has a physical structure, such as the keyboard, monitor or mouse. It also includes all of the computer's internal parts.

HTML - Hypertext Markup Language. HTML is used to create electronic documents (called pages) that are displayed on the World Wide Web.. Every web page you see on the Internet is written using one version of HTML code or another. HTML code ensures the proper formatting of text and images so that your Internet browser may display them as they are intended to look. HTML also provides a basic structure of the page, upon which Cascading Style Sheets are overlaid to change its appearance. One could think of HTML as the bones (structure) of a web page, and CSS as its skin (appearance).

Iteration - (Also referred to as a 'Loop' or 'Repetition') – a programming construct in which one or more instructions are repeated, perhaps a certain number of times, until a condition is satisfied or until the program is stopped.

Operating system - Software that communicates with the hardware and allows other programs to run. It consists of system software, or the fundamental files your computer needs to boot up and function. Every desktop computer, tablet, and smartphone includes an operating system that provides basic functionality for the device. Common desktop and laptop operating systems are Microsoft Windows, Apple OS and Linux. Common mobile operating systems are Android and Apple's iOS.

RAM - This stands for Random Access Memory. It's the computer's short term memory where things can be held for very quick access. It remembers all immediate things the computer does and runs between the CPU and the Hard Drive but it forgets everything once the computer is shut down. Adding more RAM to your computer can have a big impact on speeding it up as the more RAM you have, the more data can be loaded from the hard drive into the RAM (for very fast access).
When your RAM gets full your computer will slow down and sometimes freeze and crash.

ROM = ROM stands for 'Read Only Memory'. It is memory containing hardwired instructions that the computer uses when it boots up, before the system software (operating system) loads. In PCs, the instructions are read from a small program in the ROM, called the BIOS (Basic Input/Output System). This data still remains even when the computer is shut down or unplugged as it has its own small battery built into the system.