Skills					
	EYFS	**Key Stage 1**		**Key Stage 2**	
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Computer Science (Including Networks)	Explore toys that stimulate control devices with the intention of finding out how it works (e.g. traffic lights, microwave, cash till) Explore the commands needed to control a range of electronic toys	Predict the behaviour of simple programs (Bee-bots)	Use logical reasoning to predict the behaviour of simple programs (answer how, why and how do you know questions) Create simple programs (Junior Scratch, Espresso Coding) Debug simple programs using logical reasoning to predict actions instructed by code	Design, write and debug programs that control or simulate virtual events (Scratch – write and test own algorithms for simple outcomes such as making a character move, talk)	Decompose programs into smaller parts Use logical reasoning to detect and correct errors independently in algorithms and programs
Information Technology (Using Computers)	Interact and explore their environment, selecting a range of multimedia equipment including digital cameras, microscopes, ipads for particular purposes.	Use technology purposefully to create digital content (Word processing, basic text editing tools e.g. size, colour, font)	Use technology purposefully to create, organise, store, manipulate and retrieve digital content (ie. open and save files reliably to a given location) Use technology purposefully to create digital content comparing the benefits of different programs	Make efficient use of familiar forms of input and output devices With support, select and use a variety of software to accomplish goals (Excel, publisher, Movie Maker or Photostory 3)	Independently select and use a variety of software on a range of digital devices (Word, Publisher, Movie Maker, Excel, Book Creator) select, use and combine a variety of software on a range of digital devices to accomplish given goals (recognise the specific functions of different software and be confident moving between different applications) Use other input devices such as cameras or sensors

Knowledge					
	EYFS	Key Stage 1		Key Stage 2	
	Reception	Year 1	Year 2	Year 3	Year 4
Computer Science (Including Networks/Working Online)	Children can follow instructions and begin to understand that instructions must be sequenced. Children explore how giving commands to a **Beebot** or **Remote Control** toy achieves different outcomes. Children to begin to adapt their understanding of controls to achieve a more specific outcome (**Bee Bots**)	Understand what algorithms are and how they are implemented on digital devices **Beebots** • Give commands including straight forwards / backwards / turn one at a time • Explore what happens when a sequence of instructions is given	Understand that programs execute by following precise and unambiguous instructions (Jam Sandwich Algorithm) **Bee-bots** • Give a set of simple instructions to follow out a task • Give a set of instructions to form simple geometric shapes • Improve/change their sequence of commands **Scratch Junior/Espresso Coding** • Select precise and simple commands and sequence to achieve a given outcome • Identify bugs and de-bug with support **Internet Research** • Know how to access the internet and type in given addresses • Explore websites by clicking on links, menus, arrows and hyperlinks	Use logical reasoning to explain how some simple algorithms work (explain the purpose of the code without running it and why a particular coding approach was taken) **Scatch Full Version** • Navigate the Scratch programming environment • Select a sprite and create a background • Choose and select simple commands including movement, sound, dialogue and graphic lines • Begin to use repetition, loops (e.g. forever) and conditional commands (e.g. if… then…) **Internet Research** • Type in a URL accurately to find a given website • Use a search engine to find a range of media (images, text) • Think of search terms to use linked with questions they would like to answer • Recognise that not all information online is reliable and identify strategies for checking information	**Scratch Full Version** • Begin to understand the concepts of abstraction and decomposition • Design a programme to create a game for a specified user • Import backgrounds and sprites and know how to edit these • Create games with more than one sprite • Use a wider and more complex range of conditional commands • Begin to use variables (ie. Simple scoring systems) **Internet Research** • Differentiate between fact and opinion • Understand websites such as Wikipedia are made and contributed by many users • Use strategies to check the reliability of information (e.g. cross checking with other sources including books) • Understand copyright

Information Technology (Using Computers)	Children recognise that a range of technology is used in places such as homes and schools. Children explore how technology has changed over time by sharing artefacts, photos and videos and asking others.	Recognise common uses of information technology in the home and school environment (e.g. computers, tablets, smart phones) **Using Computers** • Use group logins • Use spacebar, backspace, delete, return keys • Word process short texts to present • Switch computers on and off correctly and understand why this is important • Use Book Creator to capture photographs and annotate using text tools	Recognise common uses of technology beyond school (e.g. using tablets for shopping/gaming/email, digital cameras for photography) **Using Computers** • Log on and off using personal logins • Save and retrieve work to pupil portfolios and understand the importance of this • Use Microsoft Word to create texts, including editing text (font, colour, size) • Create simple tables and insert graphs using Excel, understanding the use of this software •	Understand that computer networks enable the sharing of data and information (understand that computers can be interconnected e.g. school network and that this enables them to share information) Understand why search engines are necessary to find web pages on the internet and how to use them efficiently Recognise that some online sources are more reliable than others Recognise familiar forms of input and output devices and how they are used **Using Computers** • Create powerpoint presentations including a title slide, choosing a style • Change the layout of a slide • Insert pictures/text/graphs from the internet or personal files • Decide upon and use effective transitions	Understand that the internet is a large network of computers and that information can be shared between computers Understand what servers are and how they provide services to a network Understand how results are selected and ranked by search engines **Using Computers** • Capture videos and photographs for a purpose (e.g. movie trailer) • Add simple titles, credits and special effects • Choose appropriate software and use it independently to complete a specific task for a given audience and explain their choices

E-Safety (Common Sense Media Scheme) /Digital Literacy	Pupils understand what being 'safe' means in a variety of contexts. Pupils understand how to cross a road safely, how to keep safe in school, and about the danger of speaking to strangers.	Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies • Going Places Safely • Keep It Private • Sending Email • My Creative Work	Know how to use technology safely Recognise what personal information is and know how to keep it private online Identify some implications of sharing personal information online • Follow the Digital Trail • Using Key Words • Screen Out The Mean • Staying Safe Online • Sites I Like	Know how to use technology safely and respectfully, keeping personal information private Use technology safely and recognise acceptable and unacceptable behaviour explaining their reasoning • My Online Community • Powerful Passwords • Show Respect Online • Things For Sale • Writing Good Emails	Know how to use technology responsibly and understand that communication online may be seen by others Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies • Private and Personal Information • The Key To Key Words • Rings of Responsibility • The Power Of Words • Who Is It Anyway

Programming Progression

Programming progressions can be a complex issue. Many of these concepts can be taught in a simple or more complex way. This is a concept group best fit progression designed around block-based programming for primary pupils. Some concepts inside some groups are more complex than the proceeding group but generally the first column goes from top to bottom. At Westlands we do not teach these concepts outside of a context of making programs that do something meaningful but we do enable pupils to have accurate programming language which provides them with a hook to hang their experiences and creations on. All programming projects use more than one type of programming construct.

Sequence –A set of instructions that follow each other

Output –Information comes out of a program
Sound output–Notes & sounds
Text output –Dialogue box
Graphical output–Line & colour
Sprite output -Costumes, location, size, colour

Repetition –Instructions that repeat (loop)
Repeat x times –Instructions that repeat (loop) a set number of times
Forever Loop –Loops that once started will not stop until the program or script ends
Nested Loops –Loops inside loops
Condition ends loop -Loops that once started will not stop until a condition is met

Conditional Selection –Programming that starts, stops or is affected by a condition
Condition starts action
Condition stops action
Condition switches between actions
Condition ends loop

Boolean Operatives
OR –out of two or more conditions only one needs to be met to start something.
AND –Two or more conditions need to be met to start something.
NOT –Reverses a condition

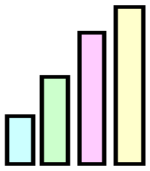
Input -Information goes into a program
Click input –Click or touch to input information
Key input –Press a key to input information
Text input –Type to input information

Variable -can only store one value at a time – a number or a string.
Number or string –String is any combination of numbers, text and symbols
Set the variable –Empty the variable and give it a new value
Change the variable –Adapt the value in the variable (sometimes through maths operations)
Change the variable in a loop –Adapt the variable using a loop

Procedure -Code designed to do something useful that can be used (run) many times.
Simple procedure –Unchangeable code that can be run lots of times
Adaptable procedure –Adaptable code that can be run lots of times

Work Flow –The order of operation across many scripts, sprites or the stage
Broadcast to another script
Broadcast to many scripts
Broadcast to broadcast

@baggiepr Code-IT



KS1 NC
KS2 NC
KS2 Best Practice
KS2 Extension KS3 NC

List
Add to a list –Add a new value to a list
Remove from a list –Remove a value from a list
Choose randomly from a list
Check to see if in the list –Check to see if a value is in a list

This is a primary programming concept group best fit progression