Woodside Academy Progression Map for *Computing*

INTENT:

At Woodside, we intend to prepare our children for a rapidly changing world through the use of technology. Our high-quality computing curriculum is designed to enable them to use computational thinking and creativity to further understand our world. Our curriculum design has deep links with maths, science, literacy and art. Building on this knowledge and understanding, we intend for our children to become digitally literate – able to use, express themselves and develop their ideas at a level suitable for the future workplace and as active participants in a highly digital world.

AUT TERM	EYFS	KS1		KS2			
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
KNOWLEDGE	Busy Things/ Internet Safety Logging in Paint Mouse control Keyboard skills	**Computing systems and networks – Technology around us** -To identify technology -To identify a computer and its main parts -To use a mouse in different ways -To use a keyboard to type on a computer -To use the keyboard to edit text -To create rules for using technology responsibly **Creating media – Digital painting** -To describe what different freehand tools do	**Computing systems and networks – IT around us** -To recognise the uses and features of information technology -To identify the uses of information technology in the school -To identify information technology beyond school -To explain how information technology helps us -To explain how to use information technology safely -To recognise that choices are made when using information technology	**Computing systems and networks – Connecting computers** -To explain how digital devices function -To identify input and output devices -To recognise how digital devices can change the way we work -To explain how a computer network can be used to share information -To explore how digital devices can be connected -To recognise the physical components of a network	**Computing systems and networks – The Internet** -To describe how networks physically connect to other networks -To recognise how networked devices make up the internet -To outline how websites can be shared via the World Wide Web (WWW) -To describe how content can be added and accessed on the World Wide Web (WWW) -To recognise how the content of the WWW is created by people -To evaluate the consequences of unreliable content	**Computing systems and networks - Systems and searching** -To explain that computers can be connected together to form systems -To recognise the role of computer systems in our lives -To experiment with search engines -To describe how search engines select results -To explain how search results are ranked -To recognise why the order of results is important, and to whom **Creating media - Video production**	**Computing systems and networks - Communication and collaboration** -To explain the importance of internet addresses -To recognise how data is transferred across the internet -To explain how sharing information online can help people to work together -To evaluate different ways of working together online -To recognise how we communicate using technology -To evaluate different methods of online communication

		-To use the shape tool and the line tools -To make careful choices when painting a digital picture -To explain why I chose the tools I used -To use a computer on my own to paint a picture -To compare painting a picture on a computer and on paper	**Creating media – Digital photography** -To use a digital device to take a photograph -To make choices when taking a photograph -To describe what makes a good photograph -To decide how photographs can be improved -To use tools to change an image -To recognise that photos can be changed	**Creating media - Stop-frame animation** -To explain that animation is a sequence of drawings or photographs -To relate animated movement with a sequence of images -To plan an animation -To identify the need to work consistently and carefully -To review and improve an animation -To evaluate the impact of adding other media to an animation	**Creating media - Audio production** -To identify that sound can be recorded -To explain that audio recordings can be edited -To recognise the different parts of creating a podcast project -To apply audio editing skills independently -To combine audio to enhance my podcast project -To evaluate the effective use of audio	-To explain what makes a video effective -To identify digital devices that can record video -To capture video using a range of techniques -To create a storyboard -To identify that video can be improved through reshooting and editing -To consider the impact of the choices made when making and sharing a video	**Creating media – Web page creation** -To review an existing website and consider its structure -To plan the features of a web page -To consider the ownership and use of images (copyright) -To recognise the need to preview pages -To outline the need for a navigation path -To recognise the implications of linking to content owned by other people
S K I L L S	Completes a simple program on a computer. Uses ICT hardware to interact with age appropriate computer software.	**Computing systems and networks – Technology around us** - Locate examples of technology - Switch on and log into a computer - use a mouse to click and drag - Use a keyboard to type - Use a keyboard to edit text **Creating media – Digital painting**	**Computing systems and networks – IT around us** - sort IT by what it's used for and where it's found - Demonstrate how IT devices works **Creating media – Digital photography** - Using a digital device to take a photograph - Using tools to change an image	**Computing systems and networks – Connecting computers** - classify input and output devices -describe a simple process Design a digital device - recognise and suggest differences similarities between using digital devices and non-digital tools	**Computing systems and networks – The Internet** - recognise WWW contains websites and web pages -Describe how to access websites -Describe where websites are stored -recognise anyone can add content to WWW **Creating media - Audio production**	**Computing systems and networks - Systems and searching** -compare results from different search engines -Use web search to find specific information -refine a web search **Creating media - Video production** -Capturing video using a digital device	**Computing systems and networks - Communication and collaboration** -Using a search engine efficiently -Being a safe, respectful and responsible digital citizen. -Can explain how a computer system, such as a search engine, works. **Creating media – Web page creation**

		- Using shape tools and line tools -Using a computer to paint a picture		- explain how messages are passed through multiple connections **Creating media - Stop-frame animation** -Planning and creating an animation - Reviewing and improving an animation	-Using a digital device to record sound -Changing audio through editing -Combining audio	-Improving video by reshooting and editing	-Planning and creating a web page -Thinks logically and systematically when solving problems in the designing of a web page. -Uses a range of technologies to create content
SPR TERM	**EYFS**	**KS1**		**KS2**			
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
KNOWLEDGE	Microsoft Word/ Internet Safety Beebots/ Programming Keyboard skills Typing Editing	**Programming A – Moving a robot** -To explain what a given command will do -To act out a given word -To combine forwards and backwards commands to make a sequence -To combine four direction commands to make sequences -To plan a simple program -To find more than one solution to a problem	**Programming A – Robot algorithms** -To describe a series of instructions as a sequence -To explain what happens when we change the order of instructions -To use logical reasoning to predict the outcome of a program -To explain that programming projects can have code and artwork -To design an algorithm -To create and debug a program that I have written	**Programming A - Sequencing sounds** -To explore a new programming environment -To identify that commands have an outcome -To explain that a program has a start -To recognise that a sequence of commands can have an order -To change the appearance of my project -To create a project from a task description	**Programming A – Repetition in shapes** -To identify that accuracy in programming is important -To create a program in a text-based language -To explain what 'repeat' means -To modify a count-controlled loop to produce a given outcome -To decompose a task into small steps -To create a program that uses count-controlled loops to produce a given outcome	**Programming A – Selection in physical computing** -To control a simple circuit connected to a computer -To write a program that includes count-controlled loops -To explain that a loop can stop when a condition is met -To explain that a loop can be used to repeatedly check whether a condition has been met -To design a physical project that includes selection -To create a program that	**Programming A – Variables in games** -To define a 'variable' as something that is changeable -To explain why a variable is used in a program -To choose how to improve a game by using variables -To design a project that builds on a given example -To use my design to create a project -To evaluate my project **Data and information – Spreadsheets**

		Data and information – Grouping data -To label objects -To identify that objects can be counted -To describe objects in different ways -To count objects with the same properties -To compare groups of objects -To answer questions about groups of objects	**Data and information – Pictograms** -To recognise that we can count and compare objects using tally charts -To recognise that objects can be represented as pictures -To create a pictogram -To select objects by attribute and make comparisons -To recognise that people can be described by attributes -To explain that we can present information using a computer	**Data and information – Branching databases** -To create questions with yes/no answers -To identify the attributes needed to collect data about an object -To create a branching database -To explain why it is helpful for a database to be well structured -To plan the structure of a branching database -To independently create an identification tool	**Data and information – Data logging** -To explain that data gathered over time can be used to answer questions -To use a digital device to collect data automatically -To explain that a data logger collects 'data points' from sensors over time -To recognise how a computer can help us analyse data -To identify the data needed to answer questions -To use data from sensors to answer questions	controls a physical computing project **Data and information – Flat-file databases** -To use a form to record information -To compare paper and computer-based databases -To outline how you can answer questions by grouping and then sorting data -To explain that tools can be used to select specific data -To explain that computer programs can be used to compare data visually -To use a real-world database to answer questions	-To create a data set in a spreadsheet -To build a data set in a spreadsheet -To explain that formulas can be used to produce calculated data -To apply formulas to data -To create a spreadsheet to plan an event -To choose suitable ways to present data
S K I L L S	Completes a simple program on a computer. Uses ICT hardware to interact with age appropriate computer software.	**Programming A – Moving a robot** - Combining forwards and backwards commands to make a sequence - Combining four direction commands to make sequences	**Programming A – Robot algorithms** - Using logical reasoning to predict the outcome of a program - Designing an algorithm - Creating and debugging a program	**Programming A - Sequencing sounds** Exploring a programming environment Changing the appearance of a project Creating a project from a task description	**Programming A – Repetition in shapes** Creating a program in textbased language -Modifying a count controlled loop -Decomposing a program into parts - -Creating a program	**Programming A – Selection in physical computing** -Controlling a circuit connected to a computer -Writing a program that includes count-controlled loops	**Programming A – Variables in games** -Improving a game by using variables -Designing and creating a project that builds on a given example and achieves a specific goal

		- Planning a simple program Finding more than one **Data and information –** - Counting objects with the same properties	**Data and information – Pictograms** - Creating a pictogram - Selecting objects by attribute and making comparisons - Presenting information using a computer	**Data and information – Branching databases** Creating questions with yes/no answers Creating a branching database Identifying objects using a branching database	that uses count-controlled loops **Data and information – Data logging** -Using a digital device to collect data -Using data to find information	-Designing a physical project that includes selection **Data and information – Flat-file databases** -Using a form to record information -Using knowledge of databases to ask and answer questions	**Data and information – Spreadsheets** -Applying formula to data, including duplicating -Collecting data for a spreadsheet -Creating a spreadsheet -Choosing suitable ways to present data
SUM TERM	**EYFS**	**KS1**		**KS2**			
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
KNOWLEDGE	Data Handling/ Busy Things Paint and publisher/Busy Things Internet Safety	**Creating media – Digital writing** -To use a computer to write -To add and remove text on a computer -To identify that the look of text can be changed on a computer -To make careful choices when changing text -To explain why I used the tools that I chose -To compare typing on a computer to writing on paper **Programming B - Programming animations**	**Creating media - Digital music** -To say how music can make us feel -To identify that there are patterns in music -To experiment with sound using a computer -To use a computer to create a musical pattern -To create music for a purpose -To review and refine our computer work **Programming B - Programming quizzes** -To explain that a sequence of	**Creating media – Desktop publishing** -To recognise how text and images convey information -To recognise that text and layout can be edited -To choose appropriate page settings -To add content to a desktop publishing publication -To consider how different layouts can suit different purposes -To consider the benefits of desktop publishing	**Creating media – Photo editing** -To explain that the composition of digital images can be changed -To explain that colours can be changed in digital images -To explain how cloning can be used in photo editing -To explain that images can be combined -To combine images for a purpose -To evaluate how changes can improve an image	**Creating media – Introduction to vector graphics** -To identify that drawing tools can be used to produce different outcomes -To create a vector drawing by combining shapes -To use tools to achieve a desired effect -To recognise that vector drawings consist of layers -To group objects to make them easier to work with -To apply what I have learned about vector drawings	**Creating media – 3D Modelling** -To recognise that you can work in three dimensions on a computer -To identify that digital 3D objects can be modified -To recognise that objects can be combined in a 3D model -To create a 3D model for a given purpose -To plan my own 3D model -To create my own digital 3D model **Programming B - Sensing movement**

		-To choose a command for a given purpose -To show that a series of commands can be joined together -To identify the effect of changing a value -To explain that each sprite has its own instructions -To design the parts of a project -To use my algorithm to create a program	commands has a start -To explain that a sequence of commands has an outcome -To create a program using a given design -To change a given design -To create a program using my own design -To decide how my project can be improved	**Programming B - Events and actions in programs** -To explain how a sprite moves in an existing project -To create a program to move a sprite in four directions -To adapt a program to a new context -To develop my program by adding features -To identify and fix bugs in a program -To design and create a maze-based challenge	**Programming B – Repetition in games** -To develop the use of count-controlled loops in a different programming environment -To explain that in programming there are infinite loops and count controlled loops -To develop a design that includes two or more loops which run at the same time -To modify an infinite loop in a given program -To design a project that includes repetition -To create a project that includes repetition	**Programming B – Selection in quizzes** -To explain how selection is used in computer programs -To relate that a conditional statement connects a condition to an outcome -To explain how selection directs the flow of a program -To design a program which uses selection -To create a program which uses selection -To evaluate my program	-To create a program to run on a controllable device -To explain that selection can control the flow of a program -To update a variable with a user input -To use a conditional statement to compare a variable to a value -To design a project that uses inputs and outputs on a controllable device -To develop a program to use inputs and outputs on a controllable device
S K I L L S	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	**Creating media – Digital writing** -Using a computer to write - Adding and removing text on a computer - Changing text **Programming B - Programming animations** - Showing that a series of commands	**Creating media - Digital music** - Creating music for a purpose - Reviewing and refining computer work **Programming B - Programming quizzes** - Creating a program using a given design	**Creating media – Desktop publishing** - Choosing appropriate page settings - Adding content to a desktop publishing publication **Programming B - Events and actions in programs** - Creating a program to move a sprite	**Creating media – Photo editing** -Changing the composition of an image -Making good choices when selecting tools **Programming B – Repetition in games**	**Creating media – Introduction to vector graphics** -Creating a vector drawing by combining shapes -Using tools to achieve a desired effect -Grouping objects to make them easier to work with	**Creating media – 3D Modelling** -Uses a range of technologies to create content -Using a computer to create and manipulate 3D digital objects -Constructing a digital 3D model of a physical object

		can be joined together - Designing the parts of a project - Using an algorithm to create a program	- Changing a given design - Creating a program using my own design	- Adapting a program to a new context - Adding features to a program - Identifying and fixing bugs in a program - Designing and creating a maze-based challenge	-Developing the use of count-controlled loops -Developing a design that includes two or more loops running at the same time -Modifying an infinite loop -Creating a project that includes repetition	**Programming B – Selection in quizzes** -Creating a program that uses selection	-Designing a digital model by combining 3D objects -Developing and improving a digital 3D model **Programming B - Sensing movement** -test a program on an emulator -transfer a program to a controllable device -experiment with different physical inputs -Use a condition to change a variable -Modify a program to achieve a different outcome -use operant in an if, then statement -design the algorithm for my project -design the program flow for my project -create a program based on my design -test program against the design -use a range of approaches to find and fix bugs
IMPACT							

EYFS	KS1		KS2			
Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. Children can use the keyboard and mouse. Children can access an app.	Children should be able to confidently log in and use a range of technology/programs e.g. Beebots, computer, camera. They use different technology/programs appropriately to type, locate, identify and create.	Children can recognise different forms of information technology. They know how to stay safe when working online. Children can understand how code moves a sprite and how to write an algorithm for movement. They can take a picture on the Ipad and use tools to adapt the image.	Children demonstrate a safe use of the Internet, awareness of privacy. Competent use of Excel spreadsheets, word documents and editing. Accomplished at collecting, analysing, evaluating, presenting data and information. Understanding of Binary.	Children should be confident in using the internet safely (search engines) and who to report concerns to. Understand the meaning of algorithms and how they work, detecting and correcting simple errors.	Children will know how to use a variety of different programs to achieve a desired outcome. They will be able to identify and debug algorithms in order to create a game using Kodu. Children will be able to use spreadsheets to collect and calculate data and present it in a variety of ways. They know how to stay safe online and how to behave responsibly online.	Children are able to use logical reasoning to explain how simple algorithms work in different programs and be able to apply their knowledge and understanding. Children should be able to use search technologies effectively and independently. Children should be able to understand computer networks, including the internet and be able to use them safely, respectfully and responsibly.