




 WOODVALE PRIMARY ACADEMY
**Progression of Skills
 In Computing**



EYFS Computing Understanding the World

These early learning goals link most closely to the Computing National Curriculum.

30-50 Months	40-60 Months	ELG
<ul style="list-style-type: none"> • To know how to operate simple toys/devices. • To show an interest in technological toys or real objects with knobs or pulley. • To show skill in making toys work by pressing or lifting to achieve effects such as sound, movements or new images. • To know that information can be retrieved from computers. 	<ul style="list-style-type: none"> • To complete a simple program on a computer. • To interact with age appropriate computer software. 	<ul style="list-style-type: none"> • To recognise that a range of technology is used in places such as homes, work places and schools. • To select and use technology for particular purposes.

Key Stage 1 National Curriculum Expectations	Key Stage 2 National Curriculum Expectations
---	---

<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • 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 technology purposefully to create, organise, store, manipulate and retrieve digital content; • 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. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts; • 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; • 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; • 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; • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
---	--



Progression of Skills In Computing

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Technology in Our Lives	<p>Children begin to make links to how they use technology outside of the classroom. They begin to think about the benefits of using technology in their lives, making links to learning about online safety.</p> <p>KS1 Computing National Curriculum Children recognise common uses of technology beyond school. They use technology safely and respectfully, keeping personal information private; they identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</p>		<p>Children refer to online safety rules when discussing technology in their lives. They are able to navigate between websites and use safe search terms on trusted search engines. They become more confident in using email for communication, including attaching and saving files from emails.</p> <p>KS2 Computing National Curriculum Children 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. They use search technologies effectively, appreciate how results are selected and ranked, and are discerning in evaluating digital content.</p>		<p>Children can use safe search terms on trusted search engines, and evaluate websites based on layout and information. They become more confident in understanding Google rankings, adverts and the reliability of websites.</p> <p>KS2 Computing National Curriculum Children 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. They use search technologies effectively, appreciate how results are selected and ranked, and are discerning in evaluating digital content.</p>	
	<ul style="list-style-type: none"> Recognise the way they use technology in our classroom. Recognise ways that technology is used in their home and community. Use links to websites to find information. Begin to identify some of the benefits of using technology 	<ul style="list-style-type: none"> Tell adults why they use technology in the classroom. Tell adults why they use technology in their home and community. Starting to understand that other people have created the information they use. Identify benefits of using technology including finding information, creating and communicating. Talk about the differences between the internet and things in the physical world. 	<ul style="list-style-type: none"> Save and retrieve work on the internet, the school network or their own device. Talk about the parts of a computer. Tell adults ways to communicate with others online. Describe the World Wide Web as the part of the internet that contains websites. Use search tools to find and use an appropriate website. Think about whether they can use images that they find online in their own work. 	<ul style="list-style-type: none"> Tell adults whether a resource they are using is on the internet, the school network or their own device. Identify key words to use when searching safely on the World Wide Web. Think about the reliability of information they read on the World Wide Web. Tell adults how to check who owns photos, text and clipart. Create a hyperlink to sources on the World Wide Web. 	<ul style="list-style-type: none"> Describe different parts of the internet. Use different online communication tools for different purposes. Use a search engine to find appropriate information and check its reliability. Recognise and evaluate different types of information they find on the World Wide Web. Describe the different parts of a webpage. Find out who the information on a webpage belongs to. 	<ul style="list-style-type: none"> Tell adults the internet services they need to use for different purposes. Describe how information is transported on the internet. Select an appropriate tool to communicate and collaborate online. Talk about the way search results are selected and ranked. Check the reliability of a website. Tell adults about copyright and acknowledge the sources of information that they find online



WOODVALE PRIMARY ACADEMY

<p>Programming</p>	<p>Children begin to understand their influence on technology by developing their programming skills to determine output. They begin to understand that an algorithm is a series of steps for solving problems and a code is a series of steps that machines can execute. They begin to explore debugging, predicting when codes may not work and changing them. Beebots, Roamers and logo turtle will be used to help with this.</p> <p>KS1 Computing National Curriculum Children understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions. They create, debug and use logical reasoning to predict the behaviour of simple programs.</p>		<p>Children build on their programming skills by solving problems and programming commands to achieve a specific outcome. They begin to write programs, explain algorithms and identify errors in their work. To help with these students will use logo and a block based visual programming language such as Scratch.</p> <p>KS2 Computing National Curriculum Children design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; they solve problems by decomposing them into smaller parts. They use sequence, selection, and repetition in programs and work with variables and various forms of input and output. They use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>		<p>Children continue to build on their programming skills using Scratch and by using new systems such as a flowol and learn a programming language such as Python. They continue to break down problems and create algorithms to solve them. They are able to explain the outcome of an algorithm with confidence and accuracy.</p> <p>KS2 Computing National Curriculum Children design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; they solve problems by decomposing them into smaller parts. They use sequence, selection, and repetition in programs and work with variables and various forms of input and output. They use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	
<p>PROGRAMMING Computer Science</p>	<ul style="list-style-type: none"> • Give instructions to others and follow their instructions to move around. • Describe what happens when they press buttons on a robot. • Press the buttons in the correct order to make their robot do what they want. 	<ul style="list-style-type: none"> • Give instructions to others (using forward, backward and turn) and physically follow their instructions. • Program a robot or software to do a particular task. • Use programming software to make objects move. 	<ul style="list-style-type: none"> • Put programming commands into a sequence to achieve a specific outcome. • Use repeat commands. 	<ul style="list-style-type: none"> • Use a variety of tools to create a program. • Use a sensor to detect a change which can select an action within their program. 	<ul style="list-style-type: none"> • Refine a procedure using repeat commands to improve a program. • Change an input to a program to achieve a different output. • Talk about how a computer model can provide information about a physical system. • Use a variable to increase programming possibilities. 	<ul style="list-style-type: none"> • Recognise when they need to use a variable to achieve a required output. • Use a variable and operators to stop a program. • Use different inputs (including sensors) to control a device or onscreen action and predict what will happen.
<p>PROGRAMMING Computational Thinking</p>	<ul style="list-style-type: none"> • Describe what actions they will need to do to make something happen and begin to use the word 'algorithm'. • Begin to predict what will happen for a short sequence of instructions. 	<ul style="list-style-type: none"> • Tell adults the order they need to do things to make something happen and talk about this as an algorithm. • Look at other's programs and tell them what will happen. 	<ul style="list-style-type: none"> • Break an open-ended problem up into smaller parts. • Describe the algorithm they will need for a simple task. 	<ul style="list-style-type: none"> • Use logical thinking to solve an open-ended problem by breaking it up into smaller parts. • Recognise that an algorithm will help them sequence more complex programs. • Use an efficient procedure to simplify a program. • Recognise that using algorithms will also help solve problems in other learning such as maths, science and design technology 	<ul style="list-style-type: none"> • Decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program. • Use 'if' and 'then' commands to select an action. • Use logical thinking, imagination and creativity to extend a program. 	<ul style="list-style-type: none"> • Deconstruct a problem into smaller steps, recognising similarities to solutions used before. • Explain and program each of the steps in their algorithm.



WOODVALE PRIMARY ACADEMY

<p>PROGRAMMING</p> <p>Evaluation</p>	<ul style="list-style-type: none"> Use the word 'debug' when they correct mistakes when they program. 	<ul style="list-style-type: none"> Watch a program execute and spot where it goes wrong so that they can debug it. 	<ul style="list-style-type: none"> Detect a problem in an algorithm which could result in a mistake to occur. Keep testing their programs and can recognise when they need to debug it. 	<ul style="list-style-type: none"> Recognise an error in a program and debug it. Know that they need to keep testing their programs while they are putting it together. 	<ul style="list-style-type: none"> Use logical reasoning to detect and debug mistakes in a program. 	<ul style="list-style-type: none"> Evaluate the effectiveness and efficiency of their algorithm while they continually test the programming of that algorithm. Use logical reasoning to detect and correct errors in algorithms.
<p>Online Safety and Online Sense</p>	<p>Children begin to consider their activity on the internet and learn about ways to keep themselves safe and why it is important to do so. They also compare appropriate and inappropriate activity on the internet and decide what to do next.</p> <p>KS1 Computing National Curriculum Children can use technology safely and respectfully, keeping personal information private; they identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</p>		<p>Children become more aware of their digital footprint by reflecting on their experience on the internet. They are able to understand more about age-appropriate websites and adverts and how adverts are used by companies. Children are also introduced to the concept of plagiarism and citation.</p> <p>KS2 Computing National Curriculum Children use technology safely, respectfully and responsibly. They recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact.</p>		<p>Children are encouraged to identify online risks and share their knowledge of the risks and consequences for people online. They begin to think more critically about what they see online and look at the concept of fake news and false photographs.</p> <p>KS2 Computing National Curriculum Children use technology safely, respectfully and responsibly. They recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact.</p>	
	<ul style="list-style-type: none"> Keep a password private Explain what personal information is Know when to tell an adult when they see something unexpected or worrying online Able to talk about why it is important to be kind and polite Recognise an age appropriate website Agree and follow sensible safety rules 	<ul style="list-style-type: none"> Explain why we need to keep my password and personal information private. Describe the things that happen online that they must tell an adult about. Talk about why they should go online for a short amount of time. Talk about why it is important to be kind and polite online and in real life. Know that not everyone is who they say they are on the internet. 	<ul style="list-style-type: none"> Talk about what makes a secure password and why they are important. Protect personal information when they do different things online. Use the safety features of websites as well as reporting concerns to an adult. Recognise websites and games appropriate for my age. Make good choices about how long they spend online. Ask an adult before downloading files and games from the internet. Post positive comments online. 	<ul style="list-style-type: none"> Choose a secure password when they are using a website. Talk about the ways they can protect themselves and others from harm online. Use the safety features of websites as well as reporting concerns to an adult. Know that anything they post online can be seen by others. Choose websites and games that are appropriate for their age. Help their friends make good choices about the time they spend online. Talk about why they need to ask a trusted adult before downloading files and games from the internet. Comment positively and respectfully online. 	<ul style="list-style-type: none"> Protect their password and other personal information. Explain why they need to protect themselves and their friends and the best ways to do this, including reporting concerns to an adult. Know that anything they post online can be seen, used and may affect others. Talk about the dangers of spending too long online or playing a game. Explain the importance of communicating kindly and respectfully. Discuss the importance of choosing an age-appropriate website or game. Explain why they need to protect their computer or device from harm. Know which resources on the internet they can download and use. 	<ul style="list-style-type: none"> Protect their password and other personal information. Explain the consequences of sharing too much information about themselves online. Support their friends to protect themselves and make good choices online, including reporting concerns to an adult. Explain the consequences of spending too much time online or on a game. Explain the consequences to themselves and others of not communicating kindly and respectfully. Protect their computer or device from harm on the internet.



Multimedia Text and Images	<p>Children begin to understand the particular purposes technology can be used for and that by adding text and images you can communicate with technology. Children develop their skills in typing, selecting tools and organising information.</p> <p>KS1 Computing National Curriculum Children use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p>		<p>Children develop their skills of formatting using keyboard commands, organising their work to demonstrate effect. In LKS2, they will have the opportunity to express themselves more through digital technology: sound recording, image editing, presentation software and desktop publishing . Children should continue to demonstrate control when operating tools as in KS1.</p> <p>KS2 Computing National Curriculum Children 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. They 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.</p>		<p>Children begin to look at new software, creating videos, sound files, animations, websites, 3D models and learning how to orbit, zoom and develop their editing skills further. They become more confident in inserting links, sound, images and formatting text to create effect.</p> <p>KS2 Computing National Curriculum Children 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.</p>	
	<ul style="list-style-type: none"> • Be creative with different technology tools. • Use technology to create and present their ideas. • Use the keyboard or a word bank on their device to enter text. • Save information in a specific place and retrieve it again. 	<ul style="list-style-type: none"> • Use technology to organise and present their ideas in different ways. • Use the keyboard on their device to add, delete and space text for others to read. • Tell adults about an online tool that will help them to share their ideas with other people. • Save and open files on the device they use. 	<ul style="list-style-type: none"> • Create different effects with different technology tools. • Combine a mixture of text, graphics and sound to share their ideas and learning. • Use appropriate keyboard commands to amend text on their device, including making use of a spellchecker. • Evaluate their work and improve its effectiveness. • Use an appropriate tool to share their work online. 	<ul style="list-style-type: none"> • Use photos, video and sound to create an atmosphere when presenting to different audiences. • Be confident to explore new media to extend what they can achieve. • Change the appearance of text to increase its effectiveness. • Create, modify and present documents for a particular purpose. • Use a keyboard confidently and make use of a spellchecker to write and review their work. • Use an appropriate tool to share their work and collaborate online. • Give constructive feedback to others to help them improve their work and refine their own work. 	<ul style="list-style-type: none"> • Use text, photo, sound and video editing tools to refine their work. • Use the skills they have already developed to create content using unfamiliar technology. • Select, use and combine the appropriate technology tools to create effects that will have an impact on others. • Select an appropriate online or offline tool to create and share ideas. • Review and improve their work and support others to improve their work. 	<ul style="list-style-type: none"> • Talk about audience, atmosphere and structure when planning a particular outcome. • Confidently identify the potential of unfamiliar technology to increase their creativity. • Combine a range of media, recognising the contribution of each to achieve a particular outcome. • Tell adults why they select a particular online tool for a specific purpose. • Be digitally discerning when evaluating the effectiveness of their work and the work of others



<p>Handling Data</p> <p>These aspects will also be taught in other curriculum areas (Science, geography and maths)</p>	<p>Children will explore how information and data can be gathered, stored and shown. They begin to start making simple tables and databases based on the data they gathered.</p> <p>KS1 Computing National Curriculum Children use technology purposefully to create, organise, store, manipulate and retrieve digital content;</p>		<p>Children begin to explore expressing information in tables, sorting and organising information for others to be able to understand.</p> <p>KS2 Computing National Curriculum Children 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.</p>		<p>Data Handling in UKS2 focuses on selecting the correct method to display data and using software such as spreadsheets. Children also learn how to check the accuracy of data and compare data for a specific purpose.</p> <p>KS2 Computing National Curriculum Children 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.</p>	
	<ul style="list-style-type: none"> • Talk about the different ways in which information can be shown. • Use technology to collect information, including photos, video and sound. • Sort different kinds of information and present it to others. • Add information to a pictograph and talk to adults about what they have found out. 	<ul style="list-style-type: none"> • Talk about the different ways they use technology to collect information, including a camera, microscope or sound recorder. • Make and save a chart or graph using the data they collect. • Talk about the data that is shown in their chart or graph. • Starting to understand a branching database. • Tell adults what kind of information they could use to help investigate a question. 	<ul style="list-style-type: none"> • Talk about the different ways data can be organised. • Search a ready-made database to answer questions. • Collect data to help them answer a question. • Add to a database. • Make a branching database. Use a data logger to monitor changes and can talk about the information collected. 	<ul style="list-style-type: none"> • Organise data in different ways. • Collect data and identify where it could be inaccurate. • Plan, create and search a database to answer questions. • Choose the best way to present data to others. • Use a data logger to record and share readings with others. 	<ul style="list-style-type: none"> • Use a spreadsheet and database to collect and record data. • Choose an appropriate tool to help them collect data. • Present data in an appropriate way. • Search a database using different operators to refine their search. • Talk about mistakes in data and suggest how it could be checked. 	<ul style="list-style-type: none"> • Plan the process needed to investigate the world around them. • Select the most effective tool to collect data for their investigation. • Check the data they collect for accuracy and plausibility. • Interpret the data they collect. • Present the data they collect in an appropriate way. • Use the skills they have developed to interrogate a database.



WOODVALE PRIMARY ACADEMY