

**Physical Education Progression**

**Intent of the curriculum**

Through teaching computing we equip our children to participate in a rapidly changing world where work and leisure activities are increasingly transformed by technology. It is our intention to enable children to find, explore, analyse, exchange and present information. We also focus on developing the skills necessary for children to be able to use information in an effective way. Computing skills are a major factor in enabling children to be confident, creative and independent learners and it is our intention that children have every opportunity available to allow them to achieve this.

**Early Learning Goal and National Curriculum Links**

EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
<p><b>Personal, Social and Emotional Development</b></p> <ul style="list-style-type: none"> <li>Show resilience and perseverance in the face of a challenge.</li> <li>Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.</li> <li>Explain the reasons for rules, know right from wrong and try to behave accordingly.</li> </ul> <p><b>Physical Development</b></p> <ul style="list-style-type: none"> <li>Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</li> <li>Know and talk about the different factors that support their overall health and wellbeing e.g. sensible amounts of 'screen time'.</li> </ul> <p><b>Expressive Arts and Design</b></p> <ul style="list-style-type: none"> <li>Explore, use and refine a variety of artistic effects to express their ideas and feelings.</li> <li>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</li> <li>create and debug simple programs</li> <li>use logical reasoning to predict the behaviour of simple programs</li> <li>use technology purposefully to create, organise, store, manipulate and retrieve digital content</li> <li>recognise common uses of information technology beyond school</li> <li>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.</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> <li>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</li> <li>use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>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</li> <li>use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul>	

**At Woodseaves children will:**

	EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
<b>Computing Systems and Networks</b>	<p>To know how to repeat an action with technology to trigger a specific outcome.</p> <p>To be able to recognise the success or failure of an action. To be able to follow simple instructions to control a digital device.</p> <p>To know that we control computers.</p> <p>To be able to input a short sequence of instructions to control a device.</p> <p>To know the basic parts of a computer, e.g. mouse, screen, keyboard.</p>	<p>To identify technology.</p> <p>To identify a computer and its main parts.</p> <p>To use a mouse in different ways.</p> <p>To use a keyboard to type on a computer.</p> <p>To use the keyboard to edit text.</p> <p>To create rules for using technology responsibly.</p> <p>To recognise the uses and features of information technology.</p> <p>To identify the uses of information technology in the school.</p> <p>To identify information technology beyond school.</p> <p>To explain how information technology helps us.</p> <p>To explain how to use information technology safely.</p> <p>To recognise that choices are made when using information technology</p>	<p>To explain how digital devices function.</p> <p>To identify input and output devices.</p> <p>To recognise how digital devices can change the way that we work.</p> <p>To explain how a computer network can be used to share information.</p> <p>To explore how digital devices can be connected.</p> <p>To recognise the physical components of a network.</p> <p>To describe how networks physically connect to other networks.</p> <p>To recognise how networked devices make up the internet.</p> <p>To outline how websites can be shared via the World Wide Web (WWW).</p> <p>To describe how content can be added and accessed on the World Wide Web (WWW).</p> <p>To recognise how the content of the WWW is created by people.</p> <p>To evaluate the consequences of unreliable content.</p>	<p>To explain that computers can be connected together to form systems.</p> <p>To recognise the role of computer systems in our lives.</p> <p>To recognise how information is transferred over the internet.</p> <p>To explain how sharing information online lets people in different places work together.</p> <p>To contribute to a shared project online.</p> <p>To evaluate different ways of working together online.</p> <p>To identify how to use a search engine.</p> <p>To describe how search engines select results.</p> <p>To explain how search results are ranked.</p> <p>To recognise why the order of results is important, and to whom.</p> <p>To recognise how we communicate using technology.</p> <p>To evaluate different methods of online communication.</p>
<b>Vocabulary</b>	Computer, mouse, keyboard, screen, monitor.	technology, computer, mouse, keyboard information technology	digital devices, network, component networked devices, websites, content, unreliable	systems, internet, online, project search engine, online communication
<b>Creating Media</b>	<p>To be able to operate a digital device with support to fulfil a task e.g. take a photo.</p> <p>To be able to create simple digital content, e.g. digital art. To be able to use different digital devices.</p> <p>To know that you can access content on a digital device.</p> <p>To be able to use a mouse, touchscreen or appropriate access device to target and select options on screen.</p>	<p>To describe what different freehand tools do.</p> <p>To use the shape tool and the line tools.</p> <p>To make careful choices when painting a digital picture.</p> <p>To explain why I chose the tools I used.</p> <p>To use a computer on my own to paint a picture.</p> <p>To compare painting a picture on a computer and on paper.</p> <p>To use a computer to write.</p> <p>To add and remove text on a computer.</p> <p>To identify that the look of text can be changed on a computer.</p> <p>To make careful choices when changing text.</p> <p>To explain why I used the tools that I chose.</p> <p>To compare typing on a computer to writing on paper.</p>	<p>To explain that animation is a sequence of drawings or photographs.</p> <p>To relate animated movement with a sequence of images.</p> <p>To plan an animation.</p> <p>To identify the need to work consistently and carefully.</p> <p>To review and improve an animation.</p> <p>To evaluate the impact of adding other media to an animation.</p> <p>To recognise how text and images convey information.</p> <p>To recognise that text and layout can be edited.</p> <p>To choose appropriate page settings.</p> <p>To add content to a desktop publishing publication.</p> <p>To consider how different layouts can suit different purposes.</p>	<p>To identify that drawing tools can be used to produce different outcomes.</p> <p>To create a vector drawing by combining shapes.</p> <p>To use tools to achieve a desired effect.</p> <p>To recognise that vector drawings consist of layers.</p> <p>To group objects to make them easier to work with.</p> <p>To apply what I have learned about vector drawings.</p> <p>To explain what makes a video effective.</p> <p>To use a digital device to record video.</p> <p>To capture video using a range of techniques.</p> <p>To create a storyboard.</p> <p>To identify that video can be improved through reshooting and editing.</p>

		<p>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.          To create music for a purpose.</p>	<p>To consider the benefits of desktop publishing.          To identify that sound can be digitally recorded.          To use a digital device to record sound.          To explain that a digital recording is stored as a file.          To explain that audio can be changed through editing.          To show that different types of audio can be combined and played together.          To explain that digital images can be changed.          To change the composition of an image.          To describe how images can be changed for different uses.          To make good choices when selecting different tools.          To recognise that not all images are real.          To evaluate how changes can improve an image.</p>	<p>To consider the impact of the choices made when making and sharing a video.          To use a computer to create and manipulate three-dimensional (3D) digital objects.          To compare working digitally with 2D and 3D graphics.          To construct a digital 3D model of a physical object.          To identify that physical objects can be broken down into a collection of 3D shapes.          To design a digital model by combining 3D objects.          To develop and improve a digital 3D model.          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.</p>
<b>Vocabulary</b>	<b>Photograph.</b>	<b>tools, digital picture</b> <b>Evaluate, improve, edit,</b>	<b>animation, sequence, media</b> <b>digital device, audio, composition</b>	<b>outcomes, vector, layers, storyboard, editing</b> <b>3D digital objects, 3D model, website, copyright, navigation path, content</b>
<b>Data and Information</b>	<p>To begin to label objects.          To begin to group objects based on similarities and differences.</p>	<p>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          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.</p>	<p>To create questions with yes/no answers.          To identify the object attributes needed to collect relevant data.          To create a branching database.          To explain why it is helpful for a database to be well structured.          To identify objects using a branching database.          To compare the information shown in a pictogram with a branching database.          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 use data collected over a long duration to find information.          To identify the data needed to answer questions.          To use collected data to answer questions.</p>	<p>To use a form to record information.          To compare paper and computer-based databases.          To outline how grouping and then sorting data allows us to answer questions.          To explain that tools can be used to select specific data.          To explain that computer programs can be used to compare data visually.          To apply my knowledge of a database to ask and answer real-world questions.          To identify questions which can be answered using data.          To explain that objects can be described using data.          To explain that formulas can be used to produce calculated data.          To apply formulas to data, including duplicating.          To create a spreadsheet to plan an event.          To choose suitable ways to present data.</p>
<b>Vocabulary</b>	<b>Same, different, group, label.</b>	<b>objects</b> <b>tally charts, pictogram, comparisons, attributes, present</b>	<b>relevant data, database, structure</b> <b>data, sensors</b>	<b>form</b> <b>formulas, duplicating, spreadsheet</b>
<b>Programming</b>	<p>To begin to give and follow simple instructions.          To begin to use simple commands to follow a sequence.</p>	<p>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.</p> <p>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.          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 (series of commands).          To explain that programming projects can have code and artwork.          To design an algorithm.          To create and debug a program that I have written.</p>	<p>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.</p> <p>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.          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.</p>	<p>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 controls a physical computing project.</p> <p>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 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.</p>

		<p>To explain that a sequence of commands has a start.</p> <p>To explain that a sequence of commands has an outcome.</p> <p>To create a program using a given design.</p> <p>To change a given design.</p> <p>To create a program using my own design.</p> <p>To decide how my project can be improved.</p>	<p>To develop the use of count-controlled loops in a different programming environment.</p> <p>To explain that in programming there are infinite loops and count-controlled loops.</p> <p>To develop a design that includes two or more loops which run at the same time.</p> <p>To modify an infinite loop in a given program.</p> <p>To design a project that includes repetition.</p> <p>To create a project that includes repetition.</p>	<p>To create a program to run on a controllable device.</p> <p>To explain that selection can control the flow of a program.</p> <p>To update a variable with a user input.</p> <p>To use an conditional statement to compare a variable to a value.</p> <p>To design a project that uses inputs and outputs on a controllable device.</p> <p>To develop a program to use inputs and outputs on a controllable device.</p>
<b>Vocabulary</b>	<b>Command, instructions</b>	<b>command, sequence, program</b> <b>logical reasoning, programming project, sequence</b>	<b>appearance, project, sprite, context, adapt</b> <b>text-based language, loops, infinite, repetition</b>	<b>simple circuit, condition, flow, evaluate</b> <b>variable, conditional statement, inputs, outputs, controllable device</b>
<b>Diversity</b>	Ada Lovelace, Grace Hopper, Katherine Johnson, Margaret Hamilton, Adele Goldberg, Roy L. Clay Snr, Clarence 'Skip' Ellis, Mark Dean, Kimberley Bryant, Alan Turing.			
<b>Christian Values links</b>	Courage, wisdom, forgiveness.			
<b>Cultural Capital Links Possibilities</b>	Lego programming/coding workshops, The National Museum of Computing, Apple store, Bletchley Park, Thorpe Park – programming of the rides.			

