

# Woodside Junior School

## Primary Computing Curriculum

### Aims

- 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.

### Curriculum overview

<b>Year 3</b>	<b>Basic skills and Google Classroom</b> Understanding how to operate the school devices, Google Classroom and developing typing skills. <b>Programming A – sequence in music (Scratch)</b> An introduction to block coding by creating a piano representation.	<b>Data and information – branching databases (www.j2e.com)</b> Use databases to sort data using yes/no questions and decide what types of data should be presented as a branching database <b>Programming B – events and actions (Scratch)</b> Using events, actions and extensions to design and code amaze tracing program.	<b>Creating media – desktop publishing (Google Docs)</b> Use desktop publishing software to create a magazine cover. <b>Extended Project</b> Use desktop publishing skills to create a leaflet based on Amersham.
<b>Year 4</b>	<b>Computing systems and networks – the internet</b> Understanding what the World Wide Web and the Internet are and how to evaluate online content. <b>Programming A – repetition in shapes (www.turtleacademy.com)</b> Using repetition and loops to create shapes and patterns.	<b>Creating media – Google Slides</b> Create a presentation using text, images and transitions. <b>Extended Project</b> Use presentation skills to create a presentation with a cross-curricular link.	<b>Creating media – photo editing</b> Change and edit digital images and evaluate the effectiveness of their choices. <b>Programming B – repetition in games (Scratch)</b> Using knowledge of repetition and loops to design and create a game which uses repetition
<b>Year 5</b>	<b>Computing systems and networks – sharing information</b> Develop a more in depth understanding of computer systems and how information is transferred. <b>Creating media – vector drawing (Google Drawings)</b> Explore different drawing tools and how to use layers to create complex drawings.	<b>Programming B – selection in quizzes (Scratch)</b> Using the If... Then... Else structure to select different outcomes depending on whether a condition is true or false in a quiz. <b>Data and information – flat-file databases (www.j2e.com)</b> Using tools within a database to order and answer questions about data and to create graphs and charts.	<b>Creating media – web page creation (Google Sites)</b> Create a website for a specific purpose, paying specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths. <b>Extended Project</b> Use web page skills to create a page with a cross-curricular link.
<b>Year 6</b>	<b>Computing systems and networks – communication</b> Understanding how search engines work and evaluate which methods of internet communication to use for a particular purpose.	<b>Programming B – sensing (Micro:bit)</b> Using all programming knowledge to program a physical device.	<b>Creating media – video editing (Do Ink app – green screen)</b> Using green screen technology to develop the skills of capturing, editing, and manipulating video.

	<b>Programming A – variables in games (Scratch)</b> Apply knowledge of variables and design to create and improve a game in Scratch.	<b>Data and information – spreadsheets (Google Sheets)</b> Organising information, formatting and formulas to complete calculations.	<b>Extended Project</b> Use video editing skills to create an advert for the enterprise project.
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Skills overview				
	Year 3	Year 4	Year 5	Year 6
Computer systems and networks	<b>Basic skills</b> Understand how access the school computers Learn school email address and password Access and share work on Google Classroom Explore how a video call on Google Meet works Develop typing skills	<b>The Internet</b> Describe how networks can be connected to other networks Know how to access the WWW, its benefits, that the internet is part of the WWW and it comprises of websites and web pages Understand that the content of the WWW is created, owned or shared by people Evaluate the reliability of the content and the consequences of unreliable content Recognise the need for security on the internet	<b>Sharing Information</b> Recognise that computers can be joined together to form systems and the role of computer systems in our lives Recognise input, process and outputs of larger computer systems Recognise that information is shared across the internet in different media forms Explain that data is transferred in packets and that connections between computers allow us to work together Recognise that internet collaborations can be private or public	<b>Communication</b> Use a search engine effectively, including understanding how to use search terms Explain why search engines create indexes and these are different for each search engine To explain how, and why, search results are ordered and that this is called ranking Evaluate the results of search terms Identify that results from search engines can include adverts, and that adverts can be targeted Recognise that some information is not searchable Identify different ways to communicate, with and without technology, for different purposes Evaluate different methods of online communication Decide what should/should not be shared
	<b>Desktop Publishing (Google Docs)</b> Combine text and graphics to convey a message Choose a suitable template for a purpose Change page settings and orientation Use shift to add capital letters, use . ? ! and use return and backspace Use font size and colour to create emphasis Change the orientation and wrapping on text Arrange text and images Delete unwanted content Add, resize and change orientation of images	<b>Google Slides</b> Create new slides Add a custom background to each slide Insert images and text Use a range of transitions between slides Use transitions for each slide component Arrange content to suit the purpose Embed links and content	<b>Vector Drawing (Google Drawings)</b> Create graphical elements on a computer screen Select a shape, line or text type to add to a drawing Select, duplicate or delete an object Reposition, rotate, resize, alter and recolour an object Select multiple objects Group, modify and change the layers of an object Recognise that vector images can be scaled without impact on quality	<b>Video Editing (DoInk green screen)</b> Use a computer to create a video Locate the recording function Hold the device safely in landscape orientation Pan, focus, zoom and compose Use green screen techniques Locate and play back captured video Select a section of video Apply effects or delete a section Save and export a video file Plan a video using a storyboard
		<b>Photo Editing</b>	<b>Web Pages (Google Sites)</b> Create a web page	

	<p>Understand the benefits of using desk top publishing software</p>	<p>Use a computer to manipulate images</p> <p>Open/retrieve images</p> <p>Arrange, crop and cut out part of an image</p> <p>Adjust colour, apply filters and add effects to images</p> <p>Retouch and reuse images</p> <p>Draw, add text and add elements to images</p> <p>Recognise that not all images are real</p> <p>Consider the impact of changes made on the quality of the image</p>	<p>Add, change the appearance or change the position of text</p> <p>Add images and other content</p> <p>Add additional pages</p> <p>Insert hyperlinks to other pages or other sites</p> <p>Embed content</p> <p>Consider the ownership and use of images (copyright)</p> <p>Recognise the need to preview pages on different devices</p> <p>Understand the need for a navigational path</p> <p>Understand the implication of linking content belonging to others</p>	<p>Recognise that some digital devices can capture video using a camera and microphone</p> <p>Consider the results of choices that I have made</p>
<b>Programming</b>	<p><b>Sequence In Music (Scratch)</b> <b>Events and Actions (Scratch)</b></p> <p>Explain that a program has a start</p> <p>Identify that a program contains a sequence of commands</p> <p>Build and combine a sequence</p> <p>Recognise that sequences have an order</p> <p>Order commands in a program</p> <p>Explain that the order of commands can affect the outcome</p> <p>Identify that different sequences can have the same outcome</p> <p>Create a sequence of commands to produce a given outcome</p>	<p><b>Repetition In Shapes (Logo)</b> <b>Repetition In Games (Scratch)</b></p> <p>Identify everyday tasks which include repetition as part of a sequence, and write it as a list of instructions</p> <p>Understand that we can use a loop command to repeat instructions</p> <p>Identify patterns and loops</p> <p>Understand and explain what indefinite and count-controlled loops are</p> <p>Predict the outcome of a program containing an indefinite or count-controlled loop</p> <p>Use, modify and create a program, containing an indefinite or count-controlled loop, to create a given outcome</p>	<p><b>Selection In Quizzes (Scratch)</b></p> <p>Understand that conditional statements are used in computer programs</p> <p>Understand that a condition can be true or false</p> <p>Explain that instructions in a program will produce specific outcomes</p> <p>Experiment with a repeat-until loop</p> <p>Explain that a loop will stop when a condition is met</p> <p>Explain, modify and create a count-controlled or event-controlled loop</p> <p>Use a condition in a 'if.. then... 'statement</p> <p>Understand that a condition can switch program flow in one of two ways</p> <p>Use a condition in a 'if...then...else... 'statement</p>	<p><b>Variables In Games (Scratch)</b></p> <p>Define a variable as something that is changeable</p> <p>Identify examples of information that is variable</p> <p>Understand a variable can be used in a program (e.g. score)</p> <p>Identify and experiment with a variable in an existing program</p> <p>Identify that variables can hold numbers (integers) or letters (strings)</p> <p>Choose a name which identifies the role of a variable to make it more useable (to humans)</p> <p>Decide where in a program to set a variable</p> <p>Update a variable with a user input</p> <p>Understand that there is only one value for a variable at any one time</p> <p>Use the same variable in more than one location in one program</p> <p>Explain why the name of a variable needs to be unique</p> <p><b>Sensing (Micro:Bit)</b></p> <p>Define a variable as something that is changeable</p> <p>Identify examples of information that is variable</p>

				<p>Understand a variable can be used in a program (e.g. score)</p> <p>Explain a variable has a name and a value</p> <p>Identify and experiment with a variable in an existing program</p> <p>Identify that variables can hold numbers (integers) or letters (strings)</p> <p>Choose a name which identifies the role of a variable to make it more useable (to humans)</p> <p>Decide where in a program to set a variable</p> <p>Update a variable with a user input</p> <p>Use an event in a program to update a variable</p> <p>Use a variable in a conditional statement to control the flow of a program</p> <p>Understand that there is only one value for a variable at any one time</p> <p>Use the same variable in more than one location in one program</p> <p>Explain why the name of a variable needs to be unique</p>
<b>Data and information</b>	<p><b>Branching Databases</b></p> <p>Investigate and create questions with yes/no answers</p> <p>Identify the object attributes needed to collect relevant data</p> <p>Select an attribute to separate objects into two similarly sized groups</p> <p>Explain that data can be used to answer questions</p> <p>Decide what data needs to be collected</p> <p>Retrieve information from different levels of a branching database</p> <p>Relate two levels of a branching database using AND</p> <p>Compare the information shown in a pictogram with a branching database</p>		<p><b>Flat File Databases</b></p> <p>Devise a way to answer a question using a database</p> <p>Navigate a flat-file database</p> <p>Understand that a computer program can be used to organise data</p> <p>Design a structure for a flat-file database</p> <p>Choose different ways to view data</p> <p>Explain the tools that can be used to select data to answer questions</p> <p>Understand how ordering data can be used to help answer questions</p> <p>Ask questions that need more than one attribute to answer</p> <p>Choose which attribute and value to sort data by to answer a question</p>	<p><b>Spreadsheets (Google Sheets)</b></p> <p>Identify questions that can be answered using data</p> <p>Understand that objects/artefacts can be described using data</p> <p>Explain what an item of data is</p> <p>Explain that computers deal with different data types in different ways</p> <p>Understand that formulas can be used to produce calculated data</p> <p>Understand that changing inputs also changes outputs</p> <p>Explain why data should be organised</p> <p>Apply formulas to data, including duplication</p> <p>Evaluate results in comparison to the questions asked</p>

			<p>Understand how AND and OR can be used to refine data selection</p> <p>Understand that computer programs can be used to compare data visually</p> <p>Select an appropriate graph to compare data visually</p> <p>Explain that we present information to communicate a message</p>	<p>Choose suitable ways to represent data</p>
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