Great Hollands Primary School

Computing Curriculum

Computing

At Great Hollands Primary School, we aim to prepare our learners for their future by giving them the opportunities to gain knowledge and develop skills that will equip them for an ever-changing digital world.

Knowledge and understanding of ICT is of increasing importance for children's future, both at home and for employment. Our Computing curriculum focuses on a progression of skills in digital literacy, computer science, information technology and online safety to ensure that children become competent in safely using, as well as understanding, technology. These strands are revisited repeatedly through a range of themes during children's time in school to ensure the learning is embedded and skills are successfully developed. Our intention is that Computing also supports children's creativity and cross-curricular learning throughout all subjects, to engage children and enrich their experiences in school.

We teach the National Curriculum, supported by the Teach Computing scheme to provide clear skills and knowledge progression. This ensures that skills and knowledge are built on year by year and sequenced appropriately to maximise learning for all children. To ensure a broad range of skills and understanding, Computing is taught across three main strands: digital literacy, computer science and information technology. As part of information technology, children learn to develop their ideas through writing and presenting as well as exploring art and design using multimedia. Within digital literacy, children develop practical skills in the safe use of ICT and the ability to apply these skills to solve relevant, worthwhile problems such as, understanding safe use of internet, networks and email. In computer, science we teach children to understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation; to analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems. At GHPS, we teach a progression of Computing vocabulary to support children in their understanding. Online safety is taught within each Computing lesson as well as during internet safety week and school assemblies. Online safety procedures are communicated with all staff and parents.

GHPS Computing Content Overview

Term		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS		Children select and use technology for particular purposes in their explorative learning experiences.					
Year 1	Topics	*What makes me special?*	*How are the toys we play with made?*	*Why was a castle built here? Windsor Castle*	*What makes me proud of our place?*	*Who lives in the Animal Kingdom?*	*How did families have fun in the past?*
	Computing Focus	Computing systems and networks – Technology around us	Creating media – Digital painting	Programming A – Moving a robot	Data and information – Grouping data	Creating media – Digital writing	Programming B - Programming animations
	POS	**1 2 3 4 5 6**	**1 2 3 4 5 6**	**1 2 3 4 5 6**	**1 2 3 4 5 6**	**1 2 3 4 5 6**	**1 2 3 4 5 6**
	Application of Year 1 Programme of Study	Identify technology. Identify a computer and its main parts. Use a mouse in different ways. Use a keyboard to type on a computer. Use the keyboard to edit text. Create rules for using technology responsibly.	Describe what different freehand tools do. Use the shape tool and the line tools. Make careful choices when painting a digital picture. Explain why I chose the tools I used. Use a computer on my own to paint a picture. Compare painting a picture on a computer and on paper.	Explain what a given command will do. Act out a given word. combine 'forwards' and 'backwards' commands to Make a sequence. Combine four direction commands to make sequences. Plan a simple program. find more than one Solution to a problem.	Label objects. Identify that objects can be counted. Describe objects in different ways. Count objects with the same properties. Compare groups of objects. Answer questions about groups of objects.	Use a computer to write. Add and remove text on a computer. Identify that the look of text can be changed on a computer. Make careful choices when changing text. Explain why I used the tools that I chose. Compare typing on a computer to writing on paper.	Choose a command for a given purpose. Show that a series of commands can be joined together. Identify the effect of changing a value. Explain that each sprite has its own instructions. Design the parts of a project. Use my algorithm to create a program.
	KS1 POS	Pupils should be taught to use the following: 1. Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. 2. Create and debug simple programs. 3. Use logical reasoning to predict the behaviour of simple programs.			4. Use technology purposefully to create, organise, store, manipulate and retrieve digital content. 5. Recognise common uses of information technology beyond school. 6. 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.		

Year 2							
	Topics	*What happened in the Great Fire?*	*How can we make a healthy lunchbox?*	*What is the best way for Mrs Armitage to travel?*	*What makes us like other animals?*	*What do plants need to grow?*	*How would my life be different if I lived in the Amazon?*
	Computing Focus	Computing systems and networks – IT around us	Creating media – Digital photography	Programming A – Robot algorithms	Data and information – Pictograms	Creating media - Digital music	Programming B - Programming quizzes
	POS	**1 2 3 4 5 6**	**1 2 3 4 5 6**	**1 2 3 4 5 6**	**1 2 3 4 5 6**	**1 2 3 4 5 6**	**1 2 3 4 5 6**
	Application of Year 2 Programme of Study	Recognise the uses and features of information technology. Identify the uses of information technology in the school. Identify information technology beyond school. Explain how information technology helps us. Explain how to use information technology safely. Recognise that choices are made when using information technology.	Use a digital device to take a photograph. Make choices when taking a photograph. Describe what makes a good photograph. Decide how photographs can be improved. Use tools to change an image. Recognise that photos can be changed.	Describe a series of instructions as a sequence. Explain what happens when we change the order of instructions. Use logical reasoning to predict the outcome of a program. Explain that programming projects can have code and artwork. Design an algorithm. Create and debug a program that I have written.	Recognise that we can count and compare objects using tally charts. Recognise that objects can be represented as pictures. Create a pictogram. Select objects by attribute and make comparisons. Recognise that people can be described by attributes. Explain that we can present information using a computer.	Say how music can make us feel. Identify that there are patterns in music. Experiment with sound using a computer. Use a computer to create a musical pattern. Create music for a purpose. Review and refine our computer work.	Explain that a sequence of commands has a start. Explain that a sequence of commands has an outcome. Create a program using a given design. Change a given design. Create a program using my own design. Decide how my project can be improved.
	KS1 POS	Pupils should be taught to use the following: 1. Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. 2. Create and debug simple programs. 3. Use logical reasoning to predict the behaviour of simple programs.			4. Use technology purposefully to create, organise, store, manipulate and retrieve digital content. 5. Recognise common uses of information technology beyond school. 6. 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.		

Year 3							
	Topics	*How did Britain change from the Stone Age to the Iron Age?*	*What is Britain and the UK like now?*	*Who were the greatest builders?*	*What do plants need to stay healthy?*	*How is a region of Mexico and the UK the same &/or different?*	*What forces move (make) mountains?*
	Computing Focus	Computing systems and networks – Connecting computers	Creating media - Stop-frame animation	Programming A - Sequencing sounds	Data and information – Branching databases	Creating media – Desktop publishing	Programming B - Events and actions in programs
	POS	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**
	Application of Year 3 Programme of Study	Explain how digital devices function. Identify input and output devices. Recognise how digital devices can change the way that we work. Explain how a computer network can be used to share information. Explore how digital devices can be connected. Recognise the physical components of a network.	Explain that animation is a sequence of drawings or photographs. Relate animated movement with a sequence of images. Plan an animation. identify the need to work consistently and carefully. Review and improve an animation. Evaluate the impact of adding other media to an animation.	Explore a new programming environment. Identify that commands have an outcome. Explain that a program has a start. Recognise that a sequence of commands can have an order. Change the appearance of my project. Create a project from a task description.	Create questions with yes/no answers. Identify the attributes needed to collect data about an object. Create a branching database. Explain why it is helpful for a database to be well structured. Plan the structure of a branching database. Independently create an identification tool.	Recognise how text and images convey information. Recognise that text and layout can be edited. Choose appropriate page settings. Add content to a desktop publishing publication. Consider how different layouts can suit different purposes. Consider the benefits of desktop publishing.	Explain how a sprite moves in an existing project. Create a program to move a sprite in four directions. Adapt a program to a new context. Develop my program by adding features. Identify and fix bugs in a program. Design and create a maze-based challenge.
	KS2 POS	Pupils should be taught to: 1. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. 2. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. 3. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. 4. 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.			5. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 6. 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. 7. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.		

Year 4							
	Topics	*What legacies did the Ancient Greeks leave on modern culture?*	*How was William Shakespeare influenced by the Ancient Greeks?*	*What did the Romans leave behind?*	*What makes Italy roar?*	*How did the loss of the cacao bean contribute to the collapse of the Mayan Empire?*	*How does chocolate move through our digestive system?*
	Computing Focus	Computing systems and networks – The Internet	Creating media - Audio production	Programming A – Repetition in shapes	Data and information - Data logging	Creating media – photo editing	Programming B – Repetition in games
	POS	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**
	Application of Year 4 Programme of Study	Describe how networks physically connect to other networks. Recognise how networked devices make up the internet. Outline how websites can be shared via the World Wide Web (WWW). Describe how content can be added and accessed on the World Wide Web (WWW.) Recognise how the content of the WWW is created by people. Evaluate the consequences of unreliable content.	Identify that sound can be recorded. Explain that audio recordings can be edited. Recognise the different parts of creating a podcast project. Apply audio editing skills independently. Combine audio to enhance my podcast project. Evaluate the effective use of audio.	Identify that accuracy in programming is important. Create a program in a text-based language. Explain what 'repeat' means. Modify a count-controlled loop to produce a given outcome. Decompose a task into small steps. Create a program that uses count-controlled loops to produce a given outcome.	Explain that data gathered over time can be used to answer questions. Use a digital device to collect data automatically. Explain that a data logger collects 'data points' from sensors over time. Recognise how a computer can help us analyse data. Identify the data needed to answer questions. Use data from sensors to answer questions.	Explain that the composition of digital images can be changed. Explain that colours can be changed in digital images. Explain how cloning can be used in photo editing. Explain that images can be combined. Combine images for a purpose. Evaluate how changes can improve an image.	Develop the use of count-controlled loops in a different programming environment. Explain that in programming there are infinite loops and count-controlled loops. Develop a design that includes two or more loops which run at the same time. Modify an infinite loop in a given program. Design a project that includes repetition. Create a project that includes repetition.
	KS2 POS	Pupils should be taught to: 1. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. 2. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. 3. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. 4. 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.			5. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 6. 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. 7. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.		

Year 5							
	Topics	*Why did people invade and settle in Britain?*	*Where did they settle and why?*	*How did the Kingdom of England come to be?*		*Where in the World?*	*What is the power of The River Thames?*
	Computing Focus	Computing systems and networks - Systems and searching	Creating Media – Video production	Programming – selection in physical computing	Data and information – Flat-file databases	Creating media – Introduction to vector graphics	Programming – Selection in quizzes
	POS	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**
	Application of Year 5 Programme of Study	Explain that computers can be connected together to form systems. Recognise the role of computer systems in our lives. Experiment with search engines. Describe how search engines select results. Explain how search engines are ranked. Recognise why the order of results is important, and to whom.	Explain what makes a video effective. Identify digital devices that can record video. Capture video using a range of techniques. Create storyboards. Identifying that a video can be improved through reshooting and editing. Consider the impact of choices made when making and sharing a video.	Controlling a simple circuit connected to a computer. Writing a programme that includes count-controlled loops. Explain that a loop can stop when a condition is met. Explain that a loop can be used to repeatedly check whether a condition has been met. Design a physical project that includes selection. Create a program that controls a physical computing project.	Using a form to record information. Compare paper and computer-based databases. Outlining how you can answer questions by grouping and then sorting data. Explain that tools can be used to select specific data. Explain that computer programs can be used to compare data visually. Using a real-world database to answer questions.	Identify that drawing tools can be used to produce different outcomes. Create a vector drawing by Combining shapes. Use tools to achieve a desired effect. Recognise that vector drawings consist of layers. Group objects to make them easier to work with. Apply what I have learned about vector drawings.	Explain how selection is used in computer programs. Relate that a conditional statement connects a condition to an outcome. Explain how selection directs the flow of a program. Design a program that uses selection. Create a program that uses selection. Evaluate my program.
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Year 6							
	Topics	*What is out of this World?*	*How do living things, including us, stay healthy?*	*What was the significance of the Battle of Britain?*	*Why do some creatures no longer exist?*		*How successful are we as entrepreneurs?*
	Computing Focus	Computing systems and networks - Communicating safely online	Creating Media - Creating a website using Google Sites	Programming - Adding variables to an algorithm	Data and Information - Organising data on a spreadsheet	Creating Media - Using a computer to produce 3D models	Programming - Microbit: bringing together the four elements of coding: sequencing; repetition; selection and variables.
	POS	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**	**1 2 3 4 5 6 7**
	Application of Year 6 Programme of Study	Understand that computers use addresses to access websites. Recognise different ways that data is transferred. Share information online to create a collaborative document. Evaluate the effectiveness of working together online. Identify different ways of communicating online. Evaluate different ways of communicating online.	Review an existing website and explore the structure. Recognise that websites are written as HTML. Identify the features of a webpage and plan a website using the features. Explore and consider copyright. Recognise the need for preview pages. Understand the need for navigation paths. Understand the implications of using links to other people's content.	Recognise what a variable is and different variables within a code. Explain why a variable is used. Recognise that a variable can be changed. Edit variables within a code. Design algorithm for a project. Create an algorithm and explain reasons for choices. Evaluate algorithm.	Collecting data and creating a data set. Explain what a data set is. Choose and apply an appropriate format to a cell. Constructing formulas. Applying formulas to data. Create a spreadsheet to plan an event. Independently select suitable ways to present data.	Understand that you can work in three dimensions on a computer. Identify the 3D models can be modified. Recognise that objects can be combined in a 3D model rotating and duplicating them. Create a 3D model accurately sizing objects and combining different objects. Plan a 3D model by analysing different 3D models and combing 3D shapes. Create a 3D model.	Create a program to run on a controllable device testing it and debugging it. Explore
	KS2 POS	Pupils should be taught to: 1. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. 2. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. 3. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. 4. 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.			5. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 6. 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. 7. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.		