Spring Gardens Primary School Computing Overview

Early Years Foundation Stage	Key Stage 1	Key Stage 2
The EYFS curriculum is divided into seven areas of learning **The 3 prime areas:** · Communication and language · Physical development · Personal, social and emotional development Technology in the Early Years can mean: • taking a photograph with a camera or tablet • searching for information on the internet • playing games on the interactive whiteboard • exploring an old typewriter, phones or other mechanical toys • using a Beebot • watching a video clip • listening to music	Pupils should be taught to: • 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.	Pupils should be taught to: • 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

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
PSED: Autumn: Increasingly follows rules and shows understanding why rules are important. Can follow an adult modelling resilience when facing challenge. Spring: Follows simple rules and boundaries with simple verbal prompts or visual reminders. Can follow an adult modelling resilience when facing challenge. Choose, use and put away the tools and materials they need to achieve a goal. Can follow an adult modelling resilience when facing challenge. Summer: Follow rules without reminders. Shows some resilience when facing challenge. Articulates simple rules to other children. Helps to find solutions to problems with the aid of an adult. Shows increasing resilience when facing challenge. Can select from a small range of resources on offer within a single activity. **Physical Development** Autumn: Has developed a preference for a dominant hand. Shows interest in exploring different mark making resources. Spring:	**PSED:** Introduce classroom routines Devise and follow class rules. Work with others and take 6-9 turns with support. Model the language to verbalise behaviours (trying hard, persevering, not giving up, taking a risk, trying something new). **Physical Development:** Stack, align and balance blocks of different shapes and sizes Enact domestic routines and brief family narratives using props. Copy, memorise and perform a repertoire of simple hand-action songs.	**Keeping Safe and Exploring Technology** *Help children stay safe and understand what a healthy use of technology is. Then explore the technology in our homes and businesses and get hands on with control equipment to figure out how it all works.*	**Writing in different styles** *Introduce children to word processing and desktop publishing using a number of different tools and design tasks.*	**Digital Literacy and online safety (Y3)** *Six lessons taken from Common Sense Education's excellent digital citizenship curriculum, covering a wide range of topics including well-being, privacy and security, online identity, relationships, communication and the media.*	**Digital Literacy and online safety (Y4)** *Six lessons taken from Common Sense Education's excellent digital citizenship curriculum, covering a wide range of topics including well-being, privacy and security, online identity, relationships, communication and the media.*	**Digital Literacy and online safety (Y5)** *Six lessons taken from Common Sense Education's excellent digital citizenship curriculum, covering a wide range of topics including well-being, privacy and security, online identity, relationships, communication and the media.*	**Digital Literacy and online safety (Y6)** common sense education *Six lessons taken from Common Sense Education's excellent digital citizenship curriculum, covering a wide range of topics including well-being, privacy and security, online identity, relationships, communication and the media.*
	PSED: Work with others to take turns. Work in pairs to succeed in a challenge.	**Exploring digital Sound** *Introduce children to digital sound, and let them experiment with simple beats, tempo and composition with various tools.*	**An introduction to animation** *Get really creative as you introduce both 2D and stop frame animation. Students will love creating their own animated clips and stories with a variety of tools.*	**Communication and collaboration** *Introduce students to email and online collaborative tools. Learn how to safely and appropriately make use of these essential digital tools.*	**Searching the web** *Take a detailed look at all elements of searching the web with care and consideration, covering: searching tricks, validating websites, improving your searches, searching images and searching online maps.*	**Building Retro Games - Pick a project** *Choose from 3 classic video game projects with this fantastic coding unit. Analyse the original games, build a simple version of them, then let the students get creative and independently extend their projects.*	**Spreadsheet Masters** *Hone your spreadsheet skills to become a spreadsheet master! Learn about the basics of spreadsheets with a range of fun tasks. Investigate sorting, using formulas and conditional formatting as you build towards making self-marking quiz games for your classmates.*
	PSED: Work in a small group on tasks like turn taking games. Work with a partner collaboratively. Articulate simple problem solving approaches. Recognise what a simple goal might be and begin to plan how to achieve it.	**Making multimedia stories** *Get children writing and creating digital stories. Work on improving typing skills with fun games, learn about simple text formatting, then bring their work to life with sound and animation.*	**Programming with ScratchJr** *Introduce students to this great block-based programming language to create animations and games perfect for KS1. Write and debug algorithms, learn about repeating, and different triggers to create actions.*	**Animation with Scratch** *Combine programming with animation as you control the movements and actions of your sprites and backgrounds with algorithms written in Scratch's programming language.*	**Programming Scratch Maze Games** *Teach algorithms, repetition, conditions and variables, while introducing students to Scratch's block-based coding language. Build adventure maze games and design your own levels, characters and objects to collect.*	**Building Collaborative websites** *Use Google apps for collaborative research as well as planning and creation of a group website, considering the design and consistency of the site.*	**Getting started with the BBC micro:bit** *Introduce students to physical computing with a BBC micro:bit. Control the LED matrix and find out how screens work, learn about inputs and outputs, turn your micro:bit into a scoring or game device while learning about variables, conditionals and iteration.*
	PSE:. Articulate how to solve simple problems. Articulate goals that children set for themselves (Plan Do Review) and plan how to achieve them. **EAD:** Draw single or a sequence of images from the imagination to illustrate a story or nonfiction book.	**Action algorithms!** *Apply the concept of algorithms and instructions to a variety of contexts, both digital and analogue (e.g. operating a crane, recipes and dance routines)*	**Finding and presenting information** *Introduces children to web browsers to explore and search websites safely, collecting and presenting information in graphs, and different ways of sorting and classifying data with databases.*	**Databases** *Explore different ways to collect, interrogate and present data collaboratively using a range of programs. What is a database? Why and how are they used in real life?*	**3D Design - Digital Modelling** *Introduce 3D modelling and design, looking at both architectural design of building and sculpture of models. Learn the basics of Sketchup and then put your design skills to the test with a number of projects.*	**Manipulating Sound** *Explore a range of web tools for sound and music creation and then learn about sound editing; creating radio adverts and audio books, complete with sound effects and atmospheric music.*	**Creating Instructional Videos** *Plan, design and create instructional teaching videos. Perfect for reinforcing other areas of the curriculum. Students can create videos to support each other with revision and then share them online to give access to everyone in the class.*
	PSE:	**An introduction to digital art**	**Programming with Logo**	**Digital imagery: Patterns in nature**	**Kodu Sports**	**What is a computer?**	**Manipulating images**

Is developing a preference for a dominant hand. Summer: Develops techniques for working simple mechanisms. Competes in simple challenges with adult support. **EAD:** Spring: Shows understanding that different tools are used for a purpose. Summer: Uses tools for a purpose. **Understanding the World** Autumn: Follow adult prompts to explore simple sensory processes of everyday materials and demonstrate engagement. Explores a range of action and reaction toys. Spring: Understands and uses vocabulary associated with cause and effect. Uses the vocabulary of forces during play. Give very simple explanations of why things happen and how things work. Make mechanisms such as pegboard cogs and other simple construction kit components such as wheels and axles to work to a particular end.	Engage in more complex and extended turn taking games Articulating reasons for success or failure in a challenge.	*Introduce children to a range of digital art packages and the tools within them. They apply the tools and their skills to a range of artistic styles and genres from painting to photography.*	*Introduce the written programming language of Logo. Students program their on-screen robot to move and create drawings using repeat commands and their own procedures.*	*Take a look at the beauty of repeating patterns in nature and different methods of recreating these with digital art tools and photo editing.*	*Three exciting projects to extend previous use of Kodu and give students an opportunity to create 3D video games based on sports and well known games.*	*Delve into what really makes a computer a computer. Can a TV, fridge or toilet be a computer? Also investigates just what is inside that metal box, how a computer works, memory, data and binary code. By the end you'll know your RAM from your ROM and your CPU from your GPU.*	*Investigate a range of different artistic styles and how they can be recreated using digital art tools. Digital sculpture is also looked at and combined with photo editing.*
	PSE: Recognise situations where choices need to be made. For example what happens if a friend tells you to do something you shouldn't. PD: Use a range of tools to dismantle mechanisms.	**Programming Direction** *A programming unit that focuses on directional instructions and creating sequences (algorithms) using a variety of programs and equipment.*	**Beginning to Present** *Introduce students to making interactive linear and nonlinear presentations and quizzes.*	**Getting started with Kodu** *Introduce students to creating games with Kodu. Program your characters and design your 3D worlds to make exciting collecting and racing games.*	**Computational Thinking - Alien Contact!** *An unplugged unit to develop your students into strong computational thinkers by solving a wide range of exciting unplugged problems. Will they be able to solve the problems, earn the trust of an alien species and cement a new galactic friendship?!*	**Programming Robots** *Introduce students to programming LEGO EV3 Robots. Control their movement with precise calculations and coding, then utilise the robot's sensors to interact with its environment and solve problems.*	**Inside the internet** *Get under the skin of the Internet to investigate how the web works, how it's built and written with HTML code. Then learn how to create your own web pages written in HTML and CSS.*