West Heath Primary School

Curriculum Map: Computing

Intent:

Our computing curriculum is designed in line with our whole-school aims of widening children's cultural capital and equipping them with the knowledge and skills required to become responsible and respected citizens who contribute positively to society. We recognise that technology is a major part of our modern world and our curriculum is designed to: equip children with essential knowledge and skills in the subject including competent typing ability; ensure that children use a range of technology competently, efficiently and safely; and make children aware of the opportunities available to them through computing and technology in order to inspire and promote enjoyment of the subject.

Implementation

Delivery of our computing curriculum is split into units covering the three key elements of: computer science, information technology and digital literacy. Due to the complexity of the subject, our curriculum has been carefully designed to re-visit and build upon essential learning in order to embed the desired knowledge and skills. The bulk of each unit taught either covers Computer Science or Information Technology. The third element of Digital Literacy is delivered through 2BeSafe, which makes up part of every lesson taught, giving children continual reminders of crucial safety aspects within the subject. Throughout each key stage, there are opportunities to embed and build upon learning through a range of exciting and engaging units, as well as developing key skills needed for the future, such as touch typing, which also makes up part of many units delivered. Learning mats and knowledge organisers are available as reminders to the children for each unit, to ensure they retain the most important learning.

At West Heath, computing is taught weekly as a discrete subject, with further cross-curricular links throughout each week. We believe that this is the most effective way to support children in remembering key information and continuing to improve through regular practice. In order to ensure children understand the key learning in each unit, teaching of computing is broken down into small steps with plenty of opportunities to consolidate understanding and enhance skills each half term. Several 'free weeks' are built in to allow time to re-visit or complete certain units.

All year groups have access to a full class set of devices, starting with i-pads in the Early Years, then progressing to laptops in Key Stage 2. All children have opportunities to use the technology outside of computing lessons in order to continue developing essential skills such as typing and carrying out online research. Computing is promoted through the annual Safer Internet Day where we reflect on how to use technology safely and effectively in order to achieve desired outcomes. Computing links closely with PSHE, and elements of digital literacy are covered in some PSHE units during each academic year.

Formative assessment takes place in every lesson, as children's work is automatically saved so that teachers can check their understanding. The style of delivery of lessons ensures that teachers can quickly identify children who many need further support through worked examples. Summative assessments take place at the start and end of each unit in order to inform future planning and to track progress.

Our computing curriculum is delivered through Purple Mash. Through this service, all staff have access to CPD through videos to demonstrate the teaching of each unit, detailed documentation explaining key learning and the availability of online meetings, tailored to individual requests. All units are naturally broken down step-by-step so that children gradually consolidate and build upon the knowledge and skills they have.

Impact

West Heath's computing curriculum ensures that the subject is taught consistently and builds upon the identified key knowledge and skills. Therefore, children gain confidence and understanding in the subject, leading to enjoyment and creativity. Our children speak positively about computing and are more aware of the opportunities the subject can offer later in life. They are also aware of the risks associated with technology and the Internet and how to minimise these in order to use technology safely and effectively.

Children's saved work and quiz results demonstrate increased knowledge and understanding of computing and enable teaching staff to identify any gaps or further opportunities to consolidate or extend learning. Computing is an essential element of our wider curriculum offer here at West Heath and it's a subject our children enjoy and are making progress within.

Early Years

It is important in the foundation stage to give children a broad, play-based experience allowing them to explore technology and computing in a range of contexts. Computing is not just about computers. Early years learning environments feature IT scenarios based on experience of the real world, such as in role play. Children gain confidence, control and language skills through opportunities such as 'programming' each other using directional language to find toys/objects, using Beebots, creating artwork using digital drawing tools on interactive whiteboards, playing interactive games and controlling programmable toys. Children can access different technology sources throughout provision to build up their own computing skills. In Early Years, we also learn about Internet safety and how to safely use and explore technology.

All children are given a Purple Mash login, which can be used at home as well as in school. Later in their Reception year, children are introduced to using i-pads in school and have the opportunity to use and explore 'Mini Mash' ahead of their transition to Key Stage 1.

Key Stage 1

We have split the National Curriculum content into three key areas and the below demonstrates where each aspect is covered. Although units are categorised, there is often overlap between them, meaning some units cover objectives from more than one category.

Computer Science:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions – Y1 HT5. Y1 HT6, Y2 HT4, Y2 HT6

- create and debug simple programs – Y1 HT6, Y2 HT6
- use logical reasoning to predict the behaviour of simple programs – Y1 HT5, Y1 HT6, Y2 HT4, Y2 HT6

Information Technology:

- use technology purposefully to create, organise, store, manipulate and retrieve digital content – Y1 HT1, 2, 3 & 4, Y2 HT1, 2, 3 & 5

Digital Literacy: - Covered within all units as part of 2BeSafe, plus Safer Internet Day and further whole-school assemblies and initiatives

- 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

Key Stage 2

Computer Science:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts – Y3 HT6, Y4 HT4 & 5, Y5 HT3 & 6, Y6 HT4
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output – Y3 HT6, Y4 HT4 & 5, Y5 HT3 & 6, Y6 HT4
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs – Y3 HT6, Y4 HT4 & 5, Y5 HT3 & 6, Y6 HT4
- 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 – Y3 HT3 & 6, Y4 HT4 & 5, Y5 HT3 & 6, Y6 HT3 & 4

Information Technology:

- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content – Y3 HT4 & 5, Y4 HT1, 4 & 6, Y5 HT1 & 4, Y6 HT1, 3 & 5
- 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 – Y3 HT1, 3 & 5, Y4 HT1 & 6, Y5 HT1, 2 & 5, Y6 HT1, 2 & 3

Digital Literacy: - Covered within all units as part of 2BeSafe, plus Safer Internet Day and further whole-school assemblies and initiatives

- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Computing Curriculum Map Overview: Digital Literacy taught as part of each week's lesson – 2BeSafe Starter

Information Technology Computer Science (Number of lessons in brackets)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Introduction to Purple Mash (3) Creative Computing (4)	Data Explorers (6)	Animated Stories (6)	Making Beats (4)	Tech Around Us (4) Create and Follow Instructions (3)	Coding (6)
Year 2	Creating Pictures (5)	Spreadsheets (6)	Making Music (3) The Internet (4)	Route Explorers (4)	Questioning (4) Presenting Ideas (4)	Coding (6)
Year 3	Touch Typing (4) Branching Databases (4)	Emails (6)	Spreadsheets (6)	Presentations (5)	Route Planners (5)	Coding (6)
Year 4	Animation (6)	Unpacking Hardware (4)	Effective Searching (4)	Introduction to AI (4)	Coding (6)	Sound Stories (4) Composing Beats (4)
Year 5	Quizzing (5)	Spreadsheets (6)	Game Creator (5)	Word Processing (6)	Databases (4) Concept Maps (4)	Coding (6)
Year 6	3D Modelling (4) Graphing (4)	Spreadsheets (6)	Networks (4)	Coding (6)	Blogging (4)	Catch up / Finishing off

*For Coding and Spreadsheet units, a Crash Course alternative is available if required, covering all prior knowledge required as well.

In line with our PSHE curriculum, 2BeSafe units will be covered in the following order, so that themes for both PSHE and the digital literacy aspect of computing are taught simultaneously:

	Autumn 1 (Being me in my world)	Autumn 2 (celebrating difference)	Spring 1 (Dreams and Goals)	Spring 2 (Healthy Me)	Summer 1 (Relationships)	Summer 2 (Changing Me)
All year groups	Self-Image and Identity Online Reputation	Online Bullying	Copyright and Ownership	Health, Wellbeing and Lifestyles Managing Online Information	Online Relationships Privacy and Security	Consolidation

CURRICULUM MAP

Year 1

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Introduction to Purple Mash (3) Creative Computing (4)	Data Explorers (6)	Animated Stories (6)	Making Beats (4)	Tech Around Us (4) Create and Follow Instructions (3)	Coding (6)
Vocabulary	Log in/out, device, avatar, home page, file name, icon, password, save, retrieve, 2Do. Arrow keys, digital art, drag and drop, hotspot, touchscreen gestures.	Algorithm, data, group, sort, pictogram, image, criteria	Animation, background, copy and paste, digital book, erase, font, undo, text.	Beat, compose, digital, musical instrument, tempo, tune	Device, digital technology, electronic, hardware, technology. Algorithm, coding, computer bug, debugging, instructions, program.	Action, algorithm, code blocks, attribute, background, code, command, debug, event, execute, input, code view, instruction.
HEAD (Knowledge)	• Understand what a password is and why they're important. • To know why I need to log out when I'm finished. • To know and understand the layout and functions of icons	• Understand that data can be presented as images. • Understand that data is information that can be collected and used. • Name and understand uses of technology	• Understand the difference between digital and traditional books. • Know the steps needed to create my own digital book.	• Be able to compare and give opinions about music made using instruments and digitally.	• Know what the word 'technology' means. • Understand what technology is used in school. • Understand that an algorithm is a set of instructions.	• Understand what instructions are and predict what will happen when they are followed. • Know that computers work by following special

	within Purple Mash. • To know how to use the mouse effectively. • To know how to use technology to create images.	outside of school.				instructions called code. • Understand the terms object, action and event.
HEART (Values)	• Respect • Resilience	• Determination • Collaboration	• Excellence • Empathy	• Excellence • Resilience	• Excellence • Collaboration	• Excellence • Determination
HANDS (Skills)	• I can login safely and access my work area. • I can save, submit and retrieve work. • I can search effectively for information I need. • I can use paint tools to create a picture. • I can create jigsaws and games using the technology.	• I can contribute to class data. • I can use images to present results. • I can group and sort simple data.	• Create characters and add animation to a digital story. • Add text to a story. • Vary backgrounds and add sound.	• I can explore mixing sounds. • I can create a tune. • I can create a beat.	• Consider and explore purposes of technology in the wider world. • Identify different parts of a device and their uses. • I can follow and create simple instructions. • I can sequence algorithms correctly.	• Use code to make a basic computer program. • Use event, object and action code blocks effectively.

Year 2

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Creating Pictures (5)	Spreadsheets (6)	Making Music (3) The Internet (4)	Route Explorers (4)	Questioning (4) Presenting Ideas (4)	Coding (6)
Vocabulary	Art, craft, digital portfolio, fill tool, image picker, import, outline, palette, resize, repeat.	Data, cell, column, row, value, spreadsheet, axis/axes	Beat, tune, speed, compose, sound effect, tempo, note, soundtrack, volume. Browser, homepage, Internet, search engine, smart device, webpage, Wi-Fi, world wide web.	Algorithm, coding, computer bug, command, debugging, direction	Branching database, closed question, pictogram, sorting, data, tally chart, open question, yes/no. Concept map, present, group, layer, title, node, connecting line.	Action, algorithm, bug, attribute, button object, collision detection, command, debug, event, object, output, program.
HEAD (Knowledge)	• Understand some different forms of art and how they are created. • Know what is meant by a portfolio of art.	• Understand what a spreadsheet is and the specific vocabulary associated with them. • Explore how to use the tools available to find totals. • Explore how spreadsheets can automatically calculate values.	• Understand how technology can be used to edit and enhance music. • Understand how the Internet, www and browsers work together. • Understand the difference between a	• Know basic directions. • Understand the importance of clear instructions.	• Understand how data can be used to answer a question. • Understand how branching databases work. • Understand how ideas can be organised and presented.	• Understand that different objects have different attributes. • Understand the importance of testing and debugging.

			browser and webpage.			
HEART (Values)	• Collaboration • Empathy	• Excellence • Resilience	• Collaboration	• Excellence	• Determination • Excellence	• Collaboration • Empathy
HANDS (Skills)	• Create a range of digital art to make a portfolio.	• Enter data into a spreadsheet. • Edit and improve a spreadsheet. • Create simple charts and graphs to display data.	• Explore, edit and combine sounds. • Create own tune combining different sounds and tools. • Use different types of hardware to access the Internet. • Use the school website to find information.	• Use direction keys and units of distance. • Create a set of instructions.	• Explore how data can be sorted. • Ask questions, gather and present data. • Create and use concept maps. • Organise my ideas.	• Create a computer program using an algorithm. • Design a program following a timed sequence.
Year 3						

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Touch Typing (4) Branching Databases (4)	Emails (6)	Spreadsheets (6)	Presentations – Microsoft PowerPoint online/desktop (5)	Route Planners (5)	Coding (6)
Vocabulary	Bottom keys, home keys, keyboard, number row, posture, shift key, space bar, top keys, typing. Data, database, branching database, debug, record, binary choice, binary tree.	Address book, attachment, communication, compose, email, inbox, password, personal information, trusted contact, recipient.	Copy, data, formula, formula bar, function, merge, operations, range, sheet, total tools	Animation, font, format, handles, media, PowerPoint, slide, slide notes, slideshow, text box, transition.	Algorithm, angle, command, degrees, route, object, repeat, rotation	Action, alert, algorithm, attribute, button object, collision detection, debug, design, event, flowchart, interval, nesting, object, repeat, sequence, timer, object
HEAD (Knowledge)	• To learn correct finger positioning on the keyboard and understand when to use the left or right hand. • To learn how to type numbers accurately and to use the shift key for capital letters. • To practise typing punctuation	• To understand how people communicate with each other. • To understand and respond to an email. • To learn how to use email safely.	• To understand the layout and features of a spreadsheet. • To apply spreadsheet skills to solve real-world problems.	• To learn how to open PowerPoint, add text and change how it looks. • To learn how to add slides, change slide designs and insert pictures into a presentation.	• To understand and plan algorithms in order to write code. • Understand commands, direction and angles.	• To understand what a flowchart is and how flowcharts are used in computer programming. • To understand that there are different types of timers. • To understand how to use the repeat command.

	marks and symbols and build accuracy with simple words.					
HEART (Values)	• Excellence • Respect	• Resilience • Determination	• Empathy • Respect	• Excellence • Determination	• Excellence • Resilience	• Collaboration • Excellence
HANDS (Skills)	• To learn how to type numbers accurately and to use the shift key for capital letters. • To practise typing punctuation marks and symbols and build accuracy with simple words.	• To compose and send an email. • To send an email attachment.	• To use the arrows toolbar to be able to automatically total rows and columns. • To use simple formulae in a spreadsheet by using the formula wizard. • To use advanced formulae in a spreadsheet to calculate totals, averages and to find the highest and lowest values.	• To add animations to pictures and text, and transitions between slides. • To create an effective presentation. • To complete and present a slideshow to an audience.	• Create commands to move a turtle along a route, including rotations. • To use 90° and 45° angles. • To use the repeat algorithm and coding.	• To design a program. • To use design documentation to code a program.

Year 4

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Animation (6)	Unpacking Hardware and Software (4)	Effective Searching (4)	Introduction to AI (4)	Coding (6)	Sound Stories (4) Composing Beats (4)
Vocabulary	Animation, software, background, copy frame, frame per second, onion skinning, sharing controls, sound effect, stop motion, storyboard.	Application (app), component, computer system, hardware, input, output, peripheral, process, program, software, storage, technology.	Crawl, exact match, fake news, filter, index, Internet, key words, rank, refine, relevance, reliable source, search bar, search engine, snippet, virtual assistant device, website.	Artificial Intelligence (AI), automation, data, digital citizenship, future technology, generative AI, human oversight, innovation, prediction, privacy, prompt, refine, responsible behaviour, reliable.	Action, alert, attribute, coordinates, debug, design, event, flowchart, 'if' and 'if/else' statements, initialise, input, loop.	Audiobook, background music, edit, editor, final mix, playback, recording, sound effects, sound technician, timeline, track. BMP, dynamics, melody, pitch, pulse, rhythm, sample, synths, tempo, texture
HEAD (Knowledge)	• Understand what animation is. • Know and understand what onion skinning is. • Know and understand how to enhance simple animations.	• To understand what technology is, where we see it in everyday life, and how it helps us at school, home and beyond. • To understand what software is and how we	• To understand what a search engine is, how it works and how to use simple keywords to find information online.	• To understand what Artificial Intelligence is and some of the tasks it can carry out. • To understand how to be a	• To know what selection means in computer programming. • To know how to use co-ordinates in computer programming.	• To understand what makes audiobooks effective and identify the key features that make them engaging. • To identify and discuss the

		use it to complete tasks.	• To understand how search engines collect, sort and rank results, and why some results appear first.	good digital citizen when using AI. • To think about how AI might develop in the future.	• To understand what a variable is in programming.	main elements of music. • To understand and experiment with rhythm and tempo.
HEART (Values)	• Excellence • Resilience	• Determination • Excellence	• Collaboration • Respect	• Collaboration • Determination	• Collaboration • Excellence	• Excellence • Determination
HANDS (Skills)	• To plan an animation. • To create a narrative. • To evaluate animations.	• To identify and describe different pieces of computer hardware and understand their functions. • To explore how hardware and software interact to complete everyday tasks.	• To learn advanced ways to improve searches so we can find the most accurate and useful results quickly. • To develop strategies to judge whether information online is true and if sources can be trusted.	• To learn to communicate effectively with AI tools by writing clear and precise prompts.	• To create a simple computer program using coding structures previously encountered. • To explore methods that introduce loops in coding. • To create a game that keeps score.	• To plan and write a script for an engaging audiobook. • To record clear narration and add sound effects to an audiobook. • To edit, improve and finalise an audiobook using recording and sound design tools. • To create a melodic phrase

						using varied notes and pitch. • To compose a piece of electronic music.

Year 5

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Quizzing (5)	Spreadsheets (6)	Game Creator (5)	Word Processing – Word desktop version (6)	Databases (4) Concept Maps (4)	Coding (6)
Vocabulary	Quiz, simple, interactive, advanced, features, debug.	Axis, budget, continuous data, conversion, forecast, formula, income, function, line graph, plot, trend.	2D game, 3D game, game design, game environment, game feedback, game genre, playability, sprite, sprite animation.	Bullet points, copy, cut, document, editing, font, formatting, handles, page margins, paste, text alignment, text wrapping.	Condition, data, database, edit, field, filter, group, linked tables, operator, query, record, sort, validation Body language, concept map, connecting line, intonation, node, node settings, present, structure, templates	Abstraction, action, algorithm, coordinates, concatenation, datatype, decomposition, event, flowchart, function, 'if' and 'if/else' statements, initialise, nesting, object, repeat, variable.
HEAD (Knowledge)	• To understand different types of quizzes and identify their features, strengths, and weaknesses.	• To extend understanding of formulae and functions from previous learning. • To analyse weather data by using spreadsheets to	• To evaluate the features of a successful video game. • To evaluate games created by others.	• To learn how to edit text and apply more advanced formatting. • To learn how to adjust the layout of a Word document.	• To understand what a database is. • To understand what a concept map is and why they can be useful.	• To understand some ways that code can be simplified so that it is easier to read and runs more efficiently. • To know what decomposition and abstraction

		identify patterns.		• To learn how to insert and format images in Word.	• To understand the different ways that concept maps can be used.	are in Computer Science. • To understand what a function is and how functions work in code. • To understand what a datatype is and how they are used when coding with variables.
HEART (Values)	• Excellence • Resilience	• Determination • Collaboration	• Honesty • Respect	• Excellence • Determination	• Resilience • Excellence	• Collaboration • Excellence
HANDS (Skills)	• To explore the features of 2Quiz and experiment with creating quiz questions. • To explore additional features of quizzes, such as title screens and content pages.	• To use formulae in 2Calculate to convert measurements between different units. • To use 2Calculate to create and interpret line graphs that	• To plan a game in 2DIY3D. • To design and use game sprites. Key Resources • To add features to a game world and check playability.	• To format a new Word document and then save it. • To use tables in Word to organise information. • To combine Word skills to create and	• To design and create a database. • To build queries to find information. Key Resources • To solve problems using a database. • To plan and create a non-	• To program a simulation using 2Code. • To read code, predict outcomes and identify and fix bugs.

	• To apply knowledge of 2Quiz to design an educational quiz based on a chosen topic. • To be able to refine, test and share completed quizzes.	show how data changes over time. • To use spreadsheets to plan and budget for an event. • To use a spreadsheet to plan a holiday.		review a factsheet.	fiction concept map. • To present a concept map on a specific topic to an audience.	

Year 6

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	3D Modelling (4) Graphing (4)	Spreadsheets – Excel desktop (6)	Networks (4)	Coding (6)	Blogging (4)	Finish off
Vocabulary	3D printing, Computer Aided Design (CAD), design brief, model, net, points, prototype, three dimensional (3D), two dimensional (2D). Chart, comparative bar chart, data, dataset, pie chart, line graph, bar chart.	Cell, chart, chart labels, column, filter, formula, formatting, function, row, sort, sum, workbook, worksheet.	Email, Internet, Local Area Network (LAN), Internet chat, network, router, video call, Wide Area Network (WAN), web browser, website, www, wi-fi.	Abstraction, action, algorithm, coordinates, concatenation, datatype, decomposition, event, flowchart, function, 'if' and 'if/else' statements, initialise, nesting, object, repeat, variable.	Approval, blog, blog post, commenting, draft, edit, hyperlink, moderation, netiquette, plan, publish, revise, vlog.	
HEAD (Knowledge)	• To explore and develop simple 3D models using CAD software. • To explore the effect of moving points when designing.	• To understand and use basic formatting in a spreadsheet. • To develop skills in using basic functions in a spreadsheet. • To understand and use advanced	• To understand what a computer network is and identify examples of networks at home, school and in the wider world.	• To understand the different options of generating user input in 2Code. • To understand ways to use cloning in 2Code.	• To understand blogs and their features.	

		functions in a spreadsheet.	• To understand the difference between the internet and the World Wide Web and explore the services they provide.	• To understand how 2Code can be used to make a text-based adventure game.		
HEART (Values)	• Respect • Empathy	• Excellence • Resilience	• Respect • Excellence	• Excellence • Determination	• Excellence • Resilience	
HANDS (Skills)	• To plan, design and begin creating packaging to meet a design brief. • To refine, assemble and evaluate the finished packaging prototype. • To create different graphs using graphing software.	• To create and format charts in a spreadsheet. • To sort and filter data within a spreadsheet. • To combine Excel skills to create an effective spreadsheet for a given purpose.	• To explore how the internet can be used for communication and collaboration, and how to do this safely and respectfully. • To explore who is in charge of the internet and how rules and website blocking can affect people,	• To explore the use of hotspots in 2Code. • To use flowcharts to test and debug a simulation. • To use program design documentation to produce a program.	• To plan the theme, content and structure for a blog post. • To write and style a blog post. • To review and comment on blog posts with an understanding of online safety.	

	• To present data in graphs to support an argument.		society and online platforms.			