Gladstone Road Primary School - Computing

Curriculum Planning

Intent

The National Curriculum provides a structure and skill development for the Computing curriculum being taught. This is linked to our Learning Missions to provide a creative approach tailored to our children's needs, which reflects a balanced programme of study.

- Pupils' computing education begins in the early years and builds year on year, developing pupils' expertise.
- Curriculum plans have been sequenced effectively to ensure that pupils know more, remember more and are able to do more. We do so via Launch, re Launch and Landing
- Golden Threads, based on the three key strands: Computer Science, Information Technology and Digital Literacy have been identified for each year group and underpin the key knowledge and concepts taught through our curriculum.
- The organisation of the curriculum builds knowledge so that pupils can draw on it in future learning.
- Vocabulary has been identified and outlined clearly so that this can be taught explicitly within lessons.
- Clearly defined end points have been identified to ensure that pupils build upon prior learning and develop their knowledge of key concepts.
- Pupils commit knowledge to their long-term memory through recalling and repeated practice outlined in plans.
- Curriculum plans ensure that pupils use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact.

Implementation

We provide a range of opportunities and implement a range of teaching methods to ensure that over the course of study, teaching is designed to help learners to remember in the long term the content they have been taught and to integrate new knowledge into larger concepts.

- In EYFS, we implement technology through a wide range of technological toys. We use iPads to support reading, phonics and maths as well as teach children about the importance of keeping themselves safe when using electronic equipment and the internet.
- A well sequenced cycle of lessons carefully plans for progression and depth concentrating on the computing knowledge and skills suited to the age group.
- Lessons follow a consistent structure of: retrieval, explanation, application and assessment which may include such features as questioning, modelling, individual, partner, group or whole class activities.
- Learning Mission journeys reflect what is being taught, vocabulary, relevant diagrams, photos and knowledge organisers
- Learning mission books show a range of evidence and evidence high expectations.
- Our inclusive approach is demonstrated through the way in which tasks and activities are adapted to ensure that all pupils are able to access the curriculum.
- Through retrieval, teachers make sure that pupils can draw on what they already know so that they can remember more.
- Key vocabulary is explicitly taught to enable pupils to develop their range of geographical vocabulary and understanding.
- Assessment for learning strategies are used at the start, during and at the end of lessons to assess pupils' learning and identify any gaps or misconceptions.

Impact

Our Computing Curriculum is high quality, well thought out and is planned to demonstrate progression. If children are keeping up with the curriculum, they are deemed to be making good or better progress. In addition, we measure the impact of our curriculum through the following methods:

- Pre and post unit assessments
- Assessment against 'End of Year Expectations' with clearly identified end points. These are then passed to the receiving teacher to ensure any gaps can be addressed when a key concept is revisited.
- Staff and volunteers are confident in online safety, identifying and responding to concerns.

Gladstone Road Primary School - Computing

Curriculum Planning

GOLDEN THREADS	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science	**Technology has been removed from the Early Learning Goals.** Uses ICT hardware to interact with age-appropriate computer software.	• Understand algorithms are a set of precise instructions. • Create and debug simple programs.	• 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.	• Can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. • Designs show that they are thinking of the desired task and how this translates into code. • Identify errors within their program that prevents it following the desired algorithm and then fix it. • The designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables.	• Demonstrate the ability to design and code a program that follows a simple sequence. • Experiment with timers to achieve repetition effects in their programs. • Begin to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. • Understand how variables can be used to store information while a program is executing.	• Translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. • Combine sequence, selection and repetition with other coding structures to achieve their algorithm design.	• Turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. • Test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem.
Information Technology	**Technology has been removed from the Early Learning Goals.** Completes a simple program on electronic devices. Can create content such as a video recording, stories, and/or draw a picture on screen.	• Use technology purposefully to create, store digital content. E.g. children can name, save and follow simple instructions to access online resources, design mode (manipulating backgrounds) or using pictogram software.	• Use technology purposefully to create, store and retrieve digital content. • Organise data using, for example, a database and can retrieve specific data for conducting simple searches. • Are able to edit more complex digital data such as music compositions.	• Carry out simple searches to retrieve digital content. • Understand that to do this, they are connecting to the internet and using a search engine. • Collect, analyse, evaluate and present data and information using a selection of software, • Consider what software is most	• Understand the function, features and layout of a search engine. • Appraise selected webpages for credibility and information at a basic level. • Make improvements to digital solutions based on feedback. • Make informed software choices when presenting information and data.	• Search with greater complexity for digital content when using a search engine. • Explain in some detail how credible a webpage is and the information it contains. • Make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution.	• Can readily apply filters when searching for digital content. • Are able to explain in detail how credible a webpage is and the information it contains. • They compare a range of digital content sources and are able to rate them in terms of content quality and accuracy. • Use critical thinking skills in everyday use

			• Are confident when creating, naming, saving and retrieving content. • Can use a range of media in their digital content including photos, text and sound.	appropriate for a given task.	• Share digital content within their community.	E.g. creating their own program to meet a design brief. • Review solutions from others. • Collaboratively create content and solutions using digital features within software such as collaborative mode. • Use several ways of sharing digital content.	of online communication
Digital Literacy	**Technology has been removed from the Early Learning Goals.** Develops digital literacy skills by being able to access, understand and interact with a range of technologies. Can use the internet with adult supervision to find and retrieve information of interest to them.	• Recognise common uses of information technology beyond school. • Use technology safely, keeping personal information private; identify where to go for help.	• 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.	• Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify how to report concern about content and contact.	• Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.	• Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact. • Know appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.	• Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact. • To recognise the value in preserving privacy when online for their own and other people's safety.

Prior Knowledge (Retrieval)	KS1/Year 3	KS1/Year 3	KS1/Year 3
	• Name and describe the use of different coding blocks e.g. timer, collision detection, repeat. • To identify what is classed as personal information and explain why it is important to keep it private. • Recall the vocabulary used with spreadsheets.	• To give examples of a digital footprint. • To explain what a search engine is. • To give examples of how the internet could be used for searching for information. • Explain what is meant be unreliable/spoof websites.	• To name uses of technology outside of school. • To use vocabulary learnt for animation used in an e-book. (Year 1) • Give advice for different scenarios about keeping safe online.
Y4	**Knowledge and Skills to be developed:** **Autumn 1 – Coding** • To create a simple computer program. • To begin to understand selection in computer programming. • To understand how an IF statement works. • To understand how to use coordinates in computer programming. • To understand the Repeat until command. • To understand how an IF/ELSE statement works. • To understand what a variable is in programming. • To use a number variable. • To create a playable game. **Autumn 2 – Spreadsheets** • To explore how the numbers entered into cells can be set to either currency or decimal. • To find out how to add formulae to a cell. • To explore the use of the timer, random number and spin button tools. • To use the line graphing tool in 2Calculate with appropriate data. • To interpret a line graph to estimate values between data readings. • To use the currency formatting tool in 2Calculate. • To use 2Calculate to create a model of a real-life situation. • To use the functions of allocating value to images in 2Calculate to make a resource to teach place value.	**Knowledge and Skills to be developed:** **Spring 1 – Logo** • To learn the structure of the language of 2Logo. • To input simple instructions in 2Logo. • To use 2Logo to create letter shapes. • To use the Repeat command in 2Logo to create shapes. • To use and build procedures in 2Logo. **Spring 2 – Effective Searching** • To locate information on the search results page. • To use search effectively to find out information. • To assess whether an information source is true and reliable.	**Knowledge and Skills to be developed:** **Summer 1 – Hardware Investigators** • To understand the different parts that make up a desktop computer. • To recall the different parts that make up a computer. **Summer 2 – Animation** • To decide what makes a good, animated film or cartoon and discuss favourite animations. • To learn how animations are created by hand. • To find out how 2Animate animations can be created in a similar way using technology. • To learn about onion skinning in animation. • To add backgrounds and sounds to animations. • Introducing 'stop motion' animation.

Gladstone Road Primary School - Computing

Curriculum Planning

Future Learning		Year 5 To identify appropriate and inappropriate images, text, video being shared online. To program a simulation. To use formulas in spreadsheets to calculate different amounts.	Year 5 To plan, design and create a game quest. To design, refine and print a 3D model given a specific design criteria.	Year 5 To create a database around a given topic. To create a concept map and use this to present to an audience.
Vocabulary	All	design, input, nest, calculations, formula, line graph, timer	debugging, search engine, internet, key words	hard drive, input, output animation
	Most	execute, if statement, if/else statement, variable, decimal place, format cell, spinner tool	grid, pen down, pen up, balanced view, reliability	components, motherboard, software, onion skinning, frame, stop motion
	Some	co-ordinates, prompt, implement, budget, totals	procedure, run speed, Easter eggs,	CPU, FPS, RAM
Quality Texts		100 Things to Know About Numbers, Computers & Coding.	Emmy Levels Up. Helen Harvey	
National Curriculum		Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.	Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 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.	Select, use and combine a variety of software devices to design and create a range of programs.