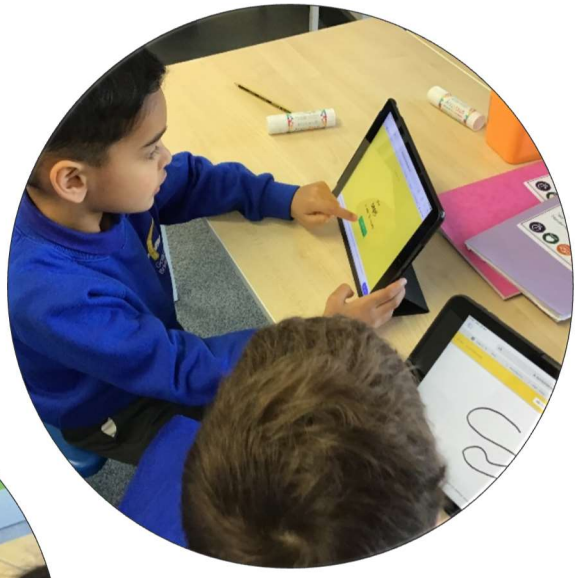
How we teach Computing



This document outlines: the intent and rationale behind our Computing curriculum, how it is delivered it and how we measure pupil progress.

Intent

At Godmanchester Bridge Academy, the Computing curriculum is aligned with our school values:

Inspire	Enjoy	Achieve
Children to inherit a sense of enjoyment around using technology and develop appreciation of its capabilities and opportunities.	Children explore and enjoy the opportunities technology has to offer; creating, organising and collaborating.	Children will develop their skills in encountering technology, thus enabling them to confidently take their place in a world with an ever-changing landscape of technology.

At Godmanchester Bridge Academy we follow the Kapow Primary Computing scheme of work, which aims to inspire pupils to be instil a sense of enjoyment around using technology and to develop pupil's appreciate of its capabilities and the opportunities technology offers to, create, manage, organise and collaborate.

Tinkering with software and programs forms a part of the ethos of the scheme as we want to develop pupil's confidence when encountering new technology, which is a vital skill in the ever evolving and changing landscape of technology. We intend for pupils to not only be digitally competent and have a range of transferable skills at a suitable level for their future, but also to be responsible online citizens.

The scheme of work enables pupils to meet the end of Key Stage Attainment levels outlined in the National curriculum and the aims align with those in the National curriculum. In conjunction with our schools RSE and PSHE schemes, our computing scheme of work satisfies all of the objectives of the DfE's Education for the Connected World framework. This guidance was created to help equip children for a life in the digital world, including developing their understanding of appropriate online behaviour, copyright issues, being discerning consumers of online information and healthy use of technology.

Implement

The National curriculum purpose of study states:

'The core of computing is computer science, in which pupils are taught principles of information and computation, how digital systems work and how to put this knowledge through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems, and a range of content. Computing also ensure that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.'

Therefore, the Computing scheme we use at Godmanchester Bridge Academy is designed with three strands which run throughout:

- Computer science
- Information technology
- Digital literacy

Our scheme is organised into five key areas, creating a cyclical route though which pupils and develop their computing knowledge and skills by revisiting and building on previous learning:

- Computer systems and networks
- Programming
- Creating media
- Data handling
- Online safety

The implementation of the Computing scheme ensures a broad and balanced coverage of the National Curriculum requirements, and some 'skills' units provide pupils with the opportunity to learn and apply transferable skills. Where meaningful, units have been created to link to other subjects across the wider curriculum to enable development of further transferable skills.

Lessons incorporate a range of teaching strategies from independent tasks, paired and group work as well as unplugged digital activities. This variety means that lessons are engaging and appeal to those with a variety of learning styles. Differentiation is built into every lesson to ensure that lessons can be accessed by all pupils and opportunities to stretch pupils' learning are available when required. Knowledge organisers for each unit support pupils in building a foundation of factual knowledge by encouraging recall of key facts and vocabulary.

Each child in our school from Year 1 upwards has their own personal iPad in school which enables all to take part in computing lessons. iPads are also used in school to embellish learning across the curriculum and gives pupils opportunities to use the transferable skills learnt during computing sessions.

Curriculum Accessibility – Computing

All Pupils:

- access a differentiated curriculum designed by the subject leader that is appropriate for all but is also meaningful, challenging & ambitious.
- are provided a range of activities to engage them and allow them to effectively communicate their understanding.
- are closely monitored and supported pastorally to ensure their emotional wellbeing is prioritised.
- named on each lesson seating plan so that pupils are known to staff and we foster a feeling of each pupil having their own place in the community.
- record work in a variety of ways, allowing access to the curriculum through multi-sensory learning.
- are provided with subject knowledge organisers.
- are supported with their behaviour choices in a therapeutic environment, school use restorative practise so that pupils can reflect and be supported to meet the schools valued behaviour expectations.
- Experience effective questioning to deepen knowledge and understanding and provide challenge
- receive feedback in lessons that results in further progress across the curriculum.

Some Pupils Need:

- use of concrete and pictorial representations during teaching and when working independently to aid their understanding.
- clear vocabulary explanations and/or introductory vocabulary work to prepare for a task.
- targeted questioning to support pupils in answering questions both orally and in written work.
- one-to-one interaction and targeted intervention by the teacher or support staff.
- a specific seat in lessons to meet a sensory or a learning need.
- specific feedback.
- an effective blend of co-operative, independent and teacher-led activities to appropriately challenge and support.
- key words and vocabulary identified and discussed.
- sentence starter/writing frames a scaffolded lesson structure, e.g. additional modelling, more paired/ discussion work or increased mini-plenaries.
- extra support in a lesson from an additional adult so that the pupils needs, academic or pastoral, are effectively met.
- post teaching to address any misconceptions.

Specific Pupils Need:

- access to a quiet space to ensure they can be supported to meet their potential.
- additional support in lessons from an adult who is attuned to their individual pastoral and learning needs.
- bespoke timetables taking in to account their needs to ensure that they are taught in an environment that best supports their pastoral and learning needs.
- curriculum adaptations to allow for engagement through pupil interests (project focus or word problem context).
- additional support in practical lessons.
- a personalised learning pathway.

Impact

The impact of our computing scheme can be constantly monitored through both formative and summative assessment opportunities. Each lesson includes assessing pupils against the learning objectives and each unit has a unit quiz and knowledge catcher which is used at the start and end of unit to assess learning.

Pupils should leave Godmanchester Bridge Academy with a range of skills to enable them to succeed in their secondary education and be active participants in the ever-increasing digital world.

The expected impact of following the Kapow Primary Computing scheme of work is that children will:

- Understand the importance that computing will have going forward in both their educational and working life and in their social and personal futures.
- Be critical thinkers and able to understand how to make informed and appropriate digital choices in the future.
- Understand how to balance time spent on technology and time spent away from it in a healthy and appropriate manner.
- Understand that technology helps to showcase their ideas and creativity. They will know that different types of software and hardware can help them achieve a broad variety of artistic and practical aims.
- Show a clear progression of technical skills across all areas of the National curriculum – computer science, information technology and digital literacy.
- Be able to use technology both individually and as part of a collaborative team.
- Be aware of online safety issues and protocols and be able to deal with any problems in a responsible and appropriate manner.
- Have an awareness of developments in technology and have an idea of how current technologies work and relate to one another.
- Meet the end of key stage expectations outline in the National curriculum for Computing.

Subject Map

Year	Unit 1	Unit 2	Unit 3
R	Using iPads – Photos / Videos Online Safety – Personal Information	All about Instructions	Understanding IT at GBA Exploring Hardware
Substantive knowledge and disciplinary knowledge	Exploring how to record using an iPad	The children learn to receive and give instructions and understand the importance of precise instructions	The main parts of a computer, how to use the keyboard and mouse and logging in and out
	Computing it taught though continuous provision and some explicitly taught lessons.		
1	Online Safety Improving Mouse Skills	Algorithms unplugged Digital Imagery	Beebots
Substantive knowledge and disciplinary knowledge	Develop mouse sills by learning how to log in and navigate around a computer while creating digital artwork.	Develop photography and image editing skills to capture photos to create an adventure story	Explor programming by giving clear instructions to a Bee-Bot and explaining how it works. Please note that there are two options for this unit: Option 1: Bee-Bot or Option 2: Virtual Bee-Bot
2	Online Safety What is a computer?	Algorithms and debugging International Space Station	Scratch Junior
Substantive knowledge and disciplinary knowledge	Learn how inputs and outputs work and understanding how computers are used in the wider world	Write clear and precise algorithms. Create algorithms to solve problems. Learn how astronauts survive on the ISS, including identifying necessary items, designing sensor displays and exploring habitable planets.	Recognise a loop in coding and why it is useful. Use a code to create an animation of an animal moving. Use code to follow *and* create an algorithm.
3	Online Safety Networks & the Internet	Journey inside a computer Video trailers	Scratch
Substantive knowledge and disciplinary knowledge	Introduction to the concept of networks, learning how devices communicate. From identifying components, learn how information is shared and deepen this understanding by exploring examples of real-world networks	Recognise inputs and outputs and that the computer sends and receives information. Explain that the parts of a laptop work together and the purpose of each part. Describe the purpose of a trailer. Consider camera angles when taking photos or videos.Import videos and photos into film editing software. dd text to a	Learn to use loops to program an animation, a story and a game in Scratch

		video. Incorporate transitions between images. Evaluate their own and others.	
4	Online Safety Collaborative Learning	Coding with Scratch Investigating Weather	Computational thinking
Substantive knowledge and disciplinary knowledge	Understand the need to be thoughtful when working on a collaborative document. Use comments and resolve comments. Convey information, including images and transitions. Create a Google Form with a range of different question types that will provide different types of answers. Export data to a spreadsheet, highlighting data, using conditional formatting and calculating averages and sums of numbers.	Create a simple script in Scratch, using decomposition and understanding what variables are. record weather forecast information in a spreadsheet and explain how this data is collected. Create a video which includes weather forecast information.	Understand what the different code blocks do and create a simple game. Understand the terms pattern recognition and abstraction and how they help to solve a problem. Create a Scratch program. Understand how computational thinking can help to solve problems and apply computational thinking to problems faced.
5	Online Safety Search Engines	Mars Rover Stop Motion Animation	Programming Music
Substantive knowledge and disciplinary knowledge	Understanding how search engines work and developing searching skills to find relevant and accurate information online	Identifying some of the types of data that the Mars Rover collects and explaining how the Mars Rover transmits the data back to Earth. Create a short stop motion with small changes between images.	Code a piece of music that combines a variety of structures. Use loops in their programming.
6	Online Safety Bletchley Park	Big Data 1 Exploring AI	Intro to Python
Substantive knowledge and disciplinary knowledge	Exploring code-breaking at Bletchley Park, historical figures in computing, the evolution of computers, designing a computer of f7uture.	Understanding the use of big data including barcodes, QR codes, infrared and RFID technologies Exploring what AI is and how it works as well as learning about creating and refining prompts to improve AI responses while also considering the ethical implications of AI.	Use nested loops, explain why they need two repeats. Alter drawings using Python commands; use comments to show a level of understanding of components.