



GAINSBOROUGH PRIMARY & NURSERY SCHOOL

SUBJECT OVERVIEW

COMPUTING



Our computing curriculum follows the purpose and aims of the National Curriculum in England for Key Stage 1 and 2. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Computing helps pupils to become digitally literate – able to express their ideas through ICT. We teach computing in every year group. Our computing curriculum is sequential and builds on prior learning which is revisited and reviewed often. This helps our children to know more and remember more. It is comprised of three aspects: Digital Literacy, Computational Thinking and Information Technology. Internet safety is also a core element.

Aims

We aim to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.



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	Early Years	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
CONTENT	To begin to use technology such as iPads and floor robots to aid other areas of learning such as phonics and maths.	To create simple pieces of code, become familiar with logging on, exploring areas of PurpleMash and understand that personal information is private.	To build on Year 1 skills with a focus on becoming more secure with various types of coding, sending emails and searching effectively on the internet.	To build on previous skills and knowledge. Focus in Year 3 is to add variables when coding, identifying safe websites and passwords and sorting information in spreadsheets	To build on previous skills and knowledge of Year 3. Focus in Year 4 is to create code around a specific theme, modify documents and pictures and create formulas in spreadsheets and 2Logo.	To build on previous skills and knowledge. Focus in Year 5 is to create a playable game using coding tools, to be aware of benefits and disadvantages of sharing information online and create and edit word documents.	To build on previous skills and knowledge of Year 5. Focus in Year 6 is to create a text based game using prior coding knowledge, understand how to behave appropriately online and understand how networks operate.

Objectives Digital Literacy		<p>To log in safely, recognise the purpose of an avatar and how to navigate Purple Mash (Unit 1.1) Learn what is meant by 'technology', find examples of technology in school and the wider community (Unit 1.9)</p>	<p>Learn to use the search and share function of Purple Mash, how to send/receive email and understand digital footprints. (Unit 2.2) Understand terminology associated with searching and search web results knowing some requirements of effective searching (Unit 2.5)</p>	<p>Understand how to keep passwords safe and not everything online is true. Understand the purpose of PEGI ratings (Unit 3.2) Open and respond to emails safely, learning how to add attachments and what the terms CC and BCC mean. (Unit 3.5)</p>	<p>Understand malware, phishing, plagiarism and the importance of crediting creators. Learn about healthy screen time. (Unit 4.2)</p>	<p>Understand safe passwords and confidentiality. Learn how to reference sources and validity of information (Unit 5.2)</p>	<p>Learn about privacy seals, appropriate online behaviour and how to protect themselves and others (Unit 6.2) Identify the purpose of blogging and features of successful blogging. Plan a blog of their own and contribute to existing blogs (Unit 6.4)</p>
Objectives Information Technology		<p>Understand that data can be represented in picture format, contribute to a class pictogram and use a pictogram to record an experiment (Unit 1.3) Create a simple e-book; adding text, images, sounds and backgrounds. (Unit 1.6) Begin to navigate around a spreadsheet and enter data into cells. Use some of</p>	<p>Learn keyboard shortcuts for spreadsheets, enter data into a table and create a chart. (Unit 2.3) Sort information into categories using yes/no questions and design a binary tree. Use database to answer questions. (Unit 2.4) Use a paint program to replicate the style of various artists,</p>	<p>Create charts using data into spreadsheets and use tools to help with calculations (Unit 3.3) Learn how to touch type, the importance of posture and finger positions in relation to a keyboard (Unit 3.4) Sort objects using YES/NO and complete a branching database using 2Question.</p>	<p>Format cells in spreadsheets and begin to add formulae using some of the tools in 2Calculate to create a model of a real-life situation (Unit 4.3) Use features of various documents and create appropriate documents using formatting features (Unit 4.4) Explore 2Animate, creating animations based</p>	<p>In spreadsheets, create formulae to solve problems using text variables. Use spreadsheet skills to plan a cake sale (Unit 5.3) Search for information in a database, contribute to a collaborative database and answer related questions (Unit 5.4) Design 3D models, manipulating points to meet</p>	<p>Develop use of formulae by writing spreadsheet formulae to solve a problem (Unit 6.3) Create a range of quizzes for users of differing ages (Unit 6.7) Learn how to use a spreadsheet package, using formula, charts and solve a variety of real life problems (Unit 6.9)</p>

		<p>the features of 2Calculate (Unit 1.8)</p>	<p>(Unit 2.6) Create music using a program, incorporating sound from a library and uploading own compositions. (Unit 2.7) Learn that ideas can be presented in a range of ways and using a range of software. (Unit 2.8)</p>	<p>(Unit 3.6) Find out the purpose of simulations and explore by making choices and discussing effects (Unit 3.7) Enter data into graphing software, solving investigations and presenting results in graphic form. (Unit 3.8) Use presentation software to create presentations including adding media, animations, shapes and timings (Unit 3.9)</p>	<p>on ideas from 'stop motion' films (Unit 4.6) Locate information on a search page, developing skills to assess whether information is true and reliable (Unit 4.7) Identify and discuss the main elements of music and compose electronic music on a computer (Unit 4.9)</p>	<p>design criteria using computer-based 3D modelling (Unit 5.6) Create a concept map, learning how to use it and how it can retell information (Unit 5.7) Learn key features of word processing, developing skills needed to edit including; text formatting, images, tables and layouts (Unit 5.8)</p>	
<p>Objectives Computer Science</p>		<p>Sort items using a range of criteria and introduce the term algorithm (Unit 1.2) Understand the importance of following instructions and consider how the order of instructions affects the result (Unit 1.4)</p>	<p>Learn about collision and timers. Develop an understanding that different objects have different properties (Unit 2.1)</p>	<p>Use flowcharts to plan a program, using timers, repeat commands to create an interactive scene. Realise the importance of debugging (Unit 3.1)</p>	<p>Begin to understand selection in programs and explore number variables and coordinates in programming (Unit 4.1) Using Logo, enter instructions to solve a problem, use repeat</p>	<p>Program a simulation, understanding decomposition and abstraction, using functions, variables and concatenation (Unit 5.1) Plan out a 3D game using effective features and sharing it online</p>	<p>Design a game meeting given criteria using timers, scores, selection and variables in a text based adventure (Unit 6.1) Analyse an existing text adventure through coding comprehension exercises. Debug and improve it.</p>

		<p>Use the direction keys, learning how to debug an algorithm to help to complete more difficult challenges. (Unit 1.5)</p> <p>Learn how instructions relate to code and use objects, actions and vents to create a simple program (Unit 1.7)</p>			<p>features and create procedures (Unit 4.5)</p> <p>Recognise essential parts of a computer, and their function (Unit 4.8)</p>	<p>(Unit 5.5)</p> <p>Write a program on a computer that responds with an externally connected device. Explore use of sensors to trigger responses (Unit 5.9)</p>	<p>(Unit 6.5)</p> <p>Know how computers access the internet at home and school and the difference between WAN and LAN (Unit 6.6)</p> <p>Recognise digital systems represent all types of data using number codes that are patterns of 1s and 0s called the binary system (Unit 6.8)</p>
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