

# Whole School Computing Overview

## INTENT

**Computing** capability is an essential skill for life and enables learners to participate more readily in a rapidly changing world. A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing needs to meet the rapid changes of technology and empower children to be effective, purposeful, and creative users of that technology. The curriculum is designed so that each year builds on the knowledge and skills practiced in the previous one. The curriculum is built on the computing principles of developing the three main strands of computing, digital literacy, information technology and computer science progressively and equally as the children move through the school. It is important that children understand the skills and systems behind the tools they use, to understand be able to integrate them appropriately and effectively, while having skills to critically analyse, and consider the technology in front of them, to make informed and purposeful choices.

## AIMS

Throughout this scheme of work, we intend to provide a holistic and creative computing curriculum which promotes:

- ▶ computational thinking and inspires children to be creative.
- ▶ the three different strands of computing, digital literacy, information technology and computer science progressively and equally as the children move through the school.
- ▶ Children to analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- ▶ children to evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- ▶ responsible, competent, confident, and creative users of information and communication technology
- ▶ opportunities to explore different technology
- ▶ cross curricular integration of computing skills
- ▶ children to access current and emerging technology purposefully and effectively.

## CONTENT

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	See separate document.					
Year 1	To understand how information is used online.	To understand how devices improve how people live and work.	To use technology purposefully to organise, store, manipulate and retrieve digital content	To understand what algorithms are; how they are implemented as programs on digital devices; and those programs execute by following precise and unambiguous instructions	To use technology to create digital content in different formats.	To create simple programs
Year 2	To understand expectable behaviour online and offline	To know what appropriate content is online and how to report something that isn't	To know how to use word publishing tools effectively.	To know how to send emails.	Understand that programs execute by following precise and unambiguous instructions	To create simple programs that complete more than one objective.

Year 3	To know how, when and what information to share online.	To know how to communicate online.	Use search technologies effectively.	To use software to interpret and present data	Write programs that accomplish specific goals.	To program a device to accomplish a specific goal.
Year 4	Know how to be safe when searching on the internet.	To use presentation software	To understand the opportunities computer networks offer for communication	To be able to build a website.	Create a short film to accomplish a goal.	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
Year 5	To be able use a range of tools to create an event.		To be able to analyse, evaluate and present data	To explain how some simple algorithms work and to detect and correct errors	Use a selection of variables in programs.	Create a purposeful program combining more complex algorithms
Year 6	To know how to be responsible for our behaviour online and protect ourselves	To Understand computer networks, including the internet	To use a range of devices and software to create a presentation.	To create a website and a google doodle.	To write a range of programs in swift	

## Whole School Computing Overview

### KEY STAGE SKILLS OVERVIEW

By the end of key stage one children will Understand what algorithms are; how they are implemented as programs on digital devices; and those 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

By the end of KS2 children will be able 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 Appreciate how [search] results are selected and ranked. Use search technologies effectively, including filtering searches and using key words. 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. Understand the opportunities [networks] offer for communication and collaboration. 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

## COMPUTING SKILLS PROGRESSION

Year Group	Digital Literacy/E-Safety	Information Technology	Computer Science
<b>KS1</b>  <b>Years 1 and 2</b>	<ul style="list-style-type: none"> <li>• Recognise common uses of information technology beyond school.</li> <li>• Can name different technological devices: computers, phones, common appliances and compare and classify them to those that are not.</li> <li>• Use technology safely and respectfully, keeping personal information private.</li> <li>• Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</li> <li>• Be able to evaluate the appropriateness of images and video for the context they are needed.</li> <li>• Understand how communicating and commenting online is different to real life and how that can interpret in positive and negative ways</li> </ul>	<ul style="list-style-type: none"> <li>• Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</li> <li>• Be able to save in a specific location</li> <li>• Navigate simple menus</li> <li>• Open files</li> <li>• Make simple searches</li> <li>• Know how to credit a source</li> <li>• Be able to search through folders and organise files appropriately</li> <li>• Be able to use email software, search contacts and send simple emails.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand what algorithms are; how they are implemented as programs on digital devices; and those programs execute by following precise and unambiguous instructions.</li> <li>• Create and debug simple programs.</li> <li>• Run simple programs on physical devices.</li> </ul>
<b>Lower KS2</b>  <b>Years 3 and 4</b>	<ul style="list-style-type: none"> <li>• Use technology safely, respectfully, and responsibly; recognise acceptable/ unacceptable behaviour.</li> <li>• Identify a range of ways to report concern about content and contact.</li> <li>• Understand what is meant by scams and data phishing and be able to identify them.</li> <li>• Know what information shouldn't be shared online</li> <li>• To understand different levels of online privacy, how to change privacy settings on websites and within applications.</li> <li>• Classify devices as inputs (keyboards/mouses etc) and outputs (screens/projectors/speakers etc) and explain the purpose and function of them.</li> </ul>	<ul style="list-style-type: none"> <li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning</li> <li>• in evaluating digital content.</li> <li>• Know how to make more specific searches using search terms and filters</li> <li>• 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.</li> <li>• Be able to cite the work of others accurately and embed links to sources within documents.</li> </ul>	<ul style="list-style-type: none"> <li>• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.</li> <li>• solve problems by decomposing them into smaller parts.</li> <li>• Use sequence, selection and repetition in programs, work with variables and various forms of input and output.</li> <li>• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors</li> <li>• In algorithms and programs.</li> <li>• 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.</li> </ul>

			<ul style="list-style-type: none"> <li>• Be able to use a range of formulas within data modelling software to achieve goals.</li> <li>• Understand the terms input and output in relation to programming and how these are similar and different to physical devices.</li> <li>• To develop some in-depth knowledge of computing programming languages such as HTML</li> </ul>
<p><b>Upper KS2</b></p> <p><b>Years 5 and 6</b></p>	<ul style="list-style-type: none"> <li>• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour.</li> <li>• Identify a range of ways to report concern about content and contacts.</li> <li>• To understand different levels of online privacy, how to change privacy settings on websites and within applications</li> <li>• Have a deeper understanding of what is meant by the terms such as cyberbullying, trolling, cyber stalking, and the real-world repercussions.</li> <li>• Be able to recognise and understand stereotype and biases in media and online.</li> </ul>	<ul style="list-style-type: none"> <li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</li> <li>• 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.</li> <li>• Plan and execute, using a range of software and devices, an event or larger goal that requires multiple sets to achieve the desired outcome.</li> <li>• Independently selecting and using increasingly more complex devices and software, to accomplish give tasks.</li> <li>• Collect, analyse, evaluate, and present data and information, with more specific purposes.</li> <li>• Be able to select from a range of communication tools, that is most suitable for the context in which it is used/needed.</li> </ul>	<ul style="list-style-type: none"> <li>• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.</li> <li>• solve problems by decomposing them into smaller parts.</li> <li>• Use sequence, selection and repetition in programs, work with variables and various forms of input and output.</li> <li>• 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.</li> <li>• Be able to identify a variety of common coding languages: HTML, JAVA, SWIFT, and have a growing knowledge on how to write programs with them.</li> </ul>