Hawley Primary School

WHOLE SCHOOL Long Term Overview
Computing

EYFS Development Matters:

• Completes a simple program on a computer.
• Uses ICT hardware to interact with age-appropriate computer software.

Early Learning Goal
Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

Statutory Content Coverage

Key stage 1
Pupils should be taught to:

- 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
- 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

Key stage 2
Pupils should be taught 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, and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- 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
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Online Safety

Online safety is embedded throughout every aspect of our Computing Curriculum. Each step begins with a short online safety starter, ensuring that children regularly revisit and build upon their understanding. These Cyber Smart discussion starters are carefully aligned with the UK Council for Internet Safety's *Education for a Connected World* framework, ensuring content remains current, relevant and age appropriate.

The only strand that does not begin with a Cyber Smart starter is Digital Citizenship. As a dedicated online safety strand, it provides children with explicit opportunities to explore their roles, responsibilities and behaviours in the digital world. Instead of Cyber Smart starters, this strand includes Digital Dilemma Discussion Starters, which are closely linked to the key learning within each step and encourage thoughtful discussion and reflection.

Each unit also includes a Smart Sparks Guide, enabling children to share key online safety messages with their parents and carers, strengthening the partnership between school and home in promoting safe and responsible technology use.

Cycle A						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
EYFS	**Is There Room on a Broom for a Gruffalo**	**In with a bang** **Celebrating You**	**Once upon a time**	**Eggcellent!**	**It's a Bugs Life**	**Join Our Journey**
Computing Concept					**Creating Media** Uses an iPad to take photos and videos.	**Creating Media** Uses an iPad to draw pictures on Paint.
Year 1/2 Topic	**Out of Africa**	**Fire! Fire!**	**Rumble in the Jungle**	**Marvellous Medicine!**	**Under the Sea**	**Treasure Adventure**
Computing Concept	**Digital Foundations** In Digital Foundations 1, children will: identify a range of technology found in the home and school; explore the common parts of digital devices; learn how to use a computer mouse or trackpad to control the cursor; learn how to use some of the keys on a computer keyboard; recognise and use common icons found	**Creating Media** In Creating Media 1, children will: explore digital drawing tools; create different types of lines; create different types of shapes; use a range of colours, including tints and shades; experiment with colour and shape to create patterns; discuss the work of different artists; apply the taught skills to create a piece of	**Digital Citizenship** In Digital Citizenship 1, children will: recognise different ways technology can be used to go online; recognise examples of personal information; identify how to keep their personal information safe; identify ways they can learn and explore safely online.	**Computer Systems and Networks** In Computer Systems and Networks 1, children will: explore how information technology is used in different places and by different people; recognise how information technology helps us; understand how information technology has changed and developed over time; consider how information technology may develop in the future.	**Creating Media** In Creating Media 2, children will develop their understanding of: typing and pasting text into a word processor; using formatting tools to style text; using formatting tools to organise text; inserting images into a document.	**Computer Systems and Networks** In Computer Systems and Networks 2, children will develop their understanding of: the parts of a computer; how to connect to the Internet; how we can be safe online; utilising search engines and how to navigate to a trusted web page on the Internet.

	on digital devices; navigate a simple operating system; create digital work using a digital art program; explore online safety concepts, such as personal information, asking a trusted adult for permission, safe passwords, content ownership and digital citizenship.	digital art.				
Year 3/4 Topic	**The Rolling Stone Age**	**Local Legacy (WW2)**	**At Water's Edge**	**Natural Wonder**	**The Land of Roar**	**Sporting Heroes**
Computing Concept	**Digital Foundations** In Digital Foundations 3, children will learn concepts and skills to develop their understanding of: technology and input and output devices; device connections; operating system familiarity; recognising icons and symbols; mouse and keyboard skills and formatting text.	**Programming** In Programming 3, children will develop the skills and knowledge required to create simple programs using Scratch. The five steps in this unit will take the children through various computer programming concepts, such as sequence, selection and repetition, as well as teaching them how to insert sprites and backdrops.	**Digital Citizenship** In Digital Citizenship 3, children will: understand how to behave appropriately online; recognise how someone's feelings can be hurt by what is said or written online; understand what cyberbullying is and how to recognise it; know how to respond to cyberbullying in a safe and respectful way; understand how their online behaviour impacts their digital footprint.	**Physical Computing** Physical Computing 2 is designed to give children a basic understanding of the BBC micro:bit and how it can be used to create simple programs that interact with the physical world. During the unit, children will: navigate the MakeCode interface; learn how to display and animate an image on a micro:bit; learn about the importance of sequencing when programming; use Music blocks within simple programs; debug algorithms; use simple Loops blocks in programs; learn when to use selection in programming; use simple Logic blocks in programs;	**Data and Information** In Data and Information 2, children are taught the knowledge and skills required to develop an understanding of how data can be used to answer questions and make decisions. The five steps in this unit develop the children's understanding of: what data and information are; collecting and organising data; representing data; analysing and using data and handling data responsibly and ethically.	**Artificial Intelligence** Artificial Intelligence 2 aims to provide children with the knowledge needed to understand what artificial intelligence (AI) is and how AI systems work while also exploring the ethical implications of AI systems in the real world. Throughout the unit, children will: understand what AI systems are; know examples of where AI systems are used; understand how AI models use pattern recognition to make decisions; know what generative AI models are and understand how they use data to generate new content; know what AI bias is and why it can happen; understand why AI bias is a problem; know where training data is sourced

				flash programs to the micro:bit.		from; understand the importance of data privacy in relation to AI systems.
Year 5/6	**Reach for the Stars**	**Our Heroes (WW1)**	**Oh Maya!**	**Boom!**	**Eureka**	
Computing Concept	**<u>Digital Foundations</u>** In Digital Foundations 5, children will learn concepts and skills to develop their understanding of: technology over time; computer systems and networks; organising files; formatting tools; keyboard shortcuts; hyperlinks and common icons. The steps in this unit can be covered flexibly in order to meet the specific needs of the children.	**<u>Computer Systems and Networks</u>** In Computer Systems and Networks 5, children will develop their understanding of: the benefits of networks; the topology of networks; IP addresses; viruses & malware; hacking and looking at technologies that help us deal with online threats.	**<u>Digital Citizenship</u>** In Digital Citizenship 5, children will: understand the concept of an online reputation; understand how others may use online information to make judgements; understand the importance of building a positive online presence; recognise the lasting effect of words and actions in the digital environment; understand that not all online activities are suitable for them; recognise healthy and unhealthy online behaviours; understand how to collaborate effectively online.	**<u>Creating Media</u>** In Creating Media 5, children will learn: what podcasts are; how to record and edit high-quality audio using a digital audio workstation (DAW); the structure and content of podcast episodes and how advertising is used. Children also learn about copyright law and how to identify royalty-free content online.	**<u>Computer Systems and Networks</u>** In Computer Systems and Networks 6, children will learn about search engines and how they work. They will also learn how to assess search results and online content critically.	**<u>Creating Media</u>** In Creating Media 6A, children will: learn what 3D modelling is; learn that 3D designs can be printed to make physical three-dimensional objects; consider the benefits of 3D modelling in the real world and explore how this technology is used in the workplace. Through the use of Tinkercad, children will develop the practical computing skills of adding, moving, manipulating and combining objects to create 3D designs.

Cycle B						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
EYFS	**Is There Room on a Broom for a Gruffalo**	**In with a bang** **Celebrating You**	**Once upon a time**	**Eggcellent!**	**It's a Bug's Life**	**Join Our Journey**
Computing Concept					**Creating Media** Uses an iPad to take photos and videos.	**Creating Media** Uses an iPad to draw pictures on Paint.
Year 1/2 Topic	**Hooray for Hawley**	**Up, Up and Away**	**Victorious Victorians**	**Into the Toy Box**	**To the Rescue**	**Going for Gold!**
Computing Concept	**Digital Foundations** In Digital Foundations 2, children will: identify a range of technology used in the wider world; learn about health and safety requirements related to digital devices; name and know the function of common parts of digital devices; learn how to use a computer mouse or trackpad, including functions of the left and right buttons; learn to recognise the main keys on a computer keyboard; recognise and use common icons found on digital devices; navigate a simple operating system; become familiar with common icons used in a	**Programming** In Programming 1, children will: learn what an algorithm is; recognise and follow the steps in simple algorithms; understand that algorithms can be modified and practise modifying existing algorithms; recognise that errors can occur in algorithms and learn how to debug them; understand how repetition works in algorithms; design and create their own simple algorithms; explore online safety concepts, such as online communication, online behaviours and digital citizenship.	**Digital Citizenship** In Digital Citizenship 2, children will: identify different ways to behave kindly and respectfully online; recognise bullying behaviour online and how to report it; learn what a digital footprint is and why it is important; learn how to reduce their digital footprint and make it more positive.	**Programming** In Programming 2, children will develop their understanding of: the ScratchJr interface; programming a character to move and change its appearance; displaying written messages and sending messages between characters and repeating blocks or entire algorithms.	**Artificial Intelligence** Artificial Intelligence 1 introduces children to the concepts of machines and artificial intelligence (AI), encouraging them to explore how machines work, how humans learn and how AI technologies are trained. Throughout the unit, children will: learn what machines are and how they have changed over time; understand how humans learn by using their senses, practising tasks and making mistakes; discover what artificial intelligence is and how AI technologies are trained using data; compare humans and AI technologies to	**Physical Computing** In Physical Computing 1, children will: learn what a programmable toy is; understand how a Bee-Bot follows instructions; identify the features of a BeeBot; demonstrate how to use a Bee-Bot safely and responsibly; use the buttons on a Bee-Bot to control its movement; build and sequence simple algorithms; use repetition in algorithms; debug algorithms; design and create their own Bee-Bot journey.

	digital art program; create, save and open digital work; explore online safety concepts, such as personal information, trusted adults, safe passwords, content ownership and digital citizenship.				understand the differences and limitations of these technologies.	
Year 3/4 Topic	**Were the Romans really rotten?**	**The Power of Words**	**Lights, Camera, Action!**		**Walk like an Egyptian!**	
Computing Concept	**<u>Digital Foundations</u>** In Digital Foundations 4, children will learn concepts and skills to develop their understanding of: technology and digital devices; operating system familiarity; mouse and keyboard skills; understanding icons and symbols; creating digital artefacts; Internet safety and awareness and digital citizenship.	**<u>Creating Media</u>** In Creating Media 3, children will learn how to: insert and edit text; use keyboard shortcuts; format slides; insert and edit images; consider audience and purpose.	**<u>Digital Citizenship</u>** In Digital Citizenship 4, children will: understand which games are safe to play; understand how games use persuasion to keep people playing; know strategies to help limit how much time is spent playing games; understand what scams are and know how to avoid them while gaming online; understand what 'fake news' is and know strategies to notice it online; understand that not everyone online is who they say they are; know strategies for keeping personal information private; understand what respectful online gaming behaviour looks like.	**<u>Computer Systems and Networks</u>** In Computer Systems and Networks 3, children will develop their understanding of: how devices are connected to each other; computer networks; the Internet; the World Wide Web and safe searching.	**<u>Creating Media</u>** In Creating Media 4, children will: gain an understanding of what animation is and the different ways in which animations can be created; understand how to create a smooth animation; navigate digital animation software; plan an animation using a storyboard; create and evaluate their own animations.	**<u>Computer Systems and Networks</u>** In Computer Systems and Networks 4, children will explore how technology can help us work, collaborate and communicate effectively in our daily lives. The steps build on children's understanding of networks, communication technology and the impact that the invention of the Internet has had on communication and collaboration.

Year 5/6	Coastal Adventures	Sensational Shang	We Rule!		Ever Evolving	
Computing Concept	**Digital Foundations** In Digital Foundations 6, children will learn concepts and skills to develop their understanding of: changes in technology; computer networks; file organisation and advanced search terms; keyboard shortcuts, including the function keys; hyperlinks and common icons.	**Programming** In Programming 4, children will develop an understanding of what programming is through hands-on projects and apply their knowledge in practical ways. The five steps in this unit will guide the children through various programming concepts, such as selection, repetition and variables, building up the necessary skills and knowledge to create an independent project.	**Digital Citizenship** In Digital Citizenship 6, children will: understand how misinformation is shared online; understand the dangers of posting or sharing misinformation; learn how to critically evaluate the authenticity and trustworthiness of online content; know how to manage their digital footprint; identify and recognise online risks; understand how to protect themselves against cybersecurity threats.	**Data and Information** In Data and Information 3, children are taught the knowledge and skills required for collecting, organising, representing, analysing and presenting data. The steps in this unit develop children's understanding of: data types and their uses; selecting appropriate data sources; collecting and organising data; filtering and sorting data; representing and analysing data and making datainformed decisions.	**Artificial Intelligence** In Artificial Intelligence 3, children will develop the ability to think critically about the role of AI systems in everyday life, including evaluating safety, ethical implications and usefulness. Building on this understanding, children will design their own AI system, ensuring it is safe, fair and beneficial. To conclude the unit, they will prepare and deliver a pitch to justify their design choices and demonstrate how their AI system meets key ethical and practical criteria.	**Physical Computing** Physical Computing 3 provides children with the skills and knowledge to design and program a BBC micro:bit using Microsoft MakeCode. They will gain an understanding of what physical computing is and access practical projects to put this knowledge to the test. The five steps in this unit will take the children through various computing programming concepts, such as selection, repetition and variables, as well as using the micro:bit's sensors and ability to connect to other objects like crocodile clips.