Curriculum Intent Statement

As subject leaders we strive to adopt and construct a curriculum that is ambitious and aspirational; designed to give **all** learners and groups of learners, including the most disadvantaged and those with SEND and higher levels of needs, the knowledge and cultural capital they need to succeed in their future. We continually strive to make adaptations and reasonable adjustments to enable all our pupils to access our school curriculum and we aim to provide a range of enhancement opportunities to engage all children in their learning.
We recognise that all pupils are entitled to a quality of provision that will enable them to achieve their full academic and personal potential. We firmly believe that childhood should be a happy, investigative and enquiring time in our lives where there are no limits to curiosity and where all children are exposed to new experiences and knowledge through a varied curriculum.

In line with the 2014 National Curriculum for Computing, our aim is to provide a high-quality computing education which equips children to use computational thinking and creativity to understand and change the world. The curriculum will teach children key knowledge about how computers and computer systems work, and how they are designed and programmed.

Learners will have the opportunity to gain an understanding of computational systems of all kinds, whether or not they include computers. By the time they leave Brookhurst, children will have gained key knowledge and skills in the three main areas of the computing curriculum: computer science (programming and understanding how digital systems work), information technology (using computer systems to store, retrieve and send information) and digital literacy (evaluating digital content and using technology safely and respectfully). The objectives within each strand support the development of learning across the key stages, ensuring a solid grounding for future learning and beyond.

Aims of the National Curriculum

Purpose of study

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. 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.

Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures 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.

Aims

The national curriculum for computing aims 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.

Subject Content	
KS1	**KS2**
• 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	• 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.

Curriculum Implementation Statement

At Brookhurst, computing is taught either as a discrete subject or as an integral part of the wider curriculum. This ensures children are able to develop depth in their knowledge and skills over the duration of each of their computing topics.

We have a class set of laptops that children use to access during their weekly computing lesson which is supported by the interactive whiteboard in each class. In addition to each classroom desktop there are laptops in our laptop trolley for classroom use.
We also have 2 sets of 30 Ipads dedicated to computing. Additional to this, we have a class set of micro-bots and We-Do Lego, which allow them to explore This ensures that all year groups have the opportunity to use a range of devices and programs for many purposes across the wider curriculum, as well as in discrete computing lessons. Employing cross-curricular links motivates pupils and supports them to make connections and remember the steps they have been taught.

The implementation of the curriculum ensures a balanced coverage of computer science, information technology and digital literacy. The children will have experiences of all three strands in each year group, but the subject knowledge imparted becomes increasingly specific and in depth, with more complex skills being taught, thus ensuring that learning is built upon. For example, children in Key Stage 1 learn what algorithms are through the use of bee-bots, which leads them to the design stage of programming in Key Stage 2, where they design, write and debug programs, explaining the thinking behind their algorithms.

Online Safety

All year groups begin the year revisiting key online safety skills to ensure that all pupils can use technology safely while developing their computer science and digital literacy skills.

In addition to the discrete sessions at the beginning of the year, online safety underpins all computing lessons and is revisited throughout the year. Consistent and regular teaching of online safety will ensure that all pupils are able to utilise the skills and knowledge taught in computing lessons while knowing how to stay safe online in and out of school.

Below is an overview of the key Online Safety skills covered in our computing lessons:

- How do I use technology safely, respectfully and responsibly?
- Who do I talk to if I feel unsafe on the internet?
- What is personal information?
- How do we keep personal information safe?
- How do we search safely on the internet?
- How can we create a safe password?
- How do I know if a website is safe?
- How do we communicate safely using technology?
- How do we know online content is appropriate for us to use?
- How do we recognise acceptable and unacceptable behaviour online?
- What information do we want to share on the internet?
- Is everything on the internet true?

Our online safety skills are supported in a cross curricula approach with significant links to RSE. Children will be able to identify when they are feeling unsafe, what to do in this situation and have listed trusted adults they can talk to.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	**Self-Image and Identity**	**Online Reputation**	**Online Relationships**	**Online Bullying**	**Managing Online Information**	**Privacy and Security**
	In EYFS pupils are exposed to technology through play, independent exploration and adult modelling. Across the year, pupils will use technology such as interactive whiteboards, iPads, keyboards, mice and BeeBots to access and enhance their day-to-day learning and provision. As a result, children will learn to become more independent when using technology and curious of its capabilities. This will ensure that prior to entering Key Stage 1 pupils have had chance to develop their digital literacy and logical reasoning skills.					

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	**Online Safety** **Health and Wellbeing:** I can explain rules to keep myself safe when using technology both in and beyond the home. **Online Reputation:** I can describe what information I should not put online without asking a trusted adult. **Privacy and Security:** I can recognise more detailed examples of information that is personal to someone. **Technology Around Us: L4, L5, L6** We will develop our keyboard and trackpad skills and understand how to use technology safely.	**Creating Media - Digital Painting** We will explore the world of digital art and the tools used to create it. We will create our own digital painting gathering inspiration from a range of artists. We will finish by evaluating our work and preference when painting with and without the use of digital devices. Hardware - Laptops Software: Microsoft Paint	**Creating Media - Digital Writing** We will be developing our understanding of how to produce an change text digitally. We will become familiar with typing on a keyboard and begin to use tools to change the appearance of our writing. We will observe the differences between creating text on a computer and writing on paper. Hardware - Laptops Software: Microsoft Word	**Data and information - Grouping Data** We will begin to label and group items according to different categories. We will be able to count and sort objects into groups based on properties we choose and then use these groups to answers questions about data.	**Programming - Moving a Robot** We will be introduced to basic programming concepts and utilise individual commands. We will learn to predict the outcomes of programs and that an algorithm is a set of instructions. Hardware - BeeBots	**Programming - Introduction to Animation** We will be introduced to on-screen programming through the use of ScratchJr. We will alter the appearance of sprites and backgrounds and then begin to use programming blocks to use, modify and create programs. Hardware- iPads Software - ScratchJr

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 2	**Online Safety** **Managing Online Information:** I can explain what voice activated searching is and how it might be used, and know it is not a real person. **Online Bullying:** I can explain what bullying is, how people may bully others and how bullying can make someone feel. **Online Relationships:** I can explain why I have a right to say no and explain who can help me if I feel under pressure. **Technology Around Us: L1, L2, L3** We will understand what IT is, how it can be used and why it is useful.	**Creating Media - Digital Photography** We will observe how different devices can be used to capture photographs. We will gain experience in capturing, editing and improving photos. We will use this knowledge to recognise that images be see may not always be real. Hardware – iPads Software - Pixlr	**Creating Media - Making Music** We will think about how music can make us think and feel to begin to use patterns to make music with instruments and digital tools. We will use the movements of animals for inspiration in rhythm and compare how we make music digitally and not digitally. Hardware – Laptops Software – Chrome Music Lab	**Data and information – Pictograms** We will learn what data means and how it can be collected. We will then learn how to use an attribute to organise the data we have collected. Once data has been collected we will present it using pictograms and block diagrams. We will also learn to answer questions based on presented data. Hardware- Laptops Software – j2data	**Programming - Robot Algorithms** We will use logical reasoning to predict the outcomes of algorithms and investigate how the order of given commands affects the outcomes. We will design our own algorithms and learn to debug as needed. Hardware - Beebots	**Programming - Introduction to Quizzes** We will observe and understand outcomes of commands and make predictions for these. We will then create our own quizzes on ScratchJr before evaluating and improving our programming skills. Hardware -iPads Software - ScratchJr

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	**Online Safety** **Health and Wellbeing:** I can explain why some online activities have age restrictions. **Privacy and Security:** I can describe simple strategies for creating and keeping passwords private. **Self-image and Identity:** I can explain how people can represent themselves in different ways online. **Connecting Computers L1, L2, L3** We will understand digital and non-digital devices and their input, processes and outputs.	**Creating Media – Animation** We will learn skills to create a stop-motion animation based on a story. We will then develop our animation by adding other types of media such as audio and text. Hardware- iPads Software - iMotion	**Creating Media - Desktop Publishing** We will learn how text and images can be used to communicate. We will create our own magazine covers with consideration of text, font, colour and images. We will evaluate different layouts and their purpose with consideration for how publishing is used in the real world. Hardware – Laptops Software – Microsoft Publisher	**Data and information - Branching Databases** We will develop our understanding of what a branching database is and how to create one. We will use binary questions to use attributes to sort groups of objects. We will create physical and digital branching databases and consider the real-life applications of branching databases. Hardware – Laptops Software – j2data	**Programming - Sequence in Music** We will begin to learn how to use Scratch and understand the motion, sound and event blocks we will use in our programs. We will then create a representation of a piano using algorithms. Hardware – Laptops Software - Scratch	**Programming - Events and Actions** We will learn about the links between events and actions and how this relates to sequencing. We will move sprites in different directions within a maze. We will create our own maze tracing program through the use of pen blocks. Hardware – Laptops Software - Scratch

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 4	**Online Safety** **Copyright and Ownership:** When searching for continent I can explain why I need to consider who owns it and if I have the right to reuse it. **Managing Online Information:** I can explain how the internet can be used to sell things. **Online Bullying:** I can explain ways people can be bullied through a range of media. **The Internet L1, L2, L3** We will understand that the internet is a network and how the World Wide Web is part of the internet.	**Creating Media - Audio Editing** We will learn about input and output devices that are required to work with sound digitally. We will produce our own podcasts developing recording, editing, opening and saving audio file skills. We will discuss copyright implications of duplicating work and give feedback to our peers. Hardware – Laptops Software - Audacity	**Creating Media - Photo Editing** We will learn how images can be changed and edited, and how they can be resaved and reused. We will experiment with editing out own photos and consider the impact editing images can have. Hardware- iPads Software - Pixlr	**Data and information - Data Logging**	**Programming - Repetition in Shapes** We will use repetition of shapes to create our own wrapping paper design. We will learn how to use algorithms and coding to create letters, shapes and patterns. Hardware – Laptops Software- turtleacademy	**Programming - Repetition in Games** We will create our own game which uses repetition. We will observe and understand the difference between count-controlled and infinite loops in order to modify existing programming and create our own. Hardware – Laptops Software – Scratch

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5	**Online Safety** **Health, Wellbeing & Lifestyle:** I can describe ways technology can affect health and wellbeing positively and negatively. **Online Reputation:** I can describe how information online can be used to make judgements that may be incorrect. **Privacy and Security:** I can describe how online services can collect, store and share information. **Sharing Information: L1, L2, L3** We will understand how information is transferred between systems.	**Creating Media - Vector Drawing** We will learn that different drawing tools can be used to create images. We will learn that each element of a vector drawing is called an object and we will use these with layers to create core complex pieces of work. Hardware – Laptops Software – Vectr	**Creating Media - Video Editing** We will create our own videos by capturing editing and manipulating video clips. We will plan what our video will include and evaluate our progress from video conception to completion. Hardware - Laptops Software - Windows Video Editor	**Data and information - Flat-file Databases** We will observe how flat-file databases can be used to organise data. We will create graphs and chat to solve problems and answer questions about data. Hardware – Laptops Software – j2data	**Programming - Selection in Physical Computing** We will learn how to connect and program components including output devices. We will control actions and utilise the concept of selection. Equipment to be hired from Local Hub for this topic. Hardware – Crumble Software -	**Programming - Selection in Quizzes** We will create our own quizzes based on a given task. We will utilise the if… then… else… blocks based on true or false answers and understand how this impacts our algorithm. Hardware – Laptops Software – Scratch.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 6	**Online safety** **Managing Online Information:** I can be sceptical and analyse information. **Online Relationships:** I can describe strategies for fun and safe experiences online. **Self-Image & Identity:** I can explain how online identity can be copied, modified and altered. **Communication L1, L2, L3** We will learn how data is transferred over the internet and how we can communicate online.	**Creating Media - 3D Modelling** This topic is covered in a cross curricula approach with DT.	**Creating Media - Webpage Creation** We will learn how to make a website for a chosen purpose. We will understand what makes a good website and use this to design and evaluate our own website. Hardware – Laptops Software – Microsoft Sway	**Data and information – Spreadsheets** We will use spreadsheets to plan our own event, using formulas across multiple cells and duplicating them. We will use our data set to create charts and answers questions then evaluate our results. Hardware – Laptops Software – Microsoft Excel	**Programming - Variables in Games** We will use, modify and then create a range of games in Scratch to gain an understanding of how to use variables in programming. We will observe what variables are in real-life contexts and how we can relate them to our own games. Hardware – Laptops Software - Scratch	**Programming - Sensing** We will use a physical device to utilise all learnt elements of programming – sequence, repetition, select and variables. We will learn how a physical device can be used for multiple different projects. Hardware – Laptops, Microbit Software – Microbit Makecode

Coverage of curriculum statements by term.

Key Stage 1	Year 1						Year 2					
	A1	A2	Sp1	Sp2	Su1	Su2	A1	A2	Sp1	Sp2	Su1	Su2
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	■						■					

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A place to think and grow

Lower Key Stage 2	Year 3						Year 4					
	A1	A2	Sp1	Sp2	Su1	Su2	A1	A2	Sp1	Sp2	Su1	Su2
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.	■						■					

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Upper Key Stage 2	Year 5						Year 6					
	A1	A2	Sp1	Sp2	Su1	Su2	A1	A2	Sp1	Sp2	Su1	Su2
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.	■						■		■			

Curriculum Impact

Our approach to the curriculum results in a fun, engaging, and high-quality computing education. The quality of children's learning is evident on our school app (MySchoolApp) and on the class blogs on Purple Mash.

Much of the subject-specific knowledge developed in our computing lessons equip pupils with experiences which will benefit them in secondary school, further education and future workplaces. From research methods, use of presentation and creative tools and critical thinking, computing at Brookhurst gives children the building blocks that enable them to pursue a wide range of interests and vocations in the next stage of their lives.