



Computing Curriculum Intent Statement

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.

Intent:

At Sutton on Sea Community Primary School, we believe that a high-quality Computing curriculum, nurturing pupils' creativity and computational thinking, is essential for preparing them for the technical challenges of the modern world. We therefore aim to establish and maintain high-quality classroom instruction and resources so that children learn to:

- Understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- Analyse problems in computational terms, and have repeated practical experience of writing computer programs to solve such problems
- Evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- Become responsible, competent, confident and creative users of information and communication technology.
- Navigate the online world equipped with a secure knowledge of how to remain safe at all times.

Implementation:

We teach Computing in half-termly blocks using the DfE's approved Teach Computing scheme of work and Barefoot Computing in EYFS which gives teachers a clear sequence of progression from which they can utilise their creativity, subject-knowledge and understanding of their pupils to teach engaging and inspiring lessons.

This curriculum enables us to develop our pupils' skills and knowledge in what Ofsted's subject research review refers to as the pillars of progression:



- **Computer science:** knowledge of computers and computation. It includes concepts such as data, system architecture, algorithms and programming.
- **Information technology:** the context for how computers are used in society. It includes how they are used in different sectors, as well as the creation of digital artefacts, such as presentations, spreadsheets and videos.
- **Digital literacy:** the knowledge and skills needed to use computer technology safely, effectively and with discernment.
- Online safety is embedded throughout our Teach Computing curriculum, ensuring that children learn about safe and responsible online behaviour in a fluid and contextual way. Lessons are reinforced through our own online safety questionnaires as part of our safeguarding provision.

Impact

We assess pupils' Computing knowledge by using a combination of:

- Every lesson includes formative assessment opportunities for teachers to use. They vary from teacher observation or questioning to marked activities.
- Every unit includes an optional summative assessment framework in the form of either a multiple choice quiz (MCQ) or a rubric.

The computing curriculum is designed to ensure learners revisit and consolidate key knowledge across their primary school journey, with the complexity of subject knowledge and vocabulary increasing year on year. This ensures progression through key stages and a clear understanding of computational concepts.

By the end of their primary education, pupils will be digitally literate, prepared for their next stage of learning. They will have received training in various software and hardware, enabling them to use technology effectively, responsibly, and safely. Pupils will be able to apply their computational thinking skills across different contexts, ensuring they are well-prepared for the future.



Links to Research

Publication	Selected Recommendations	How are we applying these to our Curriculum?
Research review series: computing - GOV.UK	Computer science covers knowledge of computers and computation, including concepts such as data, system architecture, algorithms and programming. Computer science is seen as the core of computing and underpins the whole of the subject. Because of this, it is fair to say that computer science provides the foundational knowledge required to understand and interpret the other areas of the computing curriculum. Therefore, it is important that any computing curriculum is rich in computer science knowledge.	The Teach computing scheme of work is based on these three types of computing knowledge and, therefore, also covers the types of knowledge listed in this Ofsted research review. While we do offer supporting documentation for a declarative (facts-based) approach, such as knowledge organisers, catchers, and quizzes, our curriculum embraces the broader definition of knowledge as outlined in this research review, and is predominantly procedural (skills-based), delivered through tacit (experiential) and instructional learning.

How learning in the Early Years Foundation Stage provides a range of experiences and a secure knowledge base, on which the curriculum in Computing builds.

Within the new EYFS curriculum the 'Technology' strand has been removed from 'Understanding the World' and has not been replaced with any updated guidance. However, computing and technology are still vitally important subjects to teach to Foundation children. Teaching computing within the curriculum ensures that children enter Year 1 with a strong foundation of knowledge. Computing lessons in the EYFS also ensure that children develop listening skills, problem-solving abilities and thoughtful questioning — as well as improving subject skills across the seven areas of learning. We live in a technological world and there is no escape from the reality that technology is integrated into the lives of young children. Just as we ensure the children in our care are ready for the adult world by teaching them maths and literacy, we should also make sure that they are fluent in computer literacy and all-important e-safety.

Throughout the early years, children will be taught about how to stay safe online.

They will explore:

- What is the internet? • Positives and negatives of the internet.
- How to stay safe online (SMART) • What do you use the internet for?



EYFS Music Curriculum

Autumn 1	Autumn 2	Spring 1
Busy Bodies	Boats Ahoy	People that help us
Concepts & Approaches: Algorithms, Decomposition, Debugging, Logic, Patterns, Abstraction Provides four activities that help children discover how bodies move and grow. Using the resources provided they explore and learn about parts of the body, growth and movement. Simple algorithms are created and adapted to form a routine of movements	Concepts & Approaches: Algorithms, Decomposition, Creating, Tinkering, Logic, Patterns, Abstraction, Collaborating Takes children on a journey of discovery as they investigate boats. Four activities make up this set of resources. Includes different uses of boats, floating and sinking predictions, creating a good boat through exploring designs and role play.	Concepts and Approaches: Algorithms, Collaboration, Persevering, Creating, Pattern, Logical reasoning, Tinkering, Abstraction Three activities based on our everyday superheroes, which have been designed to help pupils develop their computational thinking skills. Create patterns on a police car, guide a delivery person to their destination and design a uniform for a firefighter!
Spring 2	Summer 1	Summer 2
Spring time	Super Space	Summer fun
Concepts & Approaches: Collaborating, Creating, Tinkering, Persevering, Decomposition, Algorithms, Abstraction Three spring themed activities allow the children to engage in computational thinking concepts and approaches in fun sessions where they create Junk scarecrows, make and explore a Rabbit run and plant seeds.	Concepts & Approaches: Abstraction, Tinkering, Persevering, Patterns, Logic, Decomposition, Collaborating, Algorithms Includes 3 space themed activities to develop pupils computational thinking and problem solving skills. Include creating algorithms to direct a rocket through space and spotting patterns in pictures of aliens.	Concepts & Approaches: Tinkering, Persevering, Patterns, Logic, Decomposition, Debugging, Collaborating, Algorithms Children explore their surroundings and get creative, take a journey and make a map, and discover seaside tangrams, in these three fun activities.



Key Stage 1 Music Curriculum Overview

Year 1/2		
	Cycle A	Cycle B
Autumn 1	Computing systems and networks – technology round us	Computing systems and networks – IT around us
	Why this, why now? The children will be able - To identify technology - To identify a computer and its main parts - To use a mouse in different ways - To use a keyboard to type on a computer - To use the keyboard to edit text - To create rules for using technology responsibly	Why this, why now? The children will be able - To recognise the uses and features of information technology - To identify the uses of information technology in the school - To identify information technology beyond school - To explain how information technology helps us - To explain how to use information technology safely - To recognise that choices are made when using information technology
Autumn 2	Creating media – digital painting	Creating media – digital photography
	Why this, why now? The children will be able - To describe what different freehand tools do - To use the shape tool and the line tools - To make careful choices when painting a digital picture - To explain why I chose the tools I used - To use a computer on my own to paint a picture - To compare painting a picture on a computer and on paper	Why this, why now? The children will - To use a digital device to take a photograph - To make choices when taking a photograph - To describe what makes a good photograph - To decide how photographs can be improved - To use tools to change an image - To recognise that photos can be changed
Spring 1	Programming A – Moving a robot	Programming A – Robot algorithms



	Why this, why now? The children will be able • To explain what a given command will do • To act out a given word • To combine forwards and backwards commands to make a sequence • To combine four direction commands to make sequences • To plan a simple program • To find more than one solution to a problem	Why this, why now? The children will be able • To describe a series of instructions as a sequence • To explain what happens when we change the order of instructions • To use logical reasoning to predict the outcome of a program • To explain that programming projects can have code and artwork • To design an algorithm • To create and debug a program that I have written
Spring 2	Data and information – grouping data	Data and information – Pictograms
	Why this, why now? The children will be able • To label objects • To identify that objects can be counted • To describe objects in different ways • To count objects with the same properties • To compare groups of objects • To answer questions about groups of objects	Why this, why now? The children will be able • To recognise that we can count and compare objects using tally charts • To recognise that objects can be represented as pictures • To create a pictogram • To select objects by attribute and make comparisons • To recognise that people can be described by attributes • To explain that we can present information using a computer
Summer 1	Creating media – digital writing	Creating media – digital music
	Why this, why now? The children will be able • To use a computer to write • To add and remove text on a computer • To identify that the look of text can be changed on a computer • To make careful choices when changing text	Why this, why now? The children will • To say how music can make us feel • To identify that there are patterns in music • To experiment with sound using a computer • To use a computer to create a musical pattern



	- To explain why I used the tools that I chose - To compare typing on a computer to writing on paper	- To create music for a purpose - To review and refine our computer work
Summer 2	Programming B – Programming animations Why this, why now? The children will - To choose a command for a given purpose - To show that a series of commands can be joined together - To identify the effect of changing a value - To explain that each sprite has its own instructions - To design the parts of a project - To use my algorithm to create a program	Programming B –programming quizzes Why this, why now? The children will be able - To explain that a sequence of commands has a start - To explain that a sequence of commands has an outcome - To create a program using a given design - To change a given design - To create a program using my own design - To decide how my project can be improved

Lower Key Stage 2 Music Curriculum Overview

	Year 3/4	
	Cycle A	Cycle B
Autumn 1	Connecting computers Why this, why now? The children will - To explain how digital devices function - To identify input and output devices - To recognise how digital devices can change the way we work - To explain how a computer network can be used to share information - To explore how digital devices can be connected - To recognise the physical components of a network	Branching databases Why this, why now? The children will be able - To create questions with yes/no answers - To identify the attributes needed to collect data about an object - To create a branching database - To explain why it is helpful for a database to be well structured - To plan the structure of a branching database - To independently create an identification tool



Autumn 2	Stop-frame animation	Desktop publishing
	Why this, why now? The children will - To explain that animation is a sequence of drawings or photographs - To relate animated movement with a sequence of images - To plan an animation - To identify the need to work consistently and carefully - To review and improve an animation - To evaluate the impact of adding other media to an animation	Why this, why now? The children will be able - To recognise how text and images convey information - To recognise that text and layout can be edited - To choose appropriate page settings - To add content to a desktop publishing publication - To consider how different layouts can suit different purposes - To consider the benefits of desktop publishing
Spring 1	Sequencing sounds	Events and actions in programs
	Why this, why now? The children will be able - To explore a new programming environment - To identify that commands have an outcome - To explain that a program has a start - To recognise that a sequence of commands can have an order - To change the appearance of my project - To create a project from a task description	Why this, why now? The children will be able - To explain how a sprite moves in an existing project - To create a program to move a sprite in four directions - To adapt a program to a new context - To develop my program by adding features - To identify and fix bugs in a program - To design and create a maze based challenge
Spring 2	The internet	Data logging
	Why this, why now? The children will be able - To describe how networks physically connect to other networks - To recognise how networked devices make up the internet - To outline how websites can be shared via the World Wide Web (WWW) - To describe how content can be added and accessed on the World Wide Web (WWW)	Why this, why now? The children will be able - To explain that data gathered over time can be used to answer questions - To use a digital device to collect data automatically - To explain that a data logger collects 'data points' from sensors over time - To recognise how a computer can help us analyse data - To identify the data needed to answer questions



	- To recognise how the content of the WWW is created by people - To evaluate the consequences of unreliable content	" To use data from sensors to answer questions
Summer 1	Audio editing	Photo editing
	Why this, why now? The children will be able - To identify that sound can be recorded - To explain that audio recordings can be edited - To recognise the different parts of creating a podcast project - To apply audio editing skills independently - To combine audio to enhance my podcast project - To evaluate the effective use of audio	Why this, why now? The children will be able - To explain that the composition of digital images can be changed - To explain that colours can be changed in digital images - To explain how cloning can be used in photo editing - To explain that images can be combined - To combine images for a purpose - To evaluate how changes can improve an image
Summer 2	Repetition in shapes	Repetition in games
	Why this, why now? The children will be able - To identify that accuracy in programming is important - To create a program in a text based language - To explain what 'repeat' means - To modify a count controlled loop to produce a given outcome - To decompose a task into small steps - To create a program that uses count controlled loops to produce a given outcome	Why this, why now? The children will be able - To develop the use of count controlled loops in a different programming environment - To explain that in programming there are infinite loops and count controlled loops - To develop a design that includes two or more loops which run at the same time - To modify an infinite loop in a given program - To design a project that includes repetition - To create a project that includes repetition

Upper Key Stage 2 Music Curriculum Overview

	Year 4/5
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	Cycle A	Cycle B
Autumn 1	The internet	Data logging
	Why this, why now? The children will be able - To describe how networks physically connect to other networks - To recognise how networked devices make up the internet - To outline how websites can be shared via the World Wide Web (WWW) - To describe how content can be added and accessed on the World Wide Web (WWW) - To recognise how the content of the WWW is created by people - To evaluate the consequences of unreliable content	Why this, why now? The children will be able - To explain that data gathered over time can be used to answer questions - To use a digital device to collect data automatically - To explain that a data logger collects 'data points' from sensors over time - To recognise how a computer can help us analyse data - To identify the data needed to answer questions " To use data from sensors to answer questions
Autumn 2	Audio editing	Photo editing
	Why this, why now? The children will be able - To identify that sound can be recorded - To explain that audio recordings can be edited - To recognise the different parts of creating a podcast project - To apply audio editing skills independently - To combine audio to enhance my podcast project - To evaluate the effective use of audio	Why this, why now? The children will be able - To explain that the composition of digital images can be changed - To explain that colours can be changed in digital images - To explain how cloning can be used in photo editing - To explain that images can be combined - To combine images for a purpose - To evaluate how changes can improve an image
Spring 1	Repetition in shapes	Repetition in games
	Why this, why now? The children will be able - To identify that accuracy in programming is important - To create a program in a text based language - To explain what 'repeat' means - To modify a count controlled loop to produce a given outcome	Why this, why now? The children will be able - To develop the use of count controlled loops in a different programming environment - To explain that in programming there are infinite loops and count controlled loops - To develop a design that includes two or more loops which run at the same time - To modify an infinite loop in a given program



	- To decompose a task into small steps - To create a program that uses count controlled loops to produce a given outcome	- To design a project that includes repetition - To create a project that includes repetition
Spring 2	Sharing information	Flat file databases
	Why this, why now? The children will be able - To explain that computers can be connected together to form systems - To recognise the role of computer systems in our lives - To experiment with search engines - To describe how search engines select results - To explain how search results are ranked - To recognise why the order of results is important, and to whom	Why this, why now? The children will be able - To use a form to record information - To compare paper and computer based databases - To outline how you can answer questions by grouping and then sorting data - To explain that tools can be used to select specific data - To explain that computer programs can be used to compare data visually - To use a real world database to answer questions
Summer 1	Video editing	Vector drawing
	Why this, why now? The children will - To explain what makes a video effective - To identify digital devices that can record video - To capture video using a range of techniques - To create a storyboard - To identify that video can be improved through reshooting and editing - To consider the impact of the choices made when making and sharing a video	Why this, why now? The children will be able - To identify that drawing tools can be used to produce different outcomes - To create a vector drawing by combining shapes - To use tools to achieve a desired effect - To recognise that vector drawings consist of layers - To group objects to make them easier to work with - To apply what I have learned about vector drawings
Summer 2	Selection in physical computing	Selection in quizzes
	Why this, why now? The children will be able - To control a simple circuit connected to a computer - To write a program that includes count controlled loops - To explain that a loop can stop when a condition is met	Why this, why now? The children will be able - To explain how selection is used in computer programs - To relate that a conditional statement connects a condition to an outcome - To explain how selection directs the flow of a program - To design a program which uses selection - To create a program which uses selection



	- To explain that a loop can be used to repeatedly check whether a condition has been met - To design a physical project that includes selection - To create a program that controls a physical computing project	To evaluate my program
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	Year 6	
	Cycle A	Cycle B
Autumn 1	Internet communication	Internet communication
	Why this, why now? The children will be able - To explain the importance of internet addresses - To recognise how data is transferred across the internet - To explain how sharing information online can help people to work together - To evaluate different ways of working together online - To recognise how we communicate using technology - To evaluate different methods of online communication	Why this, why now? The children will be able - To explain the importance of internet addresses - To recognise how data is transferred across the internet - To explain how sharing information online can help people to work together - To evaluate different ways of working together online - To recognise how we communicate using technology - To evaluate different methods of online communication
Autumn 2	Webpage creation	Webpage creation
	Why this, why now? The children will be able - To review an existing website and consider its structure - To plan the features of a web page - To consider the ownership and use of images (copyright) - To recognise the need to preview pages - To outline the need for a navigation path	Why this, why now? The children will be able <u>To review an existing website and consider its structure</u> <u>To plan the features of a web page</u> <u>To consider the ownership and use of images (copyright)</u> <u>To recognise the need to preview pages</u> <u>To outline the need for a navigation path</u>



	To recognise the implications of linking to content owned by other people	<u>To recognise the implications of linking to content owned by other people</u>
Spring 1	Variables in games	Variables in games
	Why this, why now? The children will be able - To define a 'variable' as something that is changeable - To explain why a variable is used in a program - To choose how to improve a game by using variables - To design a project that builds on a given example - To use my design to create a project - To evaluate my project	Why this, why now? The children will be able - To define a 'variable' as something that is changeable - To explain why a variable is used in a program - To choose how to improve a game by using variables - To design a project that builds on a given example - To use my design to create a project - To evaluate my project
Spring 2	Introduction to spreadsheets	Introduction to spreadsheets
	Why this, why now? The children will be able - To create a data set in a spreadsheet - To build a data set in a spreadsheet - To explain that formulas can be used to produce calculated data - To apply formulas to data - To create a spreadsheet to plan an event - To choose suitable ways to present data	Why this, why now? The children will be able - To create a data set in a spreadsheet - To build a data set in a spreadsheet - To explain that formulas can be used to produce calculated data - To apply formulas to data - To create a spreadsheet to plan an event - To choose suitable ways to present data
Summer 1	3D modelling	3D modelling
	Why this, why now? The children will be able - To recognise that you can work in three dimensions on a computer - To identify that digital 3D objects can be modified - To recognise that objects can be combined in a 3D model - To create a 3D model for a given purpose - To plan my own 3D model - To create my own digital 3D model	Why this, why now? The children will be able - To recognise that you can work in three dimensions on a computer - To identify that digital 3D objects can be modified - To recognise that objects can be combined in a 3D model - To create a 3D model for a given purpose - To plan my own 3D model



		To create my own digital 3D model
Summer 2	Sensing	Sensing
	Why this, why now? The children will be able - To create a program to run on a controllable device - To explain that selection can control the flow of a program - To update a variable with a user input - To use a conditional statement to compare a variable to a value - To design a project that uses inputs and outputs on a controllable device - To develop a program to use inputs and outputs on a controllable device	Why this, why now? The children will be able - To create a program to run on a controllable device - To explain that selection can control the flow of a program - To update a variable with a user input - To use a conditional statement to compare a variable to a value - To design a project that uses inputs and outputs on a controllable device - To develop a program to use inputs and outputs on a controllable device