



Computing Scheme of Work 2021/2022

Intent

In Early Years, technology is used to enhance and supporting the teaching of Reading, Writing and Maths and to deliver a broad and balanced curriculum. To give an understanding of the world through technology.

Our computing curriculum is designed to prepare children for the digital world in which we live, giving them the wisdom, knowledge and skills to equip them for a rapidly changing world which relies on technology.

The safe use of the internet encourages independent learning to acquire knowledge and to access a global community. We want the children to know the possibilities and to recognise the limitations of using the internet.

At the heart of everything we do is our goal to extend children's understanding of language as we recognise this improves the life chances of every child as they grow into adulthood. This is embedded through our Computing Curriculum as all children are given the opportunity to create, explain and justify choices. Having the skills to be digital confident provides them with the lifelong skills needed in the wider community, ensuring that everyone is given the confidence to achieve.

Logical and critical thinking skills are used to develop problem solving skills and computational thinking in a digital world which are transferrable to other areas of the curriculum.

Internet safety and recognising acceptable screen use is seen as an important part of PSHCE and Safer Relationships Education.

Implementation

In Early Years, technology is used as part of continuous provision.

The use of computers is timetabled for 1 afternoon each week for teaching of the computing curriculum. Computers are used to enhance other areas of the curriculum, for example Let's Multiply, Let's do Maths, English, Art and Humanities.

When using the internet to carryout research in other areas of curriculum the children are taught about the reliability of information as a source and the concept that not all information on the internet can be relied upon.

Espresso Coding is the resource used to teach coding elements of the curriculum. Challenge tasks, debugging activities and html coding and python coding are used where needed to ensure mastery of the computing curriculum.

The safe use of computing is always promoted. When using the internet, the children are reminded how to use safely and responsibly.

Children need to be aware of who they should report anything that causes them concern or upset.

Annual reminders are given using Thinkuknow website and activities take place across the school during Internet Safety Week. Keeping safe on line is taught as part of The Safer Relationships across the school activities take place during Internet Safety Week.

Notebook Timetable

Monday	Tuesday	Wednesday	Thursday	Friday
Polar Bears	Tigers	Snow Leopards		Puffins

Year group (class name)	Areas to be covered throughout the year
Nursery Cubs	<p>Technology is an integral part of daily life for children</p> <p>The use of technology and the internet provides opportunities for children to:</p> <ul style="list-style-type: none"> • follow rules and understand why they are important. (PSED) • match their developing physical skills to tasks and activities in the setting. (<i>Physical Development</i>) • explore how things work. (<i>Understanding the world</i>) <p>The use of technology in Nursery builds the foundations for teaching in reception.</p>
Reception Pandas	<p>Technology is an integral part of daily life for children and is part of Continuous Provision.</p> <ul style="list-style-type: none"> • The use of technology helps the children in being confident to try new activities and show independence, resilience and perseverance in the face of challenge. (<i>PSED, Managing Self</i>) • Children are taught to safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function (<i>Expressive Arts and Design, creating with materials</i>) with the use of technology. • Small motor skills are developed through the use of technology and equipment. (<i>Physical Development</i>) <p>• Internet Safety (PSHCE unit) is an important part of understanding how to stay safe online and through this children explain the reasons for rules, know right from wrong and try to behave accordingly (<i>PSED, Managing self</i>). See separate e-safety plan/</p> <p>• Children are taught to recognise sensible amounts of screen time. They know and talk about the different factors that support their overall health and wellbeing (Physical development)</p> <p>The use of technology and the teaching of computing builds the foundations for teaching Computing from Year 1 when The National Curriculum is followed.</p>

	Autumn	Spring	Summer
Year 1 Puffins	<p>Information Technology Text editing Digital image (art programs)</p> <p>Computer Science Understanding algorithms (Introduction to programming) Espresso coding units 1a (moving and clicking)</p>	<p>Digital Literacy Internet safety (PSHCE unit) See separate plan</p> <p>Computer science Modelling and simulation using Chatterpix</p> <p>Sound and music</p>	<p>Digital Literacy/information technology Using the internet</p> <p>Computer Science Espresso coding unit 1b (commands) Debugging activities <i>Year 2 units if needed: Espresso Coding unit 2b (buttons and instructions)</i></p>
Year 2 Snow Leopards	<p>Computer Science Understanding algorithms Espresso coding unit 2a (different inputs)</p> <p>Information Technology Digital images (photography and video)</p> <p>Digital Literacy/information technology Understanding computer networks, the internet and provision of multiple services.</p>	<p>Information Technology Text processing and multimedia Information handling (database) Presenting data collection using Maths Pack 2. Pictograms and bar charts.</p> <p>Digital Literacy Internet Safety (PSHCE unit)</p> <p>Digital Literacy/information technology Research technologies</p>	<p>Digital Literacy/information technology Electronic communication How do computers work?</p> <p>Computer Science Sound and music</p> <p>Understanding algorithms Espresso Year 2b (<i>buttons and instructions</i>) including debugging activities Debugging activities</p>
Year 3/4 Polar Bears	<p>Computer Science Understanding algorithms Espresso coding unit 3a (sequence and animation)</p> <p>Digital Literacy/information technology Understanding computer networks, the internet and provision of multiple services.</p> <p>Digital Literacy/information technology Research technologies</p>	<p>Information Technology Digital images (art programs, animation and video) Information handling (Databases) Text processing and multimedia</p> <p>Digital Literacy Internet Safety (PSHCE unit)</p>	<p>Digital Literacy/information technology Electronic communication</p> <p>Computer Science Sound and music</p> <p>Understanding algorithms Espresso Year 3b (conditional events) Debugging activities</p>

Year 5 Tigers	Computer Science Understanding Algorithms Espresso Coding 5a (speed, directions and co-ordinates) Debugging activities Digital Literacy/information technology Understanding the technologies Internet research	Information Technology Digital image (art programs, photographs, animation, video) Information handling (database, spreadsheet, graphing) Text processing and multimedia Digital Literacy Internet Safety (PSHCE unit)	Digital Literacy/information technology Electronic communication (e-mail, video conferencing and VLE) Computer Science Understanding Algorithms Espresso Coding 5b (random numbers and simulations) (introduce Python if needed)
----------------------	---	---	--

Planned Progression of skills

	Computer Science Taught through Espresso coding and Python	Information Technology	Digital Literacy
Early Years	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes, developing an understanding of how to use it safely and responsibly. They begin to see how technology can help them learn and find out things.		
Year 1	<ul style="list-style-type: none"> • Understand what algorithms are. • Understand how algorithms are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. 	<ul style="list-style-type: none"> • Use technology purposefully to create and manipulate digital content. 	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • internet or other online technologies. • Recognise common uses of information technology beyond school.
2	<ul style="list-style-type: none"> • Understand what algorithms are. • Understand how algorithms 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. 	<ul style="list-style-type: none"> • Use technology purposefully to organise, store and retrieve digital content. • Use technology purposefully to create and manipulate digital content. 	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • internet or other online technologies. • Recognise common uses of information technology beyond school.

3	<ul style="list-style-type: none"> • Design, write and debug programs that accomplish specific goals. • Controlling or simulating physical systems. • Solve simple problems by decomposing them into smaller parts. • Use sequence, selection and repetition in programs; work with variables. • Use logical reasoning to explain how some simple algorithms work. (computational thinking) • Use logical reasoning to detect and correct errors in algorithms and programs. (debugging) 	<ul style="list-style-type: none"> • Use technology to design and create content to accomplish a goal. • Collect and combine information and data • Choose from a variety of software and internet services to accomplish given goals. 	<p>Digital literacy Understand computer networks including the internet.</p> <p>Understand how networks can provide multiple services, such as the world wide web</p>
4	<ul style="list-style-type: none"> • Design, write and debug programs that accomplish specific goals. • Controlling or simulating physical systems. • Solve problems by decomposing them into smaller parts. • Use sequence, selection and repetition in programs; work with variables. • Work with various forms of input and output. • Use logical reasoning to explain how some simple algorithms work. (computational thinking) • Use logical reasoning to detect and correct errors in algorithms and programs. (debugging) 	<ul style="list-style-type: none"> • Use technology to design and create content to accomplish a goal. • Collect and combine information and data. • Choose from a variety of software and internet services to accomplish given goals. 	
5	<ul style="list-style-type: none"> • Design, write and debug programs that accomplish specific goals. 	<ul style="list-style-type: none"> • Use technology to design and create content to accomplish a goal. 	

	<ul style="list-style-type: none">• Controlling or simulating physical systems.• Solve more complex problems by decomposing them into smaller parts.• Use sequence, selection and repetition in programs; work with variables.• Work with various forms of input and output.• Use logical reasoning to explain how some simple algorithms work. (computational thinking)• Use logical reasoning to detect and correct errors in algorithms and programs. (debugging)	<ul style="list-style-type: none">• Collect and combine information and data <p>Choose from a variety of software and internet services to accomplish given goals.</p>	
--	---	--	--