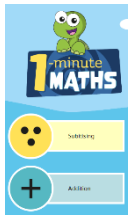
Computing Overview

It is our intent that through a carefully planned computing curriculum, we provide a sequence of high-quality lessons and experiences for our children. These prepare the children for their future place of work and help them become an active and valuable participant in the digital world. The different elements of computing affect how our children communicate and interact with others online, as young people but also as adults.

- The core of our computing curriculum is computer science, where children are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming.
- Children are taught how to use information technology and to work independently or collaboratively. They find, sort, evaluate, manage and create pieces of work and presentations that can be stored and shared in class and on the system.
- Internet safety and cyber integrity is a basic element of our information technology structure and organisation in the school. We teach the children to be aware of potential dangers and know where to go for help if they have any concerns. They are taught about the network structure and how systems need to be protected and respected.

We have a range of technical equipment, software, and apps to support children's learning in computing. We continually evaluate these resources to ensure we give the best opportunities to our children. This supports their understanding of computing skills and develops fundamental attitudes that will support them in life and keep them safe. Children will engage in activities that encourage them to:

- Think logically, reason and work systematically through a task
- Build resilience and determination to solve problems
- Engage in positive research and enquiry
- Question data and information to seek the truth
- Consider views and opinions and build empathy
- Interact responsibly and with integrity when working online and communicating with others
- Extend creativity, develop personal interests and manage well being

Nursery Reception	**Children in Early Years** Children use technology to support their learning in: -Communication & Language -Personal, Social & Emotional Development -Physical Development -Literacy -Mathematics -Understanding the World -Expressive Arts & Design  **Information Technology Experiences** Children experience information technology in all aspects of their learning. They access different websites and apps and watch videos to join in singing and dance and to explore physical movement. It inspires children and allows them to see and witness things in the world that they would otherwise never see. They use Google Earth, research different aspects of their environment and use time lapse videos to look at how things grow over time. Children's learning is shared with parents through Tapestry. Their own experience of information technology at home and in the environment contributes to, and further enhances their learning. They talk about how information technology is used in their environment and how it affects them.	**Online Safety** The internet is a powerful tool that our children should be guided through. Resources that children witness, and experience must be chosen carefully. Children should learn that they must always seek support and help when accessing the internet. **Offline activities:** Giving instructions to one another (one child blindfolded). Using the keyboard/calculator in creative play in the 'home corner'. Making check lists and collecting information. Explain a series of instructions that have a logical order. Organise objects according to shape/ colour/ size. Select items according to their properties. And more…  	**Hardware:** Interactive White Boards Laptops, iPads Digital Cameras Beebots, Remote control toys Torches, Walkie Talkies Microwave, Easi speaks Talking tins Recording Pads & Toys  **Online Resources:** LGfL Resources - Busy Things, Talking Stories & Barnaby Barefoot Computing CBeebies Apps Google Earth Espresso BBC Bitesize Phonics Play TES iBoard ICT Games Top Marks *And more…* 

Busy Things
Teach Laugh Learn

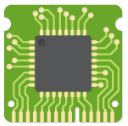
Barefoot Computing

Phonics Play.co.uk

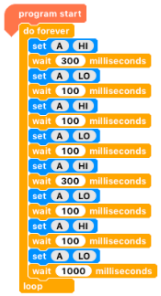
	Autumn	Spring	Summer
Year 1	**Myself, Traditional Tales & Celebrations** Information Technology Digital Literacy **Creative Drawing - 2Paint** Switch equipment on and off. Log on and log off. Use various tools to draw. Save, retrieve and print documents. Develop creative expertise. Recognise common uses of information technology beyond school. ***Art*** ***UNICEF article 29: Every child has the right to the goals of education.*** **British Values: Rule of Law; Individual liberty.**  	**Transport & Animals** Digital Literacy **Online Safety** (Safer Internet Day & UNICEF) Use technology safely & respectfully, keeping personal information private. Identify where to go for help and support when they have concerns about content on the Internet. Take part in National Online Safety programes. ***Computing*** ***UNICEF article 16: Every child has the right to privacy.*** Computer Science **Coding - 2Code** Give directions on how to move themelves and objects from one place to another. Describe directions correctly so that others understand. Correct and make alternative directions to correct mistakes. Create & debug simple programs. Use logical reasoning to predict the behaviour of simple programs. ***Computing***  Information Technology **Word Processing** Use the keyboard to type familiar words. Change font, colour and size of text. Use the space bar, return/enter button, delete button and full stop to complete sentences. Develop creative expertise and confidence in using information technology. ***English*** ***UNICEF article 17: Every child has the right to information from the media.*** 	**Under the Sea & Heroes** Information Technology Digital Literacy **Pictograms – 2Count** Use technology purposefully, to create, organise, store, manipulate and retrieve digital content. Use data to make a graph. Explain ideas and experiences. ***Maths***  Computer Science **Control - Bee Bots** Create instructions to move the Beebot from one place to another. Create simple sequences of instructions to describe movement and direction. Use logical reasoning to predict the behaviours of simple programs. Recognise common uses of information technology beyond school. ***Computing*** ***UNICEF article 29: Every child has the right to the goals of education.*** **British Values: Rule of Law; Individual liberty.** 

	Autumn	Spring	Summer
Year 2	**London and Famous People** Information Technology Digital Literacy **2Paint a Picture** Create a picture related to classroom topic through art or history. Organise, store, manipulate & retrieve digital content. Recognise common uses of information technology beyond school. Express themselves & develop ideas through technology. ***Art*** ***UNICEF article 13: Every child has the right to freedom of expression.***  Information Technology Digital Literacy **PowerPoint Presentation** Create a presentation with text and graphics. Use the internet to search, copy & retrieve digital content. Express themselves & develop their ideas through computing. ***English/History*** ***UNICEF article 17: Every child has the right to information from the media.*** 	**Tales from around the world** Digital Literacy **Online Safety** (Safer Internet Day & UNICEF) Use technology safely & respectfully, keeping personal information private. Identify where to go for help and support when they have concerns about content on the Internet. Take part in National Online Safety programes. ***Computing*** ***UNICEF article 16: Every child has the right to privacy.*** **British Values: Rule of Law; Individual liberty.**  Information Technology **Databases - 2Question** Use technology purposefully. Create databases. Ask questions and search records to retrieve information. Compare and contrast different ways of searching the database. Discuss common uses of databases beyond school. ***Maths***  Computer Science **Coding - Beebots** Design a sequence of instructions for objects to travel from one position to another. Create & debug simple programs. Use logical reasoning to predict the behaviour of simple programs. ***Computing***	**Natural World and Seaside** Computer Science **Coding - 2Code**  Give directions to draw lines, draw shapes and draw simple pictures. Understand how algorithms are implemented as programs. Give instruction that a computer would understand. Design a sequence of instructions for objects to travel from one position to another. Create & debug simple programs. Use logical reasoning to predict the behaviour of simple programs. ***Computing***  Information Technology **Making Graphs - 2Graph** Collect information and make graphs. Compare and contrast different graphs. Develop ideas and mathematical concepts through information technology. Recognise common uses of information technology beyond school. ***Maths*** ***UNICEF article 29: Every child has the right to the goals of education.***

	Autumn	Spring	Summer
Year 3	**Stone Age to the Iron Age** Computer Science **Coding – 2Code** Design, write and debug programs that accomplish specific goals. Use sequence & repetition in programs. Use logical reasoning to explain how some simple algorithms work. Detect and correct errors. Explore program design and put computational thinking into practice.  ***Computing*** ***UNICEF article 29: Every child has the right to the goals of education.*** Computer Science **Simulations Purple Mash – 2Simulate** Explore what a simulation is and understand the rules and logical reasoning in their response. Analyse and evaluate simulations. Solve problems by decomposing them into smaller parts and look for, and explain patterns.  ***Computing*** ***UNICEF article 29: Every child has the right to the goals of education.***	**Around the world** Information Technology **Online Safety** (Safer Internet Day & UNICEF) Use technology safely, respectfully, and responsibly. Recognise acceptable behaviour. Identify a range of ways to report concerns about content and contact. Know about the services of the Internet and the opportunities they offer for communication & collaboration. Take part in National Online Safety programes. ***Computing*** ***UNICEF article 16: Every child has the right to privacy.*** **British Values: Rule of Law; Individual liberty.** Information Technology Digital Literacy **Branching Database – 2Question**  Collect information about a specific group and add this to the software. Create, classify and query databases. Ask questions relevant to the group that is chosen. Analyse and evaluate results. Present information and explain results. ***Science*** ***UNICEF article 17: Every child has the right to information from the media.***	**Ancient Egyptians** Computer Science **Coding – Scratch**  Create a game using coding. Use sequence, selection and repetition in programs. Design, write and debug programs that accomplish specific goals. Detect errors and correct errors. ***Computing*** ***UNICEF article 29: Every child has the right to the goals of education.*** Information Technology Digital Literacy **Spreadsheets & Graphing - Excel** Create graphs from data using formula. Develop digital literacy and evaluate the use of creating graphs in information technology. Use software to accomplish given goals and explain findings. Discuss results & develop ideas. Explore and find better ways to present graphs building a confident and creative user of information technology.  ***Maths*** ***UNICEF article 29: Every child has the right to the goals of education.***

	Autumn	Spring	Summer
Year 4	**The Romans**  Computer Science **Coding – 2Code** Explore program design and put computational thinking into practice. Design, write and debug programs that accomplish specific goals. Use sequence & repetition in programs. Use logical reasoning to explain how some simple algorithms work. Detect and correct errors. Explore program design and put computational thinking into practice. ***Computing*** Information Technology Digital Literacy **Animation** Create story for animation. Create backdrops for scenes and props. Photograph scenes and create voice recordings to re-enact the story as an animation. Publish finished video on YouTube. Develop computer literacy in using a variety of programs and a range of content. Express themselves & develop their ideas through computing. ***English/Art*** ***UNICEF article 17: Every child has the right to information from the media.*** **British Values: Rule of Law; Individual liberty.**	**The Vikings & Saxons** Digital Literacy **Online Safety** (Safer Internet Day & UNICEF) Use technology safely, respectfully, and responsibly. Recognise acceptable behaviour. Identify a range of ways to report concerns about content and contact. Know about the services of the Internet and the opportunities they offer for communication & collaboration. Take part in National Online Safety programes. ***Computing*** ***UNICEF article 16: Every child has the right to privacy.*** **British Values: Rule of Law; Individual liberty.**  Information Technology Digital Literacy **Multi-Media Presentation – Movie Maker** Use images from the animation project to make a multimedia presentation. Develop computing literacy by using a variety of programs and a range of content. Express themselves & develop their ideas through computing. ***English*** ***NICEF article 13: Every child has the right to freedom of expression.***  Digital Literacy **Effective Searching – 2Connect** Locate information and search effectively. Assess whether an information source is true or false. Understand computer networks including the Internet. Know about the services of the Internet and the opportunities they offer for communication & collaboration. ***Cross-Curricular*** ***UNICEF article 29: Every child has the right to the goals of education.***	**Food Glorious Food** Information Technology  **Hardware – Purple Mash** Name the different parts of a desktop computer. Know what the functions of the different parts of a computer are. Create a leaflet to show the function of computer parts. Understand how a computer network works, how they can provide mutiple services and the opportunities they offer for communication and collaboration. ***Computing*** Computer Science **Coding - LOGO** Create repeat rotation patterns. Change colour, shape and rotation for effect. Use sequence & repetition in programs. Use logical reasoning to explain how some simple algorithms work. Detect and correct errors. ***Computing*** ***UNICEF article 29: Every child has the right to the goals of education.*** 

	Autumn	Spring	Summer
Year 5	**Travel Through Space & Time** Information Technology Digital Literacy **Word Processing- Word** Link pages using hyperlinks or an automated contents page. Use a combination of software to design & create content that accomplishes given goals. Analyse & evaluate results. Express themselves & develop their ideas through computing. ***English/Cross Curricular*** ***UNICEF article 13: Every child has the right to freedom of expression.*** Computer Science **Coding – 2Code** Explore program design and put computational thinking into practice. Design, write and debug programs that accomplish specific goals. Use sequence & repetition in programs. Use logical reasoning to explain how some simple algorithms work. Detect and correct errors. ***Computing*** ***UNICEF article 29: Every child has the right to the goals of education.***	**Early Islamic Civilization** Digital Literacy **Online Safety** (Safer Internet Day & UNICEF) Use technology safely, respectfully, and responsibly. Recognise acceptable behaviour. Identify a range of ways to report concerns about content and contact. Know about the services of the Internet and the opportunities they offer for communication & collaboration. Take part in National Online Safety programes. ***Computing*** ***UNICEF article 16: Every child has the right to privacy.*** **British Values: Rule of Law; Individual liberty.** Information Technology Digital Literacy **Databases- 2Investigate** Search for information on a database. Create a database around a given subject. Use search technologies effectively and appreciate how results are selected and ranked. Be discerning in evaluating digital content. ***Computing/Cross Curricular*** Information Technology Digital Literacy **Spreadsheets - Excel** Create a budget using formulas. Use the correct terminology. Use software to accomplish a given goal including collecting, analysing, evaluating, and presenting information. ***Maths*** ***UNICEF article 17: Every child has the right to information from the media.***	**Ancient Greeks** Computer Science **Game Creator – 2DIY 3D** Create and play games. Review and analyse a computer game. Describe some of the elements that make a successful game. Design a game. Use sequence & repetition in programs. Use logical reasoning to explain how some simple algorithms work. Detect and correct errors. Explore program design and put computational thinking into practice. ***Computing*** Information Technology Digital Literacy **3D modelling – 2Design and Make** Explore how to edit 3D polygon models to design a 3D model. Print a design as a 2D net and then create a 3D model. Explore the possibilities of 3D printing. Design a program to simulate a physical system. Analyse the effectiveness of the software. ***Maths/DT*** ***UNICEF article 29: Every child has the right to the goals of education.***

	Autumn	Spring	Summer
Year 6	**World War 2** Digital Literacy **Blogging – 2Blog** Understand how a blog can be used as an informative text. Work collaboratively to plan a blog using key features. Understand the approval process that posts go through to demonstrate an awareness of issues surrounding inappropriate posts and cyberbullying. Be discerning in evaluating digital content.  ***Computing/English*** ***UNICEF article 13: Every child has the right to freedom of expression.*** Computer Science **Coding - Crumble** Design and code a light show using a Crumble controller and multiple Sparkle boards. Use sequence, selection, and repetition in programs. Work with variables and various forms of input and output. Design a program to simulate a physical system.  ***Computing/D&T***	**Rainforests** Digital Literacy **Online Safety** (Safer Internet Day & UNICEF) Use technology safely, respectfully, and responsibly. Recognise acceptable behaviour. Identify a range of ways to report concerns. Know about the services of the Internet and the opportunities they offer. Take part in National Online Safety programes. ***Computing*** ***UNICEF article 16: Every child has the right to privacy.*** Information Technology Digital Literacy  **Networks & The Internet – 2Connect** Explore how networks work. Understand computer networks, learn how they provide multiple services, and explore the opportunities they offer for communication and collaboration. ***Computing*** ***UNICEF article 17: Every child has the right to information from the media.***  Information Technology Digital Literacy **Multi-Media – Movie Maker** Create presentations that make an impact. Edit content and refine use of video & music. Express themselves & develop their ideas through computing. Understand the use of these skills in the future workplace & how to use the digital world to influence and communicate. ***Computing/English***	**Journey of Life** Information Technology Digital Literacy  **Spreadsheets - Excel** Create graphs for algebraic equations and number patterns. Use software to accomplish a given goal including collecting, analysing, evaluating, and presenting information. ***Maths*** ***UNICEF article 29: Every child has the right to the goals of education.*** Computer Science **Quizzing & Text Adventures - 2Create** Create a text-based adventure. Use code concepts of functions and two-way selection. Explore program design and put computational thinking into practice. Design, write and debug programs that accomplish specific goals. Use sequence & repetition in programs. Use logical reasoning to explain how some simple algorithms work. Detect and correct errors. ***Computing***