

Computing

Subject	Autumn 1 Objectives	Autumn 2 Objectives	Spring 1 Objectives	Spring 2 Objectives	Summer 1 Objectives	Summer 2 Objectives
Nursery	Match their developing physical skills to tasks and activities in the setting.	Match their developing physical skills to tasks and activities in the setting.	Remember rules without needing an adult to remind them.	Remember rules without needing an adult to remind them.	Explore how things work.	Explore how things work.
By the end of Nursery children should: Children confidently use their developing fine and gross motor skills to complete everyday tasks (e.g. pressing phone buttons, using a keyboard, switching torches on/off). Children show independence by following agreed rules and routines (e.g. taking turns with the phone/keyboard, handling resources safely) without constant adult reminders. Children show curiosity about objects and technology, experimenting to discover how they function (e.g. trying out buttons, switches, or dials). Children begin to demonstrate awareness of online safety by talking about what is safe to do online, knowing they should tell a trusted adult if something worries them, and recognising safe behaviours through stories they have read.						
Reception	Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Know and talk about the different factors that support their overall health and wellbeing: - sensible amounts of ‘screen time’.	Develop their small motor skills so that they can use a range of tools competently, safely and confidently.	Explain the reasons for rules, know right from wrong and try to behave accordingly. Show resilience and perseverance in the face of a challenge.	Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. .	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	Explore, use and refine a variety of artistic effects to express their ideas and feelings.
By the end of reception children should: Children talk about healthy routines such as eating well, exercising, resting and using technology sensibly, including limiting screen time. Children explain why rules are important for keeping safe, both in play and online, and begin to apply them independently. Children keep trying when tasks are tricky, using problem-solving strategies and support when needed, including during online or game-based learning. Children explore and use materials and digital tools safely, understanding the importance of secure information (e.g. passwords) while experimenting with creative outcomes. Children begin to understand what online bullying is and know that they should tell a trusted adult if something makes them feel sad, worried or uncomfortable online.						
Year 1	<u>Technology Around Us</u> To identify technology To identify a computer and its main parts To use a mouse in different ways To use a keyboard to type To use the keyboard to edit text To create rules for using technology responsibly	<u>Grouping Data</u> 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	<u>Digital Painting</u> 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	<u>Moving a Robot</u> 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	<u>Digital Writing</u> 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 To explain why I used the tools that I chose To compare writing on a computer with writing on paper	<u>Programming Animations</u> 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
By the end of Year 1 children should: Have a basic understanding of technology including how to handle it safely. They will have simple keyboard and mouse skills which will enable them to use technology to write and paint. They will be able to confidently edit text and media using simple tools such as size, colour and font. Their knowledge of programming will include giving simple demands to achieve a movement and understanding how these demands can be made more complex resulting in the creation of algorithms. Children will understand the concept of data in its physical form.						
Year 2	<u>Information Technology Around Us</u> To recognise the uses and features of information technology To identify information technology in the home To identify information technology beyond school To explain how information technology benefits us To show how to use information technology safely	<u>Digital Photography</u> To know what devices can be used to take photographs To use a digital device to take a photograph To describe what makes a good photograph To decide how photographs can be improved To use tools to change an image	<u>Robot Algorithms</u> 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 (series of commands) To explain that programming projects can have code and artwork To design an algorithm	<u>Pictograms</u> 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	<u>Making Music</u> To say how music can make us feel To identify that there are patterns in music To describe how music can be used in different ways To show how music is made from a series of notes To create music for a purpose To review and refine our computer work	<u>An Introduction to Quizzes</u> 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 recognise that choices are made when using information technology	To recognise that images can be changed	To create and debug a program that I have written			To decide how my project can be improved
By the end of Year 2 children should: Have an in-depth understanding of how technology benefits us and the positive impact it can have on us as individuals. They can confidently create, edit and save text and media using a variety of methods, short cuts and keys on the keyboard. Children can understand and represent data on a computer using simple programs. Children know how to create and debug simple programs.						
Year 3	<u>Connecting Computers</u> 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	<u>Sequence in Music</u> To explore a new programming environment I can identify that each sprite is controlled by the commands I choose 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	<u>Stop Frame Animation</u> 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	<u>Branching Databases</u> To create questions with yes/no answers To identify the object attributes needed to collect relevant data To create a branching database To identify objects using a branching database To explain why it is helpful for a database to be well structured To compare the information shown in a pictogram with a branching database	<u>Events and Actions</u> 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	<u>Desktop Publishing</u> 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
By the end of year 3 children should: Demonstrate their understanding of formatting a page to an appropriate layout including inserting and editing tables and formatting text to suit a purpose. Use spell checking documents to locate and fix errors in typing and combine text, graphics and sound in desktop publishing to suit different purposes. Children should understand how digital devices can be connected and can explain the role of a switch, server, and wireless access point in a network. Children will be at the early stages of using a variety of tools to create a program independently.						
Year 4	<u>The Internet</u> 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 To describe how content can be added and accessed on the World Wide Web To recognise how the content of the WWW is created by people To evaluate the consequences of unreliable content	<u>Audio Editing</u> To identify that sound can be digitally recorded: To use a digital device to record sound: To explain that a digital recording is stored as a file: To explain that audio can be changed through editing: To show that different types of audio can be combined and played together: To evaluate editing choices made:	<u>Repetition in Shapes</u> 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 program into parts To create a program that uses count-controlled loops to produce a given outcome	<u>Data Logging</u> 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 use data collected over a long duration to find information To identify the data needed to answer questions To use collected data to answer questions	<u>Photo Editing</u> To explain that digital images can be changed To change the composition of an image To describe how images can be changed for different uses To make good choices when selecting different tools To recognise that not all images are real To evaluate how changes can improve an image	<u>Repetition in games</u> 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 which 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
By the end of year 4 children should: Understand the function of networks including the internet. Be able to use text, photo and sound editing tools to enhance work and recognize that not all images are real. Children should know how to use data loggers and therefore be able to collect and organize data, using it to answer questions.						
Year 5	<u>Sharing Information</u> To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To recognise how information is transferred over the internet To explain how sharing information online lets people in different places work together To contribute to a shared project online To evaluate different ways of working together online	<u>Video Editing</u> To recognise video as moving pictures, which can include audio To identify digital devices that can record video To capture video using a digital device To recognise the features of an effective video 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	<u>Selection in Physical Computing</u> 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, eg number of times To conclude 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 controllable system that includes selection	<u>Flat File Databases</u> To use a form to record information To compare paper and computer-based databases To outline how grouping and then sorting data allows us to answer questions To explain that tools can be used to select specific data To explain that computer programs can be used to compare data visually To apply my knowledge of a database to ask and answer real-world questions	<u>Vector Drawing</u> 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 evaluate my vector drawing	<u>Selection in Quizzes</u> 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 evaluate my program
By the end of year 5 children should: Be able to share a document in relevant spaces including online and share information online, understanding its benefits within further education and the workplace. Write complex algorithms with a wide range of commands.						

Demonstrate their skills of capturing a video using a digital device and improve it through reshooting and editing. Create a vector drawing by combining shapes and using the appropriate tools to achieve a desired effect. Collect and present information in various databases and use databases to ask and answer real-world questions.

Year 6	<u>3D Modelling</u> To use a computer to create and manipulate three-dimensional (3D) digital objects To compare working digitally with 2D and 3D graphics To construct a digital 3D model of a physical object To identify that physical objects can be broken down into a collection of 3D shapes To design a digital model by combining 3D objects To develop and improve a digital 3D model	<u>Sensing</u> 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 an 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	<u>Variables in Games</u> 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	<u>Induction to spreadsheets</u> To identify questions which can be answered using data To explain that objects can be described using data To explain that formula can be used to produce calculated data To apply formulas to data, including duplicating To create a spreadsheet to plan an event To choose suitable ways to present data	<u>Web Page Creation</u> 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 To recognise the implications of linking to content owned by other people	<u>Communication</u> To identify how to use a search engine 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 To recognise how we communicate using technology To evaluate different methods of online communication
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By the end of year 6 children should:

Have the ability to choose an appropriate Graph type to present data based on their knowledge of the pro’s and con’s of different ways to present specific data. When using programmes such as Excel children can use formulae to complete and solve calculations along with interpreting this data to answer questions. Children are aware how to publish documents online, understanding audience and purpose, this includes creating webpages with hyperlinks. Children are able to evaluate their own and others work providing in depth feedback. Children can confidently identify the benefits and negatives of digital communication. Complex algorithms are used to write programs which can be transferred to physical outputs (Crumbles). Children are able to analyse and debug complex algorithms and use technology to insert and manipulate shapes to design a 3D model.