Reception Computing Objectives ELIM

Early Learning Goals

Recognise that a range of technology is used in places such as homes and schools

Select and use technology for particular purposes.

Computer Science	Information Technology	Digital Literacy	KEY SKILLS
- I can make a floor robot move - I can use simple software to make something happen. - I can make choices about the buttons and icons I press, touch or click on.	- I can tell you about different kinds of information such as pictures, video, text and sound. - I can move objects on a screen. - I can create shapes and text on a screen. - I can use technology to show my learning.	- I can tell you about technology that is used at home and in school. - I can operate simple equipment	-hold a mouse correctly - control/move a mouse (focussing on keeping the bottom of the mouse in contact with the desk) - left click accurately - log in to a computer (if appropriate for setting) with a generic (not individual) username and password - log off a computer (if appropriate for setting) i.e. Start – Log off (not 'Press the power button') - unlock a tablet i.e. iPad (if appropriate for setting) - lock a tablet i.e. iPad (if appropriate for setting) - navigate simple software i.e. MiniMash -recognise the save symbol - key board enter key and backspace caps lock

	KS1	
	Year 1	Year 2
Programming Coding and Controlling Devices (Computer Science)	• Begin to understand that you need instructions to solve control problems e.g. to move a device from one place to another. These instructions form an **algorithm**, used to solve specific problems e.g. entered as sequences in a **programmable device** such as a BeeBot. • Understand that **programs** are executed by following precise and unambiguous instructions, known as **code** Begin to understand that simple **programs** or **code** can be created and then the code can be **debugged** or edited if necessary	• Understand that **algorithms** are a set of instructions that solves specific problems. Know they can be used to program **digital** or **programmable devices** by following instructions or **code** • Create and write a **program** using precise and unambiguous instructions, understand that this is **coding** • Create and **debug** simple **code** Use logical reasoning to predict the behaviour of simple **programs** or **code**
Digital exploration (Digital Literacy and Computer Science)	• Explore and share information from a variety of sources (including digital resources).	• Explore and share information from a variety of sources (including digital resources). • Use the Internet to find answers to questions, following straightforward lines of enquiry • Be aware of the school rules for accessing the internet • Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies Recognise Common uses of technology beyond school
Communicating and Collaborating (Digital Literacy)	• Use passwords to access online resources and keep them private • Know messages can be sent electronically • Show awareness that information online can be seen by others Know there are rules to keep them safe when accessing content online	• Use passwords to access resources and know why they need to keep them private • Know the school e-safety rules and know how to respond to inappropriate content • Show an awareness that information including images online can be shared at home, school and worldwide • Know private information should never be given out on the internet • Communicate their ideas with an invited group Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Multimedia (Information Technology)	• Add text to graphics and use sound to communicate ideas Know there are rules concerning staying safe online	• Create presentations for a specific audience • Refine their presentations • Children publish and share work online such as Purple Mash or through a VLE/learning platform Know why there are e-safety rules and that these apply to all connected devices
Digital Imagery (Information Technology)	• Using a variety of tools to create and manipulate an image (picture) Know they can use devices to capture still and video images	• Retrieve digital content, evaluate and make improvements Use tools to share their ideas, experiences and imagination
Music and Sound (Information Technology)	• Know they can record sound using ICT that can be stored and played back • Locate, listen to, play and begin to record sounds Use software to change the musical phrases they create	• Begin to understand that adding music and or a sound can affect mood and atmosphere of their work • Save, retrieve and add their own recorded sound to their presentations • Be familiar with the school's e-safety rules
Data Handling - Collecting, Analysing, Evaluating and Presenting Data (Information Technology)	• Begin to understand that you can use software to represent data and information on screen • Understand that tools can be used to sort and illustrate the data in different ways • By selecting appropriate tools they can create a graph or chart to answer questions Begin to understand they need to use a password to access different things on the computer, tablet or online	• Understand you can use graphing software to collect, illustrate, organise and classify data • Use graph plotting tools to answer appropriate questions concerning the plotted data • Understand the same data may be illustrated in a variety of ways • Understand they might use different passwords to access different systems (school network, home computer, Online resources) and they should keep them private

	KS2			
	Year 3	Year 4	Year 5	Year 6
Programming Coding and Controlling Devices (Computer Science)	• Write simple **algorithms** to accomplish specific goals using a **programmable device** or object on screen • Understand how a **program** may be broken down into smaller parts and that these are all part of the **code** • Understand a program can be changed through the use of variables e.g. changing the number of steps or size of angle • Use **repeat** and **loop** commands in **code** to achieve specific outcomes Understand how a program can control **outputs,** illustrate using a flowchart to show how everyday devices work	• Design, write and **debug code** that accomplishes a specific goal • Understand the purpose of a **procedure** to shorten **code** writing • Write **code** to create, test and edit a **procedure** and then combine procedures to produce effects. Understand the effect of changing **values** within a procedure • Understand how inputs can be used in **coding** to control **outputs** Understand that objects can be controlled by other **conditional inputs**, *"if the object hits a wall then…."*, *"If object touches*	• **Debug** some pre-prepared **code** to accomplish a specific goal, including controlling or **simulating** physical systems • Solve problems by decomposing **code** into smaller parts by using procedures and sub-procedures • Work with **conditional commands** and use various forms of **input** and **output** using onscreen sprites or a control box Explain the function of the **algorithm** behind each part of the code	• Design, write and **debug programs** that accomplish specific goals, including controlling or **simulating** physical systems • Work with **variables, random variables**, **conditionals** and various forms of **input** and **output** Use logical reasoning to explain how some **algorithms** work and detect and correct errors
Digital exploration (Digital Literacy and Computer Science)	• Use the Internet safely to search and a find a range of information to answer questions • Understand there might be a variation in results when different combinations of words are entered into a search engine • Begin to adapt questions based on search results • Begin to understand the parts of a computer network internal to the school Know what to do when inappropriate material appears on the screen	• Pupils search for and use information from a range of sources and make judgements about its usefulness when following straightforward lines of enquiry • Adapt questions based on search results • Know what to do when inappropriate material appears on the screen and think about the implications at home • Understand how to use search engines effectively by comparing the results when slightly	• Begin to use search technologies more effectively • Appreciate how results are selected • Begin to be discerning in evaluating digital content • Use technology safely, respectfully and responsibly Understand computer networks including the internet (the hardware; cabling, servers etc.) and how it can provide multiple services such as the world wide web and email	• Use search technologies effectively • Appreciate how results are selected and ranked • Be discerning in evaluating digital content • Use technology safely, respectfully and responsibly • Understand computer networks, including the internet and mobile networks, and how they can provide multiple services such as the world wide web, SMS, 3G etc.

		different combinations of words are entered Begin to understand the parts of a computer network, both internal and external to the school		Understand that personal data is collected and may be used for a number of purposes
Communicating and Collaborating (Digital Literacy)	• Explain that passwords are used to log in to resources on the web and why these should be kept private • Understand there is an accepted behaviour when communicating in the real or virtual world • Share ideas responsibly with others using a range of tools Compare and use different forms of communication, considering their advantages and disadvantages	• Demonstrate an understanding of the rules and possible implications of e-safety when collaborating on projects • Consider an intended audience and its implications when communicating Use a greater range of tools to communicate and collaborate	• Be knowledgeable about the school's e-safety policy and reflect on its relevance to access to home and mobile devices • Understand ways of preventing and responding to cyberbullying • Understand the importance of privacy when online and that certain information should not be publicly available Understand how their contributions in a connected community can reflect on their self-image	• Understand the responsibility of publishing on the Internet in terms of personal safety, appropriateness and relevance of content • Follow the schools e-safety policy and help younger pupils to do so. • Be aware of the e-safety rules when working from home and on mobile devices Understand the need for a positive online profile in order to be a responsible member of a connected community
Multimedia (Information Technology)	• Record and present information integrating an appropriate range of media for a given audience, combining text and graphics in a printable form • Know they can publish resources online to a given audience Be knowledgeable about the school e-safety rules	• Design and create their own multimedia projects showing awareness of appropriate design and layout for their intended audience • Know they can publish resources online to a given audience or to the wider world understand the need to ensure it is appropriate and copyright free Consolidate the school's e-safety rules	• Plan a presentation, combined from a range of sources, organised and refined to suit purpose and audience Know that there are risks when accessing resources on the Internet	• Communicate information having made choices about the appropriate medium, content and structure demonstrating an understanding of audience and purpose Be confident in all aspects of the school's e-safety rules
Digital Imagery (Information Technology)	• Select, manipulate and combine images using software to accomplish a task • Take and manipulate digital images using a range of devices beginning to take account of	• Combine and evaluate digital images taking account of the audience • Consider the quality of their work and their intended	• Combine and evaluate digital images from a variety of sources • Evaluate the difference between object based graphic	• Choose appropriate tools and techniques to create imagery for a specific task Amend and combine digital images and movies from different sources for a specific audience or task

	moods or ideas when framing and editing a shot. **Understand that images can be shared and viewed online and consider the privacy of themselves and others**	audience when creating animation, images or film **Discuss privacy in terms of using and sharing digital images**	packages (CAD) and paint packages Consider the quality of their work and their intended audience when creating animation, images or film	
Music and Sound (Information Technology)	• Understand that technology allows easy creation, manipulation and change • Select and use appropriate sound files to fit a given context Know that sound files can be uploaded to the internet and shared across a wider audience	• Use music technology individually or as a group to create, develop, amend and present their ideas • Understand that evaluation and improvement is a vital part of a creative process • Use technology to compose music or sounds including creating melodies Upload sound files to the internet to share with a wider audience	• Select and use suitable software and hardware to produce a multi-track audio presentation • Begin to compose, manipulate and refine music and sound for a given audience or project • Use audio broadcasting tools to share their work with a wider audience Understand their responsibility towards copyright issues	• Understand that a professional broadcast is made up of many parts and to identify key features of different broadcasts Create music or soundtracks to accompany a story, multimedia presentation or digital movie considering specific audience and purpose (see Digital Media Unit)
Data Handling - Collecting, Analysing, Evaluating and Presenting Data (Information Technology)	• Understand that collecting and organising information using ICT makes it easier to find answers to questions • Understand that ICT can be used to create pictograms, bar charts and tables that illustrate data for different purposes -using different scales with bar charts • Talk about their use of ICT and describe how it supports their learning • Know there is a variety of devices than can collect or capture data Know data is collected and used in the world around them, and understand the need for keeping personal data safe	• Understand the importance of entering data correctly • Know that ICT can create different graph types for different purposes and some are more appropriate and easier to read than others • Understand the difference between a database and a spreadsheet. A database is a collection of information organised and presented to serve a particular purpose. A spreadsheet is used when we wish to do some calculations on the data held within it. Know that personal data is stored on systems; understand the need to be accurate and keep it private	• Model and set problem solving activities that require the children to carry out complex searches of databases • Develop independence in their use of data loggers and measuring Apps to investigate and interpret changes in a variety of conditions • Use a prepared database with anomalies and inaccuracies, model how to check for accuracy and plausibility • Understand that personal data is collected by others for a variety of purposes and it needs to be accurate and secure Use a spreadsheet to carry out calculations that require formulae	• Set up a database with appropriate fields in order to reach specific conclusions • Understand the use of appropriate presentation to represent different types of data by the use of e.g. pie chart, bar chart or line graph • Become more familiar with database tools such as logical searches, sorts and filtering Understand how variables in a spreadsheet formula can be used to solve a problem • Use formulae within a spreadsheet to plan/model a variety of events • Plan and carry out how data from a data logger could be used to prove various hypotheses

				Understand the difference between sensitive and non-sensitive personal data. Understand the need for data to be accurate and secure.