Gnosall St Lawrence CE Primary Academy
Computing Curriculum Overview

Early Years	Three and Four-Year-Olds	Personal, Social and Emotional Development		Increasingly follow rules, understanding why they are important.
		Physical Development		Match their developing physical skills to tasks and activities in the setting.
		Understanding the World		Explore how things work.
	Reception	Personal, Social and Emotional Development		Show resilience and perseverance in the face of a challenge.
		Physical Development		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'.
		Expressive Arts and Design		Explore, use and refine a variety of artistic effects to express their ideas and feelings.
	ELG	Personal, Social and Emotional Development	Managing Self	Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. Explain the reasons for rules, know right from wrong and try to behave accordingly
		Expressive Arts and Design	Creating with Materials	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Computing Development Opportunities in Early Years	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Digital devices around me Exploring digital devices around the classroom. Developing initial mouse and keyboard skills on desktops. Role-play using tech such as phones, tills, computers and tablets. Using games on the interactive board. Listening station with CDs and earphones		How to go on the internet and stay safe online Using online games. Talking about what the internet is and what it can be used for. Using interactive games/software to sort and organise pictures or numbers. Understanding how to be safe online. Selecting tech (and recognising that tech can be selected) for a purpose such as a CD player to listen, a whiteboard to play an interactive game or a camera (Ipad) to take a picture.		Programming Beebots Ordering simple instructions. Beginning to move Beebots by inserting instructions. Using key words such as forwards, backwards, turn, stop and start. Combining tech with activities within continuous provision.	

Expectations of the National Curriculum (Colour coding shows coverage in Gnosall's Computing Curriculum)

Overall Aims of our Computing Curriculum (from NC)	**Pupils:** ♣ can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation ♣ can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems ♣ can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems ♣ are responsible, competent, confident and creative users of information and communication technology.
End of KS1 Attainment (NC)	**Pupils:** ♣ understand what algorithms are; how they 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 ♣ use technology purposefully to create, organise, store, manipulate and retrieve digital content ♣ recognise common uses of information technology beyond school ♣ 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 internet or other online technologies
End of KS2 Attainment (NC)	**Pupils:** ♣ design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts ♣ use sequence, selection, and repetition in programs; work with variables and various forms of input and output ♣ use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs ♣ understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration ♣ use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content ♣ select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information ♣ use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

	2-Year cycle	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Year 1/2	Cycle A	Computing systems and networks Technology around us (Additional E-Safety)	Creating Media Digital Painting	Creating Media Digital photography	Data and information Grouping data	Programming A Moving a Robot	Programming A Robot Algorithms
	Cycle B	Computing systems and networks IT around us (Additional E-Safety)	Creating Media Digital writing	Creating Media Making music	Data and information Pictogram	Programming B Introduction to animation	Programming B Introduction to quizzes
Year 3/4	Cycle A	Computing systems and networks Connecting computer (Additional E-Safety)	Creating Media Animation	Creating Media Desktop Publishing	Data and information Branching Databases	Programming A Repetition in shapes	Programming B Repetition in games
	Cycle B	Computing systems and networks The Internet (Additional E-Safety)	Creating Media Audio editing	Creating Media Photo editing	Data and information Data Logging	Programming A Sequence in music	Programming B Events and actions
Year 5/6	Cycle A	Computing systems and networks Sharing information (Additional E-Safety)	Creating Media 3D Modelling	Creating Media Web page creation	Data and information Flat file databases	Programming A Selection in physical computing	Programming B Selection in quizzes
	Cycle B	Computing systems and networks Communication (Additional E-Safety)	Creating Media Vector drawing	Creating Media Video editing	Data and information Spreadsheets	Programming A Variables in games	Programming B Sensing

Progression of Skills in Computing

	EYFS	Year 1 and 2	Year 3 and 4	Year 5 and 6
Computer Systems and Networks / E-safety	Exploring digital devices around the classroom. Developing initial mouse and keyboard skills on desktops. Role-play using tech such as phones, tills, computers and tablets. Using games on the interactive board. Listening station with CDs and earphones	**Technology Around Us (Cycle A)** 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 (Additional e-safety includes safe searching, keep it private and my creative work) **IT Around Us (Cycle B)** To create rules for using technology responsibly 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 To recognise that choices are made when using information technology (Additional e-safety includes digital trails, screen out mean and staying safe online)	**Connecting Computers (Cycle A)** 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 To describe how networks physically connect to other networks (Additional e-safety includes online communities, powerful passwords and show respect online) **The Internet (Cycle B)** 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 (Additional e-safety includes personal information, key words and whose is it anyway)	**Sharing Information (Cycle A)** 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 (Additional e-safety includes digital citizenship, picture perfect and strong passwords) **Communication (Cycle B)** To evaluate different ways of working together online 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 (Additional e-safety includes digital citizenship, picture perfect and strong passwords)

Creating Media A	Talking about what the internet is and what it can be used for. Understanding how to be safe online.	**Digital Painting (Cycle A)** 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 **Digital Writing (Cycle B)** 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	**Animation (Cycle A)** 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 **Audio Editing (Cycle B)** 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	**3D Modelling (Cycle A)** 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 **Vector Drawing (Cycle B)** 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

Creating Media B	Using online games. Selecting tech (and recognising that tech can be selected) for a purpose such as a CD player to listen, a whiteboard to play an interactive game or a camera (Ipad) to take a picture.	**Digital Photography (Cycle A)**	**Desktop Publishing (Cycle A)**	**Web Page Creation (Cycle A)**
		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 To recognise that images can be changed	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	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
		Making Music (Cycle B)	**Photo Editing (Cycle B)**	**Video Editing (Cycle B)**
		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 (Additional e-safety includes privacy rules, talking safely online and cyberbullying)	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	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

| Data and Information | Using interactive games/software to sort and organise pictures or numbers. | **Grouping Data (Cycle A)**

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
To recognise that we can count and compare objects using tally charts

Pictogram (Cycle B)

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 | **Branching Databases (Cycle A)**

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

Logging Data (Cycle B)

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 | **Flat File Databases (Cycle A)**

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

Spreadsheets (Cycle B)

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 |

| Programming A | Ordering simple instructions. Beginning to move Beebots by inserting instructions.

Using key words such as forwards, backwards, turn, stop and start. | **Moving a Robot (Cycle A)**

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

Introduction to Animation (Cycle B)

To plan a simple program
To find more than one solution to a problem
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 | **Repetition in Shapes (Cycle A)**

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
To identify that accuracy in programming is important

Sequence in Music (Cycle B)

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 | **Selection in Physical Computing (Cycle A)**

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

Variables in Games (Cycle B)

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 |

		Robot Algorithms (Cycle A)	Repetition in Games (Cycle A)	Selection in Quizzes Cycle A
Programming B	Combining tech with activities within continuous provision.	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 To create and debug a program that I have written **Introduction to Quizzes (Cycle B)** 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	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 **Events & Actions (Cycle B)** To build a sequence of commands To order commands in a program 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	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 **Sensing (Cycle B)** 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