Computing

Essential Characteristics:

We want our children to develop:

• Competence in coding for a variety of practical and inventive purposes, including the application of ideas within other subjects.

• The ability to connect with others safely and respectfully, understanding the need to act within the law and with moral and ethical integrity.

• An understanding of the connected nature of devices.

• The ability to communicate ideas well by using applications and devices throughout the curriculum.

• The ability to collect, organise and manipulate data effectively.

Our main objectives (our essentials for progress) are:

- **To code**
- **To connect**
- **To communicate**
- **To collect**

The children will have these opportunities (curriculum content)

Key Stage 1 (Years 1 and 2)	Key Stage 2 (Years 3,4,5,6)
• Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following a sequence of instructions. • Write and test simple programs. • Use logical reasoning to predict the behaviour of simple programs. • Organise, store, manipulate and retrieve data in a range of digital formats. • Communicate safely and respectfully online, keeping personal information private and recognise common uses of information technology beyond school.	• Design and write programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • Use sequence, selections and repetition in programs; work with variables and various forms of input and output; generate appropriate inputs and predicted outputs to test programs. • Use logical reasoning to explain how a simple algorithm works, 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. • Describe how internet search

	engines find and store data; use search engines effectively; be discerning in evaluating digital content; respect individuals and intellectual property; use technology responsibly, securely and safely. • Select, use and combine a variety of software (including internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

Curriculum progression chart: Computing

		Milestone 1 (Years 1 and 2)	Milestone 2 (Years 3 and 4)	Milestone 3 (Years 4 and 5)
To code (using Scratch)	**Motion**	Control motion by specifying the number of steps to travel, direction and turn.	Use specified screen coordinates to control movement.	Set IF conditions for movements. Specify types of rotation giving the number of degrees.
	Looks	Add text strings, show and hide objects and change the features of an object.	Set the appearance of objects and create sequences of changes.	Change the position of objects between screen layers (send to back, bring to front).
	Sound	Select sounds and control when they are heard, their duration and volume.	Create and edit sounds. Control when they are heard, their volume, duration and rests.	Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation.
	Draw	Control when drawings appear and set the pen colour, size and shape.	Control the shade of pens.	Combine the use of pens with movement to create interesting effects.
	Events	Specify user inputs (such as clicks) to control events.	Specify conditions to trigger events.	Set events to control other events by 'broadcasting' information as a trigger.
	Control	Specify the nature of events (such as a single event or a loop).	Use IF THEN conditions to control events or objects.	Use IF THEN ELSE conditions to control events or objects.
	Sensing	Create conditions for actions by waiting for a user input (such as responses to questions like: What is your name?).	Create conditions for actions by sensing proximity or by waiting for a user input	Use a range of sensing tools (including proximity, user inputs, loudness and mouse position) to

			(such as proximity to a specified colour or a line or responses to questions).	control events or actions.
	Variables and lists	From Year 3 onwards.	Use variables to store a value. Use the functions define, set, change, show and hide to control the variables.	Use lists to create a set of variables.
	Operators	From Year 3 onwards.	Use the Reporter operators () + () () - () () * () () / () to perform calculations.	Use the Boolean operators () < () () = () () > () ()and() ()or() Not() to define conditions. Use the Reporter operators () + ()

				() - () () * () () / () to perform calculations. Pick Random () to () Join () () Letter () of () Length of () () Mod () This reports the remainder after a division calculation Round () () of ().
To Connect		Participate in class social media accounts. Understand online risks and the age rules for sites.	Contribute to blogs that are moderated by teachers. Give examples of the risks posed by	Collaborate with others online on sites approved and moderated by teachers. Give examples of the risks of online communities and

			online communications. Understand the term 'copyright'. Understand that comments made online that are hurtful or offensive are the same as bullying. Understand how online services work.	demonstrate knowledge of how to minimise risk and report problems. Understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission, from the copyright holder. Understand the effect of online comments and show responsibility and sensitivity when online. Understand how simple networks are set up and used.
To Communicate		Use a range of applications and devices in order to communicate ideas, work and messages.	Use some of the advanced features of applications and devices in order to communicate ideas, work or messages professionally.	Choose the most suitable applications and devices for the purposes of communication. Use many of the advanced features in order to create high quality, professional

				or efficient communications.
To collect		Use simple databases to record information in areas across the curriculum.	Devise and construct databases using applications designed for this purpose in areas across the curriculum.	Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner.

Impact:

Assessment:

Through the explicit teaching of the Computing skills, both the teachers and the pupils assess their learning continuously throughout the lesson. At the end of the unit, pupils reflect on their knowledge and understanding. Our assessment systems enable teachers to make informed judgements about the depth of their learning and the progress they have made over time.

Pupil Voice: To follow