

# **Computing**

## **Curriculum Statement**

### **Intent**

At Cummersdale Primary School we want our students to be MASTERS of technology. We want to enrich their experiences with technology and computing, and with technology playing a pivotal part in students' lives, we want to model and educate our pupils on how to use technology positively, responsibly and safely. We want our pupils to be confident, competent computer experts and our broad curriculum; encompassing computer science, information technology and digital literacy reflects this. We recognise that the best prevention for a lot of issues we currently see with technology/social media is through education. Building our knowledge in this subject will allow pupils to effectively demonstrate their learning through creative use of technology. We recognise that technology can allow pupils to share their learning in creative ways. We also understand the accessibility opportunities technology can provide for our pupils. Our knowledge rich curriculum has to be balanced with the opportunity for pupils to apply their knowledge creatively, which will in turn help our pupils become skilful computer scientists. We encourage staff to try and embed computing across the whole curriculum; to make learning creative and accessible. We want to give the children at Cummersdale School opportunities to explore a variety and range of tools they can use to express their learning and hope children develop the independence and confidence to choose the best tool to fulfil the task and challenge set by teachers and become fluent users by Upper Key Stage 2.

### **Implementation**

At Cummersdale School, Computing is embedded across the curriculum using a wide variety of programs, resources and apps to achieve this, which include; Scratch, BeeBots, Garage band, Micro:bits, and Crumbles. Discrete lessons are taught to enhance children's knowledge and understanding of the key learning objectives set in the National Curriculum, through the Kapow Primary Computing scheme of work. This scheme of work supports our planning and ensures the progressions in skills needed. Kapow delivers the Curriculum aims through three key strands:

- Computer Science
- Information Technology
- Digital Literacy

All children in the school have an allocated iPad and access to Google Chrome Books to aid learning. This ownership of having their own iPad gives the children instant access to apps, a personalised experience and a sense of responsibility.

### **Showbie**

Showbie is introduced in Early years as a communication tool between school and parents. Children begin to familiarise themselves with the basic function tools; using voice notes to talk about their work, progressing to adding text. Moving into Key Stage 1, Showbie is used as a digital resource to share and edit documents provided by the class teacher. By the time children reach Key Stage 2, they have a secure understanding of Showbie and can independently navigate pre-loaded material as well as evidencing their own learning.

Reception: Accessing apps such as White Rose minute maths to enhance the learning in the classroom, stretching the more able and supporting the lower ability to consolidate their learning. Interactive clip boards are used to give instructions to children about a task so they can have independence and allow free flow throughout the continuous provision. Talking Tins are used to record sentences to help support independent writing.

Year 1 and 2: The children enjoy doing a variety of activities on Purple Mash and can load and save their work independently. A lot of work has cross curricular links for example adding photos and writing about parts of a castle, using algorithms to make fish swim in different directions in

our Seaside topic and rockets launching in our Space topic. They access apps such as Numbots, Edshed and Epic independently to support learning in other areas.

Year 3 and 4: We access and use technology frequently in year 3 and 4. We use a variety of learning apps including TTrack, Spelling Shed and Epic. Children have the opportunity to present their work in a range of ways and enjoy using Keynote, iMovie and Green screen activities to enhance other areas of the curriculum, bringing them into the world of media becoming football managers, Romans and Historians. Crumbles, micro:bits and Makey Makey are utilised for developing physical computing skills.

Year 5 and 6: The children are taught how to design, write and debug programs that achieve specific goals, such as programming a Mars Rover using binary code. We use a variety of creative apps to make learning fun and interactive. For example Curiscope which is an augmented reality tool which allows the children to explore and learn about the internal organs of the human body. The children are able to present their work in an interactive manner (animated water cycles using Keynote, biographies of famous people using ChatterKids) and select the most appropriate app to do this.

Extra curricular activities are provided such as coding clubs for those children who want to progress their coding skills or try something new.

Children with additional needs are included in whole class lessons and teachers support as necessary. Work is adapted where necessary to allow them to access the same work as their peers. This adaptation could be via additional teacher or teaching assistants support. Adaptive technology being used to record evaluations to reduce the need for written work, voice notes can be added to work.

## **Impact**

We want the students of Cummersdale School to enjoy and value the curriculum we deliver. We want our learners to discuss, reflect and appreciate the impact computing has on their learning, development and well being. Finding the right balance with technology is key to an effective education and a healthy life-style. We at Cummersdale School, feel the way we implement computing helps children realise the need for the right balance and one they can continue to build on in their next stage of education and beyond. We encourage regular discussions

between staff and pupils to best embed and understand this. The way pupils showcase, share, celebrate and publish their work will best show the impact of our curriculum. We look for evidence through reviewing pupil's knowledge and skills digitally through Showbie which captures progress of skill through the year groups.

Ongoing assessments take place throughout the year. Progress made is tracked termly using the Scholar Pack system. Teachers use this information to inform future lessons ensuring children are supported and challenged appropriately. This informal assessment also involves feedback to pupils on their achievements and progress in line with our marking and feedback policy.

The Computing Subject Leader monitors the progress of pupils by observing the work taking place particularly during deep dive week. Through the observation of lessons, monitoring of evidence and discussion with pupils and staff.

## Curriculum Map

<b>Cycle 24/25</b>	<b>Autumn</b>	<b>Spring</b>	<b>Summer</b>
<b>Reception</b>	Networks and Systems - using a computer/lpad	Computing Systems: Exploring hardware. Programming: Instructions	Data handling: Introduction to data Programming: Bee-Bots
<b>Year 1 &amp; 2</b>	Rocket to the moon- Develop keyboard and mouse skills through building rockets	Algorithms and debugging - what are they and how can they be developed.	Digital Imagery-Create a story using photographs. How to edit and enhance.  Stop Motion - Storyboard animation

	Bee-bot - early programming skills ISS- how data is collected	Online Safety 2- Sharing and how to keep things private	
<b>Year 3 &amp; 4</b>	<p>(K) Computer systems and Networks: The internet Recognising that the internet is a network of networks including the WWW, and why we should evaluate online content.</p> <p>(DARES) Physical programming:Microbit LED animations Decomposing a project into steps and creating algorithms based on a design using codes and a variety of outputs.</p>	<p>(K) Further Programming with scratch Sequencing sounds Creating sequences in a block-based programming language to make music.</p> <p>(K) Video Trailer Developing filming and editing video skills through the storyboarding and creation of book trailers.</p>	<p>(K) Creating Media-Website Children develop their research, word processing, and collaborative working skills whilst learning how web pages and web sites are created, exploring how to change layouts, embed images and videos and link between pages.</p> <p>(DAREs) Data handling: Online Questionnaire.Using shortcuts such as cut, copy and paste and delete to organise text. Understanding how to publish work online, analyse and present results using a variety of apps and tools.</p>
<b>Year 5 &amp; 6</b>	<p>(K) Search engines Understanding how search engines work and developing searching skills to find relevant and accurate information online.</p> <p>(K) Big data (1) Understanding about the use of big data including barcodes, QR codes, infrared, and RFID technologies. Children will create and scan their own QR codes, manipulate real-time data in spreadsheets, and present their findings. They also analyse transport data to understand its usefulness to commuters.</p>	<p>(K) Bletchley Park Code Breaking Children learn about code breaking and password hacking.They will also develop their digital literacy skills by creating presentations about historical figures.</p> <p>(K) Programming Music: Applying programming skills to create sounds and melodies leading to a battle of the bands performance.</p>	<p>(K) Stop motion animation Storyboarding ideas, taking photographs and editing to create a video animation.</p> <p>(K) Big data (2) Understanding data usage through the use of mobile data vs wi-fi, the Internet of Things, and big data. Identifying high/low data activities and preparing presentations on using Big Data/IoT to improve school efficiency while respecting privacy.</p>

<b>Cycle 25/26</b>	<b>Autumn</b>	<b>Spring</b>	<b>Summer</b>
<b>Reception</b>	Networks and Systems - using a computer/iPad	Computing Systems: Exploring hardware. Programming: Instructions	Data handling: Introduction to data Programming: Bee-Bots
<b>Year 1 &amp; 2</b>	What is a computer?- computers in the wider world. Getting started- Navigating a computer, learning to drag, drop, click and control. Online safety 1- useful tips and the digital footprint	Programming - scratch- Exploring blocks to programme a story, animal and make music.	Introduction to data- what is data and how is it useful. Word processing - Keyboard shortcuts, editing and importing images. Improving mouse skills - drag, drop, click to create art.
<b>Year 3 &amp; 4</b>	(K) Computing systems and Networks: Journey inside a computer Connecting computers Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks  (K) Programming with scratch: Using loops to program an animation, a story and a game in Scratch, this unit provides new lessons, teacher skills videos and pupil videos that support confident coding in the classroom.	(DAREs) Physical Programming: Crumble powered Historical scene. Design, create and sequence code, creating algorithms and decomposing projects using a physical component.  Data and information: Comparison Cards Branching databases Building and using branching databases to group objects using yes/no questions.	(TC) Creating Media Photo editing: Manipulating digital images, and reflecting on the impact of the changes and whether the required purpose is fulfilled,  Creating Media: Stop-frame animation Capturing and editing digital still images to produce a stop frame animation that tells a story.
<b>Year 5 &amp; 6</b>	(K) Mars Rover 1/2 The children learn about the automated vehicle the Mars Rover exploring how and why it transfers data, understanding how messages are sent using binary code and experiencing how to program the Mars Rover.	(K) Micro:bit Clipping blocks together in a program and predicting what will happen while making connections with previously used programming interfaces. Children create animations, recognise inputs/outputs, choose appropriate blocks, and break programs down into smaller steps.	(K) Inventing a product Designing a new electronic product and using CAD software to design appropriate housing for it. Developing skills in website design, video editing, and persuasive language to promote their product. Evaluating and adapting existing code, debugging programs, and searching for accurate information online.

		<p>(K) Intro to python Learning the fundamentals of the programming language of Python, they will test, change and explain what their program does. Children use loops and explain what repeats do and what the parts of the loop do while recognising that computers choose random numbers and decompose the program into an algorithm.</p>	<p>(K) Online safety</p>
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