

## Computing Curriculum Statement



**Our Mission Statement:** 'Love one another'

**Our Learning Values:** 'Practice makes perfect'

**P – pride**

**R – resilience**

**A – aspiration**

**C – creativity**

**T - teamwork**

**I – independence**

**C – curiosity**

**E – engagement**

### **Curriculum Intentions**

Computing is essential for all children as it is at the heart of every modern household and therefore will be key to their journey through life. As Digital Natives, our children need to be able to use and express themselves as well as develop their ideas through technology – at a level suitable for the future workplace and as positive active participants in a digital world. At Charlton House Independent School, we strive for pupils who are equipped to create programs and systems which accomplish specific goals and contain a range of content whilst instilling fundamental behaviours, which will empower children to keep themselves safe online.

## Curriculum Implementation

At Charlton House Independent School, we use the Teach Computing Curriculum. This is a comprehensive collection of materials created by the Raspberry Pi Foundation and produced to support hours of teaching, facilitating the delivery of the entire English computing curriculum for key stages 1 and 2. The materials are suitable for all pupils irrespective of their skills, background, and additional needs.

The Teach Computing Curriculum is structured in units. The lessons within a unit are taught in order ensuring coherence within units. The units are based on a spiral curriculum. This means that each of the themes is revisited regularly (at least once a year), and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme. This style of curriculum design reduces the amount of knowledge lost through forgetting, as topics are revisited yearly. It also ensures that connections are made even if different teachers are teaching the units within a theme in consecutive years.

The Teach Computing Curriculum acknowledges that physical computing plays an important role in modern pedagogical approaches in computing, both as a tool to engage pupils and as a strategy to develop pupils' understanding in more creative ways. Additionally, physical computing supports and engages a diverse range of pupils in tangible and challenging tasks.

The physical computing units in the Teach Computing Curriculum are:

- Year 5 – Selection in physical computing, which uses a Crumble controller
- Year 6 – Sensing movement, which uses a micro:bit

The Teach Computing Curriculum has been written to support all pupils. Each lesson is sequenced so that it builds on the learning from the previous lesson, and where appropriate, activities are scaffolded so that all pupils can succeed and thrive. Scaffolded activities provide pupils with extra resources, such as visual prompts, to reach the same learning goals as the rest of the class. Exploratory tasks foster a deeper understanding of a concept, encouraging pupils to apply their learning in different contexts and make connections with other learning experiences. As well as scaffolded activities, embedded within the lessons are a range of pedagogical strategies, which support making computing topics more accessible.

## Curriculum Overview

		Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 1 & 2	<u>Cycle A</u>	<b>Information technology around us</b> Identifying IT and how its responsible use improves our world in school and beyond.	<b>Digital photography</b> Capturing and changing digital photographs for different purposes.	<b>Pictograms</b> Collecting data in tally charts and using attributes to organise and present data on a computer.	<b>Robot algorithms</b> Creating and debugging programs, and using logical reasoning to make predictions.	<b>Programming quizzes</b> Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.	<b>Digital music</b> Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.
	<u>Cycle B</u>	<b>Technology around us</b> Recognising technology in school and using it responsibly	<b>Digital painting</b> Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.	<b>Moving a robot</b> Writing short algorithms and programs for floor robots, and predicting program outcomes.	<b>Programming animations</b> Designing and programming the movement of a character on screen to tell stories.	<b>Digital writing</b> Using a computer to create and format text, before comparing to writing non-digitally.	<b>Grouping data</b> Exploring object labels, then using them to sort and group objects by properties.
Year 3 & 4	<u>Cycle A</u>	<b>The internet</b> Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	<b>Audio production</b> Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	<b>Repetition in shapes</b> Using a text-based programming language to explore count-controlled loops when drawing shapes.	<b>Data logging</b> Recognising how and why data is collected over time, before using data loggers to carry out an investigation.	<b>Photo editing</b> Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.	<b>Repetition in games</b> Using a block-based programming language to explore count-controlled and infinite loops when creating a game.
	<u>Cycle B</u>	<b>Connecting computers</b> Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks	<b>Stop-frame animation</b> Capturing and editing digital still images to produce a stop-frame animation that tells a story.	<b>Sequencing sounds</b> Creating sequences in a block-based programming language to make music.	<b>Branching databases</b> Building and using branching databases to group objects using yes/no questions	<b>Desktop publishing</b> Creating documents by modifying text, images, and page layouts for a specified purpose.	<b>Events and actions in programs</b> Writing algorithms and programs that use a range of events to trigger sequences of actions
Year 5 & 6	<u>Cycle A</u>	<b>Communication and collaboration</b> Exploring how data is transferred by working collaboratively online.	<b>Webpage creation</b> Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	<b>Variables in games</b> Exploring variables when designing and coding a game.	<b>Introduction to spreadsheets</b> Answering questions by using spreadsheets to organise and calculate data	<b>3D modelling</b> Planning, developing, and evaluating 3D computer models of physical objects.	<b>Sensing movement</b> Designing and coding a project that captures inputs from a physical device.
	<u>Cycle B</u>	<b>Systems and searching</b> Recognising IT systems in the world and how some can enable searching on the internet	<b>Video production</b> Planning, capturing, and editing video to produce a short film.	<b>Selection in physical computing</b> Exploring conditions and selection using a programmable microcontroller.	<b>Flat-file databases</b> Using a database to order data and create charts to answer questions.	<b>Introduction to vector graphics</b> Creating images in a drawing program by using layers and groups of objects.	<b>Selection in quizzes</b> Exploring selection in programming to design and code an interactive quiz.

## Curriculum Impact

