

Brampton Village Primary School

COMPUTING Curriculum Map 2022-2023



<i>Curriculum Intent</i>	Our aim is to equip children to use computational thinking and creativity to understand and change the world, using the ever-changing and progressing technologies available to them. We aim to raise the aspirations of the children, ensuring our pupils are ready to succeed in the digital world.
<i>Curriculum Implementation</i>	Computing is taught discretely but also with strong links to Maths (Times Tables rockstars), Science and Design Technology (Raspbery Pi / BBC MicroBit) and Geography (DigiMap). The core of computing is computer science; understanding how information technology and digital systems work and how to put this knowledge to use through programming. We use programmable toys and age-appropriate programming software to understand how we can create, affect and change elements of the world around us. Children need to be digitally literate (be able to use and express themselves and develop ideas through IT) for the future workplace; we learn how to present and share our ideas in a variety of ways, including communication and blogging, use of multimedia, and giving successful presentations via both laptop, desktop and touchscreen tablet. A vital aspect of our curriculum is to demonstrate responsible online safety to enable them to be safe and active participants in a digital world; our learning platforms of STARZplus and Office 365 / Class Notebook will help children to acquire these essential skills.
<i>Curriculum Impact</i>	The impact of the Computing curriculum is measured in several ways. Computing delivery is monitored through Lesson Observations, Data Analysis, Book Scrutiny, Pupil Voice and Learning Environment reviews. Feedback is given to class teachers to ensure that teaching practice is supported and improved. These measures help to monitor the curriculum and raise the aspirations of the children, ensuring our pupils are ready for a digital world.

Curriculum summary

Main Scheme of Work

This document must be read in conjunction with the appropriate Key stage Teacher guide and Curriculum Map. (See link below).

Our main computing scheme for the academic year 2022-2023 is based upon the **Teach Computing Scheme** [Curriculum teaching resources \(teachcomputing.org\)](https://www.teachcomputing.org)

The **National Centre for Computing Education (NCCE)** is funded by the Department for Education and supporting partners, and marks a significant investment in improving the provision of computing education in England. The NCCE is run by a consortium made up of [STEM Learning](#), the [Raspberry Pi Foundation](#) and [BCS, The Chartered Institute for IT](#).

The scheme covers all the required units of the curriculum: *Computational Thinking, E-Safety, Programming, Digital Literacy and Understanding Technology*. The units in each term are interchangeable within and between terms and do not necessarily have to be completed in order. Individual phases are free to complete whichever fit their theme / intent for a particular term.

Every unit of work contains a Unit Guide, Lesson plans and resources, Learning Graph and Summative Assessment materials (with answers).

Click the links to access the overviews, Teacher Guide, Curriculum Map and Lesson plans for each Key Stage.

[KS1 Overview](#)

[KS 2 Overview](#)

Curriculum Map

Brampton Village Primary School – Curriculum Coverage – *TEACH COMPUTING* Scheme

This scheme of work progression map is for the *Teach Computing* Scheme of work.

KS1

Teach Computing Curriculum overview

Brief overview

	Computing systems and networks ¹	Creating media	Programming A	Data and information	Creating media	Programming B
Year 1	Technology around us (1.1)*	Digital painting (1.2)	Moving a robot (1.3)	Grouping data (1.4)	Digital writing (1.5)	Programming animations (1.6)
Year 2	Information technology around us (2.1)	Digital photography (2.2)	Robot algorithms (2.3)	Pictograms (2.4)	Making music (2.5)	Programming quizzes (2.6)

¹Networks are not part of the key stage 1 national curriculum for computing but the title is used as a strand across primary.

*The numbers in the brackets are a 'quick code' reference for each unit, eg 1.3 refers to the third Year 1 unit in the recommended teaching order.

Unit summaries

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 1	<p>Technology around us</p> <p>Recognising technology in school and using it responsibly.</p>	<p>Digital painting</p> <p>Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.</p>	<p>Moving a robot</p> <p>Writing short algorithms and programs for floor robots, and predicting program outcomes.</p>	<p>Grouping data</p> <p>Exploring object labels, then using them to sort and group objects by properties.</p>	<p>Digital writing</p> <p>Using a computer to create and format text, before comparing to writing non-digitally.</p>	<p>Programming animations</p> <p>Designing and programming the movement of a character on screen to tell stories.</p>
Year 2	<p>Information technology around us</p> <p>Identifying IT and how its responsible use improves our world in school and beyond.</p>	<p>Digital photography</p> <p>Capturing and changing digital photographs for different purposes.</p>	<p>Robot algorithms</p> <p>Creating and debugging programs, and using logical reasoning to make predictions.</p>	<p>Pictograms</p> <p>Collecting data in tally charts and using attributes to organise and present data on a computer.</p>	<p>Making music</p> <p>Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.</p>	<p>Programming quizzes</p> <p>Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.</p>

Teach Computing Curriculum overview

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 3	Connecting computers (3.1)	Stop-frame animation (3.2)	Sequencing sounds (3.3)	Branching databases (3.4)	Desktop publishing (3.5)	Events and actions in programs (3.6)
Year 4	The internet (4.1)	Audio editing (4.2)	Repetition in shapes (4.3)	Data logging (4.4)	Photo editing (4.5)	Repetition in games (4.6)
Year 5	Sharing information (5.1)	Video editing (5.2)	Selection in physical computing (5.3)	Flat-file databases (5.4)	Vector drawing (5.5)	Selection in quizzes (5.6)
Year 6	Internet communication (6.1)	Webpage creation (6.2)	Variables in games (6.3)	Introduction to spreadsheets (6.4)	3D modelling (6.5)	Sensing (6.6)

Unit summaries

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 3	<p>Connecting computers</p> <p>Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.</p>	<p>Stop-frame animation</p> <p>Capturing and editing digital still images to produce a stop-frame animation that tells a story.</p>	<p>Sequencing sounds</p> <p>Creating sequences in a block-based programming language to make music.</p>	<p>Branching databases</p> <p>Building and using branching databases to group objects using yes/no questions.</p>	<p>Desktop publishing</p> <p>Creating documents by modifying text, images, and page layouts for a specified purpose.</p>	<p>Events and actions in programs</p> <p>Writing algorithms and programs that use a range of events to trigger sequences of actions.</p>
Year 4	<p>The internet</p> <p>Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.</p>	<p>Audio editing</p> <p>Capturing and editing audio to produce a podcast, ensuring that copyright is considered.</p>	<p>Repetition in shapes</p> <p>Using a text-based programming language to explore count-controlled loops when drawing shapes.</p>	<p>Data logging</p> <p>Recognising how and why data is collected over time, before using data loggers to carry out an investigation.</p>	<p>Photo editing</p> <p>Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.</p>	<p>Repetition in games</p> <p>Using a block-based programming language to explore count-controlled and infinite loops when creating a game.</p>

Unit summaries

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 5	Sharing information Identifying and exploring how information is shared between digital systems.	Video editing Planning, capturing, and editing video to produce a short film.	Selection in physical computing Exploring conditions and selection using a programmable microcontroller.	Flat-file databases Using a database to order data and create charts to answer questions.	Vector drawing Creating images in a drawing program by using layers and groups of objects.	Selection in quizzes Exploring selection in programming to design and code an interactive quiz.
Year 6	Internet communication Recognising how the WWW can be used to communicate and be searched to find information.	Webpage creation Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	Variables in games Exploring variables when designing and coding a game.	Introduction to spreadsheets Answering questions by using spreadsheets to organise and calculate data.	3D modelling Planning, developing, and evaluating 3D computer models of physical objects.	Sensing Designing and coding a project that captures inputs from a physical device.

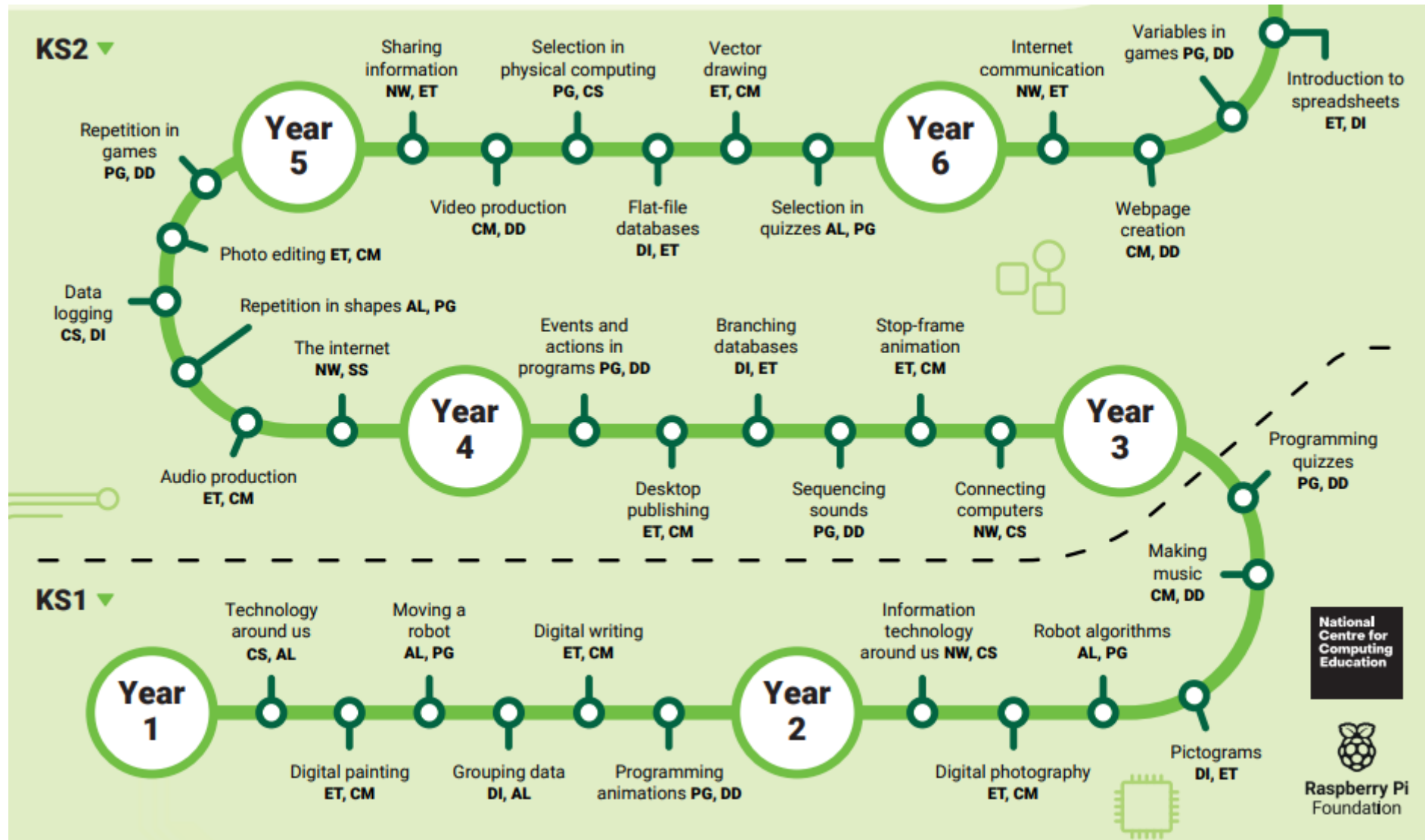
NOTE

Teachers are free to investigate units of work from other year groups.

For example, year 6 can choose to incorporate and adapt some of the ‘Year 7 and year 8’ units on Python Programming into their programming strand.

If teachers integrate work from other schemes of work, they must ensure that they meet the required statements and must show evidence and assessment.

Curriculum Journey



Online safety

Giving pupils the tools to help them navigate the online world safely and with confidence is a priority at BVPS. Teachers integrate this into every term.

The unit overviews for each unit show the links between the content of the lessons and the national curriculum and Education for a Connected World framework (ncce.io/efacw). These references have been provided to show where aspects relating to online safety, or digital citizenship, are covered within the Teach Computing Curriculum. Not all of the objectives in the Education for a Connected World framework are covered in the Teach Computing Curriculum, as some are better suited to personal, social, health, and economic (PSHE) education; spiritual, moral, social, and cultural (SMSC) development; and citizenship. However, the coverage required for the computing national curriculum is provided.

Year groups should decide for themselves how they will ensure that online safety is being managed effectively in their setting, as the scope of this is much wider than just curriculum content. A list of useful resources can be found below.

E-Safety-specific resources;

- Be Internet awesome - https://beinternetawesome.withgoogle.com/en_uk/toolkit
- The Smart Crew - [Resources for 3-11s | Safer Internet Centre](#)
- BBC Bitesize - <https://www.bbc.co.uk/bitesize/primary> - [Online communication and online safety – Year 3/4 & P4/5 Computing Topics - Home Learning with BBC Bitesize - BBC Bitesize](#)
- Internet Matters - Internetmatters.org - [Information, Advice and Support to Keep Children Safe Online \(internetmatters.org\)](#)
- Twinkl - twinkl.co.uk e.g. [Y4 Online Safety Primary Resources - PlanIt Year Four ICT Lesson Plans \(twinkl.co.uk\)](#)
- Think u know - <https://www.thinkuknow.co.uk>
- Childline - <https://www.childline.org.uk/info-advice/bullying-abuse-safety/online-mobile-safety/>
- Childnet - <https://www.childnet.com/resources/video-lessons> ; <https://www.childnet.com/resources/online-safety-activities-you-can-do-from-home/for-3-7-year-olds-> ; <https://www.childnet.com/resources/online-safety-activities-you-can-do-from-home/for-7-11-year-olds->
- Uk Safer Internet - <https://www.saferinternet.org.uk/blog/new-videos-use-home-6-9-year-olds-looking-online-safety>

Computing links to Design Technology

Links are made to the Design & technology Curriculum which requires children to use computer programming to control physical objects (use a range of simple inputs and outputs to control or simulate physical systems) with the availability of Raspberry Pi and BBC MicroBit units for applying their coding to physical objects.

Classroom Non-Negotiables

Computing Evidence

We must be keeping evidence of all computing work undertaken by pupils. This can be written work, drawings or photographs in books and folders (and on displays) as well as work stored online as part of a scheme of work or on TEAMS.

Reception

Evidence through observation.

Years 1-5

Most year groups will evidence their learning using Books / folders containing photographs or other evidence of the children's learning.

Year 6

Year 6 work is evidenced through work added to the individual pupil's Class Notebook. This should include written explanations, screenshots of online work, Photos of work etc.

Computing Assessment

We are expected to be assessing and tracking the pupils progress across units of work.

All schemes of work contain assessment tools and materials that also includes pupil self-assessment opportunities. Please use them with every unit.

Classroom Displays

To improve the visibility of computing you will receive new resources for your classroom:

- Current topic display board.
- Key vocabulary display board.
- Links to real life opportunity board – why are the children learning this topic? What real life skills are they learning? (e.g. typing, searching, safety, coding, etc) what jobs could this be linked to? (game designer, programme designer, app designer, author, research scientist, etc).
- Key vocab displays.

You should also use your current resources of:

- Laminated 'Be Internet Awesome' poster.
- Laminated display header.
- Laminated speech bubbles to add pupil comments about their work.

Displays should:

- Be specific to the current unit of work.
- Have examples of children's work (worksheets / photographs / project photos).
- Be used as a working wall – use flipchart paper / display resources to support the children's learning in that lesson.
- Be updated regularly.

[Classroom Display Resources](#)

Programming Skills Progression

The expected block coding skills acquired by the children.

KS2

SCRATCH / CODE.ORG / MakeCode (BBC MicroBit)

Block coding is used throughout Middle and Upper Phase to introduce pupils to the problem solving skills involved in coding and debugging code.

Scratch is our main block format (Python on iPad) ; both laptops and iPads can also run online versions and the desktop SCRATCH app is installed on all pupil laptops.

Coding is also taught using the **Code.org** suite of online tools allowing for differentiated task-based learning and task setting as well as pupil tracking and testing of skills progressions.

Pupils understanding of Block coding is further embedded through the coding of BBC MicroBit units and the [Microsoft MakeCode for micro:bit \(microbit.org\)](#) set of tools. This is where pupils gain more experience in using coding with physical devices for purpose (Design and Technology link)

BLOCK CODING PROGRAMMING – KS2 YEAR GROUP SKILLS PROGRESSION

(SCRATCH / MakeCode / Code.org)

(Code-IT progression structure)

This flowchart outlines the key concepts to outline during each phase of block programming. These build upon previous concepts and skills obtained.

KS1

KS1 perform similar tasks using verbal algorithms as opposed to block programming.

They also use BlueBots to transfer this skill to physical resources.

Reception use free play with software tools like '*Numberjump*' '*Musical Leaps*' and '*Paint*' to investigate the use of computing skills.

The expected block coding skills acquired by the children.

