

A bespoke Computing Curriculum- The Tilstock Way



Intent

At our school we intend that children should master Computing to such an extent that they can go on to have careers within Computing and make use of Computing effectively in their everyday lives, without being completely reliant on technology.

Our children will be taught to use technology responsibly and carefully, being mindful of how their behaviour, words and actions can affect others.

Our children will be taught Computing in a way that ensures progression of skills, and follows a sequence to build on previous learning.

Our children will gain experience and skills of a wide range of technology in a way that will enhance their learning opportunities, enabling them to use technology across a range of subjects to be creative and solve problems, ensuring they make progress.

Implementation

We follow a broad and balanced Computing curriculum that builds on previous learning and provides both support and challenge for learners. We follow the Barefoot Computing scheme that ensures a progression of skills and covers all aspects of the Computing curriculum.

We want to ensure that Computing is embedded in our whole school curriculum and that opportunities for enhancing learning by using technology are always taken. Therefore, classes will not necessarily have a scheduled Computing lesson each week but will be taught Computing alongside other curriculum subjects.

Furthermore, on Friday afternoons, our school has whole school STEM afternoons, whereby pupils can explore, develop and create within their computing curriculum. We may also have computing immersion days whereby children can focus on a particular set of skills and knowledge for a particular concept.

Children's work will be stored on office 365 for reference and assessment. Staff constantly look at and review pupils' work, especially over time as they gain skills and knowledge, spending time talking to them about what they know.

Impact – what progress will children make?

Our children enjoy and value Computing and know why they are doing things, not just how. From our whole school spelling bees on *Microsoft Teams* to our termly student subject seminars whereby children use *power-point* to present their knowledge of a subject. Children will understand and appreciate the value of Computing in the context of their personal wellbeing and the technological, creative and cultural industries and their many career opportunities.

Progress in Computing is demonstrated through regularly reviewing and scrutinising children's work, to ensure that progression of skills is taking place. Progress will be shown through outcomes and through the important record of the process leading to them.

The Computing curriculum will contribute to children's personal development in creativity, independence, judgement and self-reflection. This would be seen in them being able to talk confidently about their work, and sharing their work with others.

The Computational Thinkers

Subject knowledge

Concepts

- Logic**
Predicting and analysing
- Evaluation**
Making judgements
- Algorithms**
Making steps and rules
- Patterns**
Spotting and using similarities
- Decomposition**
Breaking down into parts
- Abstraction**
Removing unnecessary detail



Skills and behaviours

Approaches

- Tinkering**
Changing things to see what happens
- Creating**
Designing and making
- Debugging**
Finding and fixing errors
- Persevering**
Keeping going
- Collaborating**
Working together

We're all computational thinkers here!



When you think about it, whether we're parents, pupils or teachers - we're all natural computer scientists, capable of computational thinking.

barefootcomputing.org

Principal partners
BT Computing at School

Barefoot


Squirrel Class Progression of Skills


	Year 1
Online Safety and Digital Literacy	<ul style="list-style-type: none"> • Know that the internet is accessed all over the world and know which devices are connected to the internet. • Know that they should always ask a responsible adult if they want to use a device.
Information Technology	<p>Know how to log onto a computer</p> <ul style="list-style-type: none"> • Know how to navigate around the screen with a mouse • Know how to type text using space bar for separate words to create something meaningful • Know how to independently find and open an app on a tablet
Computer Science	<ul style="list-style-type: none"> • Know which button on a device represents which action e.g. Bee Bot • Know how to program a robot to follow simple sequence of instructions (1- 2 turns) • Know how to make simple predications about an algorithm and a program. The Bee Bot will go.... • Know how to change (debug) the program to improve the route
	Year 2
Online Safety and Digital Literacy	<ul style="list-style-type: none"> • Know devices that enable direct communication between people through images and text. • Know what personal information is and that they should never share this with anyone they <u>don't</u> know. • Know that they should tell a trusted adult if they are upset or worried about anything on a device.
Information Technology	<ul style="list-style-type: none"> • Know how to save, <u>retrieve</u> and print work • Know how to type and format text including basic punctuation and capital letters • Know how to confidently use pointing device • Know how to add simple images • Know how to combine simple text and graphics, for instance create a poster for a purpose.
Computer Science	<ul style="list-style-type: none"> • Know how to program a robot to achieve set goal (sequence of 6-7 instructions: maze, point collecting) • Begin to use block programming e.g. Scratch Junior (Alex, Daisy Dino) to complete a simple program. • Know how to debug more complex problems • e.g. a route on a Bee Bot / Blue Bot / Alex / Logo etc... maze.

Otter Class Progression of Skills

	Year 3
Online Safety and Digital Literacy	<ul style="list-style-type: none"> • Know that some people on the internet should not be trusted • Know that concerns about what they see on-line should be reported to a trusted adult • Use a simple password • Use a Search engine to find information given key words • Know which websites are useful • Know how to log in and out of websites used at school
Information Technology	<ul style="list-style-type: none"> • Know how to log in to computer system as themselves and can find their documents (personal drive) • Know how to open shared documents and pictures. • Know how to use software to create a simple brochure or poster. Publisher or Pages • Know how to sequence and add to slides to make a simple presentation Keynote, <u>Powerpoint</u>, iMovie • Create a meaningful document that contains both pictures and text
Computer Science	<ul style="list-style-type: none"> • Know how to use a block program (Scratch Jun, Scratch, <u>Microbit Blocks</u>) to make a simple programme using sequencing and timing. • Inputs sets of instructions according to programming language and environment (Logo, Scratch Junr, <u>Microbit etc..</u>) • Use a program Logo or Scratch to draw regular 2D shapes • Independently know how to debug basic mistakes • Begin to use conditionals – If I click here then this happens... Scratch Junior, Scratch, <u>Microbit</u>
	Year 4
Online Safety and Digital Literacy	<ul style="list-style-type: none"> • Know that pictures and text share on-line can end up with strangers • Reliably know what to do if they are exposed to unpleasant materials on any device • Reliably uses a more complex password to access resources. • Know what the key words are to <u>enter into</u> a Search engine to find information they want. • Can select useful websites from the results of a search. •
Information Technology	<ul style="list-style-type: none"> • Know how to save a document in a shared folder and retrieve this to continue working on it. Computer. On an iPad work could be shared by Airdrop or equivalent. • Know how to organise their personal folder effectively for instance by organising work into folders for each year at school • Know how to change font size and style; include shapes and backgrounds and to use the Spellcheck function • Know how to use sequence to create an effective presentation or video Keynote, <u>Powerpoint</u> or iMovie. • Know how to deliver a simple presentation to their peers
Computer Science	<ul style="list-style-type: none"> • Know how to use a program to sequence, use conditionals and use a variety of inputs and outputs (Logo/Scratch). • Know how to explain how their program works • Know how to modify their program and know how to predict the effects of any changes • Know how to break sets of instructions into short steps to achieve goal. For <u>instance</u> drawing repeated squares to make a pattern,

Badger Class Progression of Skills

	Year 5
Online Safety and Digital Literacy	<ul style="list-style-type: none"> • Know the risks posed to them by using Social Media, including understanding that people may not be who they say they are. • Know that it is irresponsible to share images of friends on-line without their permission. • Know how to report concerns on-line. • Effectively use a search engine to find multiple criteria using AND/OR to refine searches • Know how to compare information from different websites and know that some sites may show bias
Information Technology	<ul style="list-style-type: none"> • Know how to share their work from their personal folder to work collaboratively with others. • Know how to use software to create an effective poster or leaflet. • Know how to select the best program for the task. • Using software know how to add data into a prepared spreadsheet to answer simple questions. For <u>instance</u> using Excel • Independently, prepare an effective presentation to show their learning to others which includes some elements of timing or sequence. For <u>instance</u> in Keynote, <u>Powerpoint</u>, iMovie
Computer Science	<ul style="list-style-type: none"> • Use customisation to change a working program to change its effect (backgrounds and sprite in scratch) • Uses loops to achieve goals (Scratch – shapes, letters) • Uses variables, conditional sentences (when/then), external triggers and loops to achieve set goals (creating game in Scratch, an <u>interactive slides</u> in <u>Powerpoint</u> or Keynote for instance to create an interactive story)

	Year 6
Online Safety and Digital Literacy	<ul style="list-style-type: none"> • Know how to reduce the risks posed by using Social Media by managing their friends lists and privacy settings. • Know that it is illegal to post or view 'rude' images of children. • Know that hacking or misusing someone else's account is illegal. • Know that search results can be manipulated by sponsorship and advertising. • Know how to validate information found through searches by checking more than one source. • Know that some news is 'fake.'
Information Technology	<ul style="list-style-type: none"> • Know how to use the main features of office software to produce suitable documents and presentations for an audience. Microsoft Office or Apple suite or equivalent. • Know how to edit a picture. For <u>instance</u> in Paint.net • Know how to create a simple formula in a spreadsheet to work out given mathematical tasks such as adding a set of numbers. • to create and sequence a video, add sound effects, <u>transitions</u> and title/subtitles. iMovie – much harder in Windows software. • Know how to use two or more programmes to create a final piece of work. (eg, edit a picture before inserting into a document).
Computer Science	<ul style="list-style-type: none"> • Use conditional sentences (when/then) to program objects (Kodu, Scratch) • As above but use mathematical expressions when constructing conditionals eg trigger winning when (If loops >5 then...) • Know how to explain what a program might do and accurately predict the effect of changes



Computing CPD for Staff

As a school, we are active members of *Barefoot computing*, *STEM* and *Teach computing*. This ensures that not only are our staff equipped with up to date computing curriculum knowledge, but that they have access to high quality resources to support teaching and learning.

Teach Computing



The National Centre for Computing Education is funded by the Department for Education and marks a significant investment in improving the provision of computing education in England.

Run by a consortium made up of STEM Learning, the Raspberry Pi Foundation and BCS, The Chartered Institute for IT, our vision is to achieve a world-leading computing education for every child in England.

We provide high-quality support for the teaching of computing in schools and colleges, from Key Stage 1 through to A level. Our extensive range of training, resources and support covers elements of the curriculum at every Key Stage, catering for all levels of subject knowledge and experience.

STEM learning

<https://www.stem.org.uk/primary-computing-resources>



Teaching resources to develop an understanding of the computing curriculum, helping children to become creative, confident and safe. ALGORITHMS, DATA, DIGITAL LITERACY, INFORMATION TECHNOLOGY, PROGRAMMING

Barefoot Computing

<https://www.barefootcomputing.org/>



Developed by teachers and backed by research, Barefoot helps boosts primary teachers' subject knowledge, saves them time and brings computing to life in the classroom

Barefoot empowers primary school teachers across the UK to deliver the computing curriculum brilliantly with free workshops, helpful online guides and engaging lessons.

Barefoot is on the side of teachers; helping them inspire pupils to think, learn and thrive in a digital world. Barefoot was set up in 2014 to prepare primary school teachers for the changing computing curriculum by BCS, The Chartered Institute of IT and their Computing at School network, with funding from **The Department for Education**.