Beech Hill School
Computing Policy

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Introduction

This document is a statement of the aims, principles and strategies for the teaching, learning and assessment of Computing at Beech Hill School.

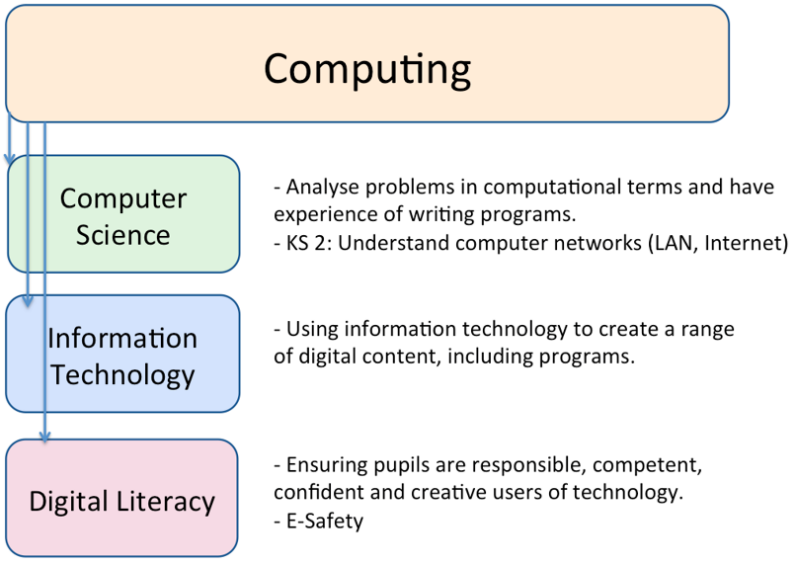
Intent

Each pupil at Beech Hill School has the right to a wealth of rich, deep learning experiences within the subject area of computing. As technology plays such a significant role in society today, we believe 'Computational Thinking' is a skill that children must be taught if they are to be able to participate safely and effectively in this digital world. The core of computing is Computer Science alongside basic skills. Pupils are introduced to a wide range of technology, including desktop computers, iPads, BeeBots, Code-a-Pillars, Crumble kits and interactive whiteboards, allowing them to continually practise and improve the skills they learn. This ensures they become digitally literate so that they are able to express themselves and develop their ideas through information and computer technology at a level suitable for their next step into high school and the future workplace as active participants in a digital world.

We teach a curriculum that enables children to become confident users of technology who can:

- Understand and apply the fundamental principles and concepts of Computer Science, including logic, algorithms and data representation
- Analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- Evaluate and apply information technology analytically to solve problems
- Communicate ideas well by utilising appliances and devices throughout all areas of the curriculum.
- Have the basic skills needed to be computer literate in an ever developing digital world

The Computing national curriculum is made up of 3 main components and is broken down into three elements- Computer Science, Information Technology and Digital Literacy.



Children access these components by using various skills, which are outlined in the skills progression document. Children also need to be computational thinkers to be successful computer scientists- the skills needed to be a computational thinker are outlined below.

Our Aims

Through our teaching of computing, we aim to enable the children to become confident users of technology who can:

- Understand and apply the fundamental principles and concepts of Computer Science, including logic, algorithms and data representation
- Analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- Evaluate and apply information technology analytically to solve problems
- Communicate ideas well by utilising appliances and devices throughout all areas of the curriculum.
- Have the basic skills needed to be computer literate in an ever developing digital world

Implementation:

Planning

Computing is planned and sequenced in a curriculum designed specifically for our children. Code a Pillars, Beebots, Daisy the Dinosaur, Scratch Junior and Purple Mash are used for programming in KS1 and move on to using Scratch and Crumble in KS2.

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Y1	COMPUTING SUITE Digital Literacy- Introduction to computing	COMPUTING SUITE Digital Literacy- Online safety Purple Mash Unit 1.1	CLASS BASED Computer Science Programming Mazes Purple Mash Unit 1.5 Code a pillars	CLASS BASED Computer Science Coding Purple Mash Unit 1.7 (Only lessons 1-4) Begin using Daisy the Dinosaur on iPads	COMPUTING SUITE Digital Literacy- Technology beyond school Purple Mash Unit 1.9 Microsoft Word	CLASS BASED Information Technology Animated stories Purple Mash Unit 1.6
Y2	COMPUTING SUITE Digital Literacy- Online Safety- inc. recap on basic skills Inc. Word and Purple Mash Digital Literacy- Information Technology Making Music Purple Mash Unit 2.7	CLASS BASED Computer Science Programming (Algorithms) Barefoot coding activities Code-a-Pillar Beebot	COMPUTING SUITE Computer Science Programming Purple Mash Unit 2.1 Coding	COMPUTING SUITE Digital Literacy- Touch typing 3 weeks COMPUTING SUITE Digital Literacy- Information Technology Effective Searching- 3 weeks	CLASS BASED Computer Science Scratch jr- iPads unit (Y1 Twinkl unit to be adapted if needed)	CLASS BASED Computer Science Jam sandwich algorithm activity to tie in with Grant Jam Sandwich. Digital Literacy Information Technology 2Count and 2Graph Use 2Count and 2Graph in maths to support statistics
Y3	COMPUTING SUITE Digital Literacy- Online Safety Purple Mash unit 3.2 (3 lessons) Touch typing 3 weeks	COMPUTING SUITE Computer Science Programming Purple Mash Y3 Coding Crash Course	CLASS BASED- on iPads Information Technology Branching Databases Purple Mash Unit 3.6	COMPUTING SUITE Digital Literacy Information Technology Email Purple Mash Unit 3.5	COMPUTING SUITE Computer Science Programming- Scratch 3	COMPUTING SUITE Computer Science Programming- Scratch 3- continuation of unit Computer Science Digital Literacy Networks- Year 3
Y4	CLASS BASED- on iPads Digital Literacy- Online Safety Purple Mash unit 4.2	COMPUTING SUITE Information Technology Effective searching Purple Mash unit 4.7 Plus extra lessons	COMPUTING SUITE Information Technology Animation Purple Mash unit 4.6 followed by stop motion work on iPads	CLASS BASED- on iPads Computer Science Digital Literacy Networks- Y4	COMPUTING SUITE Information Technology Spreadsheets Purple Mash unit 4.3 Begin on Purple Mash and move to Excel	COMPUTING SUITE Computer Science Programming Scratch 3-Crab Maze Smiking Car
Y5	CLASS BASED- on iPads Digital Literacy- Online Safety Purple Mash unit 5.2 *If time- iPad apps to enhance topic lessons, Thinglink, Adobe Spark*	COMPUTING SUITE Computer Science Programming Scratch 3- Simulate physical systems	COMPUTING SUITE Information Technology Animation Powerpoint animation of the phases of the moon	CLASS BASED- on iPads Information Technology Concept maps Purple Mash unit 5.7	COMPUTING SUITE Information Technology Spreadsheets Twinkl unit	COMPUTING SUITE Computer Science Digital Literacy Networks- Y5
Y6	COMPUTING SUITE Digital Literacy- Online Safety Purple Mash unit 6.2	CLASS BASED- Information Technology Blogging Purple Mash unit 6.4	COMPUTING SUITE Computer Science Programming Scratch 3- Create your own game	COMPUTING SUITE Computer Science Digital Literacy Networks- HTML	CLASS BASED- on iPads Computer Science Digital Literacy Music- Busy Beats	COMPUTING SUITE (am) Computer Science Programming Crumble project- goal line technology

Computing is taught mainly as a standalone subject, however, links are made with other curriculum areas where possible. Children have a weekly computing lesson. Sometimes these lessons will take place in the computer suite and other times they will be in the classroom either using iPads, laptops, netbooks, Beebots, Code-a-pillars or doing 'unplugged' activities. There is a half termly timetable created each half term to indicate when each class are in the computing suite.

Computing Suite Timetable Autumn Term 1

	RWI	9.00-10.30		10.45-12.15		1.10pm-2.10pm	2.10pm-3.10pm
Monday			Break		Lunch	Year 1	
Tuesday		Foundation Stage (9.50-10.30)				Year 2	
Wednesday		Foundation Stage (9.50-10.30)				Year 6	
Thursday		Foundation Stage (9.50-10.30)		Free to book		Year 3	
Friday		Free to book		Free to book		Friday Afternoon Club	

Year 4 and 5 to complete units based in classrooms this half term

Children's work is evidenced and saved in one of 3 places-

- Purple Mash- children have their own accounts and their work on Purple Mash is saved in there
- Group Shared- Children have their own named folders in Group Shared drive on the school system. Any Office documents and Scratch files will be saved in here
- Seesaw- Children have their own folders in Seesaw that move with them year on year. Photos, screenshots and self-assessments will be saved in the computing folder on here

Resources

All computing resources are stored centrally in the cupboard in the computing suite. Each class has a minimum of ten iPads to use. Sets of laptops and Chromebook can be booked out by teachers to use with their class. Electronic toys including Beebots and code-a-pillars are used in computing sessions and in provision in EYFS and year one.

Computing curriculum planning

To support our computing teaching in school, we use 'Must Knows' to help children understand key facts about their computing topic. Key vocabulary is also displayed on the 'Must Knows' to work alongside our whole school focus on developing our children's vocabulary across the subjects. These are shared with children at the beginning of the unit and are saved on Seesaw so that they can be referred to as they go along.

Inclusion:

Each child will be given the same opportunities regardless of ethnic group, age, gender, ability, social circumstances or SEND in the development of their computing education. Lessons are differentiated to extend children who are working at a greater depth or higher ability in computing. There is also a coding club, which will be aimed at children in KS2 who are high attaining in programming. Teachers are able to look at Crash Courses on Purple Mash to give to children who have missed previous teaching in particular units or need extra support. Lessons are adaptable and can be changed to suit the ability of the children in the classes. Lessons can be differentiated by outcome, support or with crash courses. The skills document can also be used to help differentiate- lessons can be adapted to teach the skills relevant to the specific children that require differentiation.

Assessment for learning

Children demonstrate their ability in computing in a variety of different ways and teachers assess accordingly. Teachers will assess children's work by making informal judgements during lessons to move forward each individual child's learning. On completion of a piece of work, the teacher assesses the saved work on purple mash and uses this to inform future planning. Written or verbal feedback is given to the child to help guide their progress. All children are encouraged to make judgements about how they can improve their own work. Once the children complete a whole unit of work, the teacher makes a summary judgement of work for each child in relation to the National curriculum objectives on Target tracker.

The progression of skills document in computing is used as a tool for teaching and assessment. The progression of skills document ensures that teachers are able to

understand what has been previously been taught, what they need to teach in their year group and what will be taught next. It is also a tool for identifying any gaps in pupils' learning and allows teachers to plan for this effectively.

Monitoring and reviewing

The subject leader is responsible for monitoring the standard of the children's work and quality of teaching in computing, developing the assessment and ensuring progression and continuity within the subject. This is carried out through a combination of deep dives with SLT, monitoring of online folders and folders on the drive, learning walks, lesson visits and speaking to children and teachers. Additionally, the subject leader will support colleagues in their teaching, inform staff of any current developments in the subject and provide lead and direction for computing across school. The subject leader updates resources which are needed to deliver the computing curriculum, within budget restraints. There will be at least one deep dive per year in computing, where children's work is looked at in depth and some lessons will be observed.

Impact

Assessment and Feedback

Target Tracker is used to assess children against the statements. See **appendix 1** for the breakdown of where the statements come in each band. The children will also complete regular self-assessment and peer assessments using Word and on Seesaw. This also helps with their basic typing and word processing skills. Assessment is ongoing and will be updated on Target Tracker throughout the year after each unit is completed using the Tracker statements assessments.

Appendix 1

Computing Assessment using Target Tracker

Assessment in computing is done using Target Tracker, Each statement below will be covered in the scheme of work for each year group. The smiley faces indicate how many times each statement is covered in the year.

Year 1 assessment.

The coding objectives are covered twice over the course of the year. This is because they need revisiting to make sure that they have grasped the concepts of algorithms and predicting the behaviour of programs. The online safety objective doesn't quite match up with the unit- please just assess based on the objective in the long term plan.

Band 1 (5 statements)			
Computers Recognise common uses of information technology in the home and school environment	Using Computer Use technology purposefully to create digital content	E-Safety Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies	Coding Predict the behaviour of simple programs
Coding Understand what algorithms are and how they are implemented on digital devices			

Year 2 assessment.

The coding objectives in year 2 are covered three times over the course of the year. This is because they are covered in different ways and with different programs, once with physical computing. Again they need revisiting to make sure that they have grasped the concepts of algorithms, debugging, using logical reasoning and predicting the behaviour of programs.

Band 2 (9 statements)			
Computers Recognise common uses of information technology beyond school	Using Computer Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Using Computer Use technology purposefully to create digital content comparing the benefits of different programs	E-Safety Use technology safely and keep personal information private
Coding Use logical reasoning to predict the behaviour of simple programs	Coding Create simple programs	Coding Create and debug simple programs	Coding Debug simple programs by using logical reasoning to predict the actions instructed by the code
Coding Understand that programs execute by following precise and unambiguous instructions			

Year 3 assessment

The search technologies objectives in band 3 are covered in year 2 and year 4.

Band 3 (11 statements)			
Computers Recognise familiar forms of input and output devices and how they are used Ongoing throughout the year	Computers Make efficient use of familiar forms of input and output devices Ongoing throughout the year	Networks Understand that computer networks enable the sharing of data and information	Networks Understand that the internet is a large network of computers and that information can be shared between computers
Using Computer With support select and use a variety of software to accomplish goals	E-Safety Use technology safely and respectfully, keeping personal information private	E-Safety Use technology safely and recognise acceptable and unacceptable behaviour	Net Searching Use simple search technologies Year
Net Searching Use simple search technologies and recognise that some sources are more reliable than others Year	Coding Design, write and debug programs that control or simulate virtual events	Coding Use logical reasoning to explain how some simple algorithms work	

Year 4 assessment

Two objectives in band 4 are to be assessed in Y5

Band 4 (10 statements)			
Computers Use other input devices such as cameras or sensors Year 5/6	Networks Understand what servers are and how they provide services to a network	Using Computer With support select and use a variety of software on a range of digital devices Ongoing throughout the year	Using Computer With support select, use and combine a variety of software on a range of digital devices to accomplish given goals
E-Safety Use technology responsibly and understand that communication online may be seen by others	E-Safety Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies	Net Searching Understand how results are selected and ranked by search engines Year	Coding Decompose programs into smaller parts
Coding Use logical reasoning to detect and correct errors in algorithms and programs	Coding Select, use and combine a variety of software, systems and content that accomplish given goals		

Year 5 assessment

The objective labelled 'moon animation' is a makeshift way of assessing the animation unit.

Band 5 (11 statements)			
Networks Begin to use internet services to share and transfer data to a third party	Using Computer Independently select and use appropriate software for a task	Using Computer Independently select, use and combine a variety of software to design and create content for a given audience	E-Safety Understand the need to only select age appropriate content
Net Searching Use filters in search technologies effectively Year	Net Searching Use filters in search technologies effectively and appreciates how results are selected and ranked Year	Coding Design, input and test an increasingly complex set of instructions to a program or device Moon animation	Coding Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems
Coding Design, write and test simple programs that follow a sequence of instructions or allow a set of instructions to be repeated	Coding Design write and test simple programs with opportunities for selection, where a particular result will happen based on actions or situations controlled by the user	Coding Use logical reasoning to explain how increasingly complex algorithms work to ensure a program's efficiency	

Year 6 assessment

All statements are covered in year 6 units. The net searching objectives will be covered as part of extra lessons that follow on from the online safety unit.

Band 6 (14 statements)			
Networks Understand how computer networks enable computers to communicate and collaborate	Networks Begin to use internet services within his/her own creations to share and transfer data to a third party	Using Computer Independently select, use and combine a variety of software to design and create content for a given audience, including collecting, analysing, evaluating and presenting data and information	Using Computer Design and create a range of programs, systems and content for a given audience
Using Computer Independently select, use and combine a variety of software to collect, analyse, evaluate and present data and information	E-Safety Use technology respectfully and responsibly	E-Safety Identify a range of ways to report concerns about content and contact in and out of school	Net Searching Be discerning when evaluating digital content
Net Searching Use filters in search technologies effectively and is discerning when evaluating digital content	Coding Include use of sequences, selection and repetition with the hardware used to explore real world systems	Coding Solves problems by decomposing them into smaller parts	Coding Create programs which use variables
Coding Use variables, sequence, selection, and repetition in programs	Coding Use logical reasoning to explain how increasingly complex algorithms work and to detect and correct errors in algorithms and programs efficiently		