Computing Policy

SEPTEMBER 2023 - 2024

CAPTAIN WEBB PRIMARY SCHOOL

Policy Statement January 2024

Introduction

The use of computers and computer systems is a key life skill and integral to the future success of the children in our school. In an increasingly digital world, there now exists a wealth of software, tools and technologies that can be used to communicate, collaborate, express ideas and create digital content. At Captain Webb Primary School, we recognise that pupils are entitled to a broad and balanced computing education of structured and progressive knowledge and skills, that are delivered as part of the National Curriculum, in order to be able to succeed in the many areas of life in which these are essential. Our children learn how computer systems and networks work, how to use information technology creatively and purposefully, how to be digitally literate and how to participate fully in the modern world safely and positively, leading into how we can use this knowledge in later life experiences. The purpose of this policy is to state how the school intends to provide this provision.

Aims

Our objective at Captain Webb Primary School is for our children to develop a wealth of experience in a range of computing tools so that they can use technology fluently to solve problems, communicate and be creative. We improve our children's cultural capital by including a range of real-life scenarios in our curriculum where technology is used to benefit not only themselves but also the wider world, provide extra-curricular opportunities and organise presentations by industry leading experts.

The school's aims are to:

- Provide a broad, balanced, challenging and enjoyable curriculum for all pupils;
- Develop pupil's computational thinking skills that will benefit them throughout their lives;
- Meet the requirements of the national curriculum programmes of study for Computing at Key Stage 1 and 2, with progression beginning in EYFS;
- To respond to new developments in technology;
- To equip pupils with the confidence and skills to select and use digital tools and technologies for any given task or challenge;
- To enhance and enrich learning in other areas of the curriculum using IT and computing;
- To develop the understanding of how to use computers and digital tools safely and responsibly.

The school believes that IT, computer science and digital literacy:

- are essential life skills necessary to fully participate in the modern digital world.
- allows children to become creators of digital content rather than simply consumers of it.
- provides access to a rich and varied source of information and content.
- communicates and presents information in new ways, which helps pupils understand, access and use it more readily.
- can motivate and enthuse pupils.
- offers opportunities for communication and collaboration through group working

- has the flexibility to meet the individual needs and abilities of each pupil.

Teaching and Learning of Computing

The National Curriculum for Computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

Computing is taught at Captain Webb Primary School as an area of learning, as well as being integrated, where appropriate, with other curriculum areas. We have implemented a curriculum where pupils from the age of 2 to the age of 11 not only enjoy but also experience a range of activities that broaden their knowledge and understanding.
Computing consists of one unit per half term, which is either taught in a weekly lesson or as 'Computing Days', where children are able to immerse themselves in the progression of knowledge and skills of a particular area of learning and apply them within a given context.

The key knowledge and skills of each topic are mapped across each year group. This ensures that children develop their knowledge of computer systems and networks, various forms of digital media, data and information, and programming, progressively throughout the whole school. The skills in these areas are also developed systematically, with the programme of study for each year group building on previous learning and preparing for subsequent years. Knowledge and skills are informed and linked to enable achievement of key stage end points, as informed by the 2014 National Curriculum.

Throughout the Computing units taught in each year group, children learn to use and express themselves and develop their ideas. For example, when writing and presenting with desktop publishing or exploring art and design using digital media. Children develop practical skills in the safe use of computers and the internet, and the ability to apply these skills to real-life scenarios. For example, understanding safe use of social media, computer networks and email. We teach children to understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation. Children are also taught to analyse problems in computational terms and have repeated practical and progressive experience of writing computer programs to solve such problems. We also teach a progression of computing vocabulary to support children in the development of their computing knowledge.

Online safety is taught broadly and regularly at Captain Webb Primary School. We understand that Online Safety concerns not only digital tools and spaces, but also behaviour. Where appropriate, Online Safety is taught within Computing lessons. For example, when children learn about computer systems and networks, they learn about the importance of how data on networks can be copied and shared, and the importance of securing data on networks. In addition, Online Safety is taught during PSHE lessons. For example, when children learn about bullying, cyber bullying is included in context.

Children are also taught Online Safety during a blocked 'Online Safety Week', where the eight strands of 'Education for a Connected World' (self-image and identity, online relationships, online reputation, online bullying, managing online information, health well-being and lifestyle, privacy and security, copyright and ownership) are taught in depth to key phases across the whole school. The evaluated impact of 'Online Safety Week' is used to direct further opportunities to develop our children's knowledge and understanding of Online Safety, such as additional PSHE lessons, assemblies delivered by online agencies and targeted displays.

Approaches and strategies used may include:

- an 'unplugged' approach in order to develop their understanding of some of the underlying concepts of Computer Science
- 'plugged' activities which allow pupils to practise and demonstrate their levels of understanding.
- using presentation technology to demonstrate something to a group of pupils or the whole class
- leading a group or class discussion about the benefits and risks of technology
- individual or paired work
- collaborative group work
- pupil led demonstrations / peer mentoring. NB - Where one pupil is used to demonstrate or teach a skill to others, the teacher must feel confident that this is of benefit to all those involved.
- differentiated activities planned to allow different levels of achievement by pupils or to incorporate possibilities for extension work.
- teacher intervention where appropriate to support a pupil, reinforce an idea, teach a new point or challenge pupils' thinking.
- the use of the PRIMM teaching method (PRIMM stands for Predict, Run, Investigate, Modify and Make. Using PRIMM, classroom activities can be designed that involve predicting the outcome of code, code comprehension and then gradually making new programmes.

Programmes of Study - EYFS

It is important in the foundation stage to give children a broad, play-based experience of IT and computing in a range of contexts, including off-computer activities and outdoor play. Children are encouraged through computational thinking, which equip learners with skills to tackle challenging problems using logical reasoning.

Computing is not just about computers. Early years learning environments should feature IT scenarios based on experience in the real world, such as in role play. Children gain confidence, control and language skills through opportunities such as 'programming' each other using directional language to find toys/objects, creating artwork using digital drawing tools and controlling programmable toys.

Outdoor exploration is an important aspect and using digital recording devices such as video recorders, cameras and microphones can support children in developing communication skills. This is particularly beneficial for children who have English as an additional language.

In EYFS pupils are taught to:

- Give commands/instructions e.g. forward, backwards, go, stop, when using simple software/hardware
- Make choices about the buttons/icons to press, touch or click on when using simple software/hardware
- Manage a device by correctly closing websites or apps and safely turning on and off.
- Input commands using the space bar, backspace, enter, letters and numbers on a keyboard on any device (including on a tablet).
- Input commands using a mouse to control a cursor and use the left click to select options OR use finger control to interact with a tablet (double tap, swipe)
- Experience simple apps and software and use these to present ideas

In addition to our Online Safety curriculum (Education for a Connected World), pupils...

- Recognise technology that is used at home and in school.
- Understand what a computer is and the different uses of computers i.e. learning, communicating, finding information, playing games etc.

Programmes of Study – Key Stage 1

By the end of key stage 1 pupils are taught to:

- understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following a sequence of instructions;
- create and debug simple programs;
- use logical reasoning to predict the behaviour of simple programs ;
- use technology purposefully to create, organise, store, manipulate and retrieve digital content;
- recognise common uses of information technology beyond school;
- use technology safely and respectfully, keeping personal information private, identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.
- children are encouraged through computational thinking, which equip learners with skills to tackle challenging problems using logical reasoning.

Programmes of Study – Key Stage 2

By the end of key stage 2 pupils are taught to:

- design and write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts;
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output;
- use logical reasoning to explain how a simple algorithm works and to detect and correct errors in algorithms and programs;
- understand computer networks including the internet; how they can provide multiple services, such as the world-wide web; and the opportunities they offer for communication and collaboration;
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content;
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information;
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Planning

In EYFS, Computing planning follows the learning objectives set out above, in addition to learning objectives in Education for a Connected World. Planning in both Key Stage 1 and 2 follows the National Curriculum 2014. The Computing Coordinator has planned and developed lessons for all year groups using the 'Teach Computing' scheme of work from the National Centre for Computing Education, to ensure full coverage of curriculum requirements, scaffolding/adaptive teaching and progression. Knowledge and skills are at the heart of our planning and the Computing Coordinator ensures these are built upon and revisited each year to ensure learning is sustained and embedded.

Below is an overview* of the units that are taught in Key Stages 1 and 2:

	Computer Networks and Systems	Creating Media	Programming	Data and Information	Creating Media	Programming
Year 1	Technology around us	Digital painting	Moving a robot	Grouping data	Digital writing	Introduction to animation
Year 2	IT around us	Digital photography	Robot algorithms	Pictograms	Making music	An introduction to quizzes
Year 3	Connecting computers	Animation	Sequence in music	Branching databases	Desktop publishing	Events and actions
Year 4	The internet	Audio editing	Repetition in shapes	Data logging	Photo editing	Repetition in games
Year 5	Sharing information	Vector drawing	Selection in physical computing	Flat-field databases	Video editing	Selection in quizzes
Year 6	Communication	3D modelling	Variables in games	Spreadsheets	Web page creation	Sensing

*This overview is ideal but can change to support cross curricular links within a year group. Please see explicit overview for the academic year.

Cross – Curricular Links

At Captain Webb Primary School we make use of cross-curricular links in Computing as we understand that learning context is important for retention of knowledge, application of skills and motivation towards given activities. Where appropriate, tasks and challenges that are planned in computing units are adapted to match learning that is taking place in themed topics. Some areas of the Computing curriculum form strong curricular links with core subjects. For example, when children learn how to sort, organise and analyse data, there are strong cross-curricular links with Maths. When children are given a purpose for digital writing or publishing, they use knowledge gained in themed topics for their purpose. When it is not appropriate to link learning to a themed topic, for example when children learn about computer networks and systems, Computing is taught discretely. We encourage the application of age-related Computing knowledge and skills that children have learnt to be applied across all areas of the curriculum where appropriate.

Assessment

Teachers regularly assess progress through observations and evidence of learning outcomes. Key objectives to be assessed are taken from the National Curriculum. Assessing computing is an integral part of teaching and learning and key to good practice.

Assessment should be process orientated - reviewing the way that knowledge and skills are applied purposefully by pupils to demonstrate their understanding of computing concepts. As assessment is part of the learning process, it is essential that pupils are closely involved. Assessment can be broken down into;

- Formative assessments - are carried out during and following short, focused tasks and activities. They provide pupils and teaching staff the opportunity to reflect on their learning in the context of the agreed success criteria. This feeds into planning for the next lesson or activity. This is recorded on children's learning label in books during or after each lesson. Structured reflections (see assessment policy) may be used to show a child has been given support or extended in their learning.
- Summative assessment should review pupils' ability and provide a best fit 'level'. Independent tasks provide a number of opportunities and scope for pupils to demonstrate their capability throughout a teaching unit. Summative assessment in Computing units are conducted either through hot tests or rubrics. A 'Hot Test' will show children's knowledge at the end of a knowledge-based unit of work. Summative assessment can also take the form of an assessment rubric of children's final pieces of work in units where children apply the knowledge they have acquired. When using a rubric, each aspect of a final piece is given a descriptor for either 'Emerging' (Working Towards ARE), 'Expected' (ARE) and 'Exceeding' (Greater Depth).

We assess the children's work in computing by making judgments as we observe the children during lessons. Once the children complete a unit of work, we make a summary judgment of the work for each pupil as to whether they have yet to obtain, obtained or exceeded the expectations of the unit. Our computing curriculum is made up of unplugged and plugged activities, some of which will be in theme books, and some of which will be evidenced electronically. As a school, we use SeeSaw to provide evidence of plugged activities, where children can annotate screenshots of their work, the teacher can provide feedback on directly and the children can respond to feedback.

Equal Opportunities

Refer to SEND, Inclusion and Equal Opportunities policies.

At Captain Webb Primary School we ensure that all children have access to our Computing curriculum:

- Resources that are used from the Teach Computing website in school are created using dyslexia friendly fonts.
- School's teaching sequence involves both plugged and unplugged activities and pictorial representations before moving onto application of knowledge.
- A range of hardware is available to ensure that all children are able to clearly see and use equipment. Including accessibility tools that are shown to the children if they need them (such as screen reader and magnifier aids).
- A range of pedagogical approaches are used to ensure that all children receive the appropriate level of support, this includes the use of visual aids and using the PRIMM approach to programming further up the school.
- Activities both within and outside the classroom are planned in a way that encourages full and active participation by all children, matched to their knowledge, understanding and previous experience. Collaboration and hands on activities are used throughout both key stages to encourage participation by all.
- Children have equal opportunities to develop their understanding and enjoyment of Computing regardless of race, gender and ability.

- Equal emphasis will be given to the roles of both girls and boys in Computing. Every effort will be made to ensure that activities are equally interesting to both genders.
- School ensures that children are exposed to a representation of a diverse range of figures in computing, sending a powerful message to learners about opportunities in the future for all.
- Teachers ensure that the curriculum is appropriate for the needs of the children through adaptive teaching and scaffolded learning.
- We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language.
- Where a child's progress falls significantly outside the expected range, they are provided with an Individual Provision Map (PM). This (PM) is taken into account in enabling children with special educational needs to access and engage with the Computing curriculum.
- Factors such as classroom organisation, teaching materials, teaching style and adaptive teaching are taken into account to enable the child to learn more effectively.
- Teachers refer to the 'Whole School SEND Teacher Handbook' found at https://www.wholeschoolsend.org.uk/resources/teacher-handbook-send

Health and Safety

The school is aware of the health and safety issues involved in children's use of ICT and computing. An electrical inspection is carried out in school and portable electrical equipment in school is tested regularly. It is advised that staff should not bring their own electrical equipment into school but if this is necessary, then the equipment must be PAT tested before being used in school. This also applies to any equipment brought in to school by, for example, people running workshops, activities, etc. and it is the responsibility of the member of staff organising the workshop, etc. to advise those people. All staff should visually check electrical equipment before they use it and take any damaged equipment out of use. Damaged equipment should then be reported to the computing technicians.

- children should not put plugs into sockets or switch the sockets on.
- trailing leads should be made safe behind the equipment
- liquids must not be taken near the computers
- e-safety guidelines will be set out in the e-safety policy & AUP

Resources and Access

The school acknowledges the need to continually maintain, update and develop its resources and to make progress towards consistent, compatible computer systems by investing in resources that will effectively deliver the objectives of the National Curriculum and support the use of IT, computer science and digital literacy across the school. Teachers are required to inform the computing subject leader of any faults as soon as they are noticed. Resources if not classroom based are located in the computing suite. Computing network infrastructure and equipment has been sited so that:

- There are six laptop trolleys for use across the school.
- Internet access is available in all classrooms and WiFi throughout the school.
- The laptops and iPads are available for use throughout the school day as part of computing lessons and for cross-curricular use.

- Pupils may use IT and computing independently, in pairs, alongside a TA or in a group with a teacher.
- The school has a computing technician.
- A range of additional resources, such as micro-bit and crumble kits are kept by the Computing Subject Leader.
- A governor has been selected to take particular interest in computing and e-safety in the school.

Adaptive Teaching

Teachers support and facilitate access to the Computing curriculum through effective adaptive teaching, adult support, and alteration of any equipment as necessary.

This is achieved by:

- Setting open-ended tasks
- Incorporating gradual increases in difficulty of tasks across the curriculum
- Taking ability into account when grouping children for activities –either setting mixed ability groups or assigning different tasks to different groups.
- Providing resources of different complexity
- Delivering a multi-faceted curriculum that has allows students to access Computing in the most preferable or suitable way for each individual.
- In catering for our gifted and talented pupils we provide them with the challenge and support they need to maximise their potential through teaching and learning activities that specifically cater for their above average needs. This is done through a series of planned 'Explorer Tasks' that are written in to planning documents and Computing Learning Graphs.
- Ensuring the use of the PRIMM model throughout teaching and learning.
- Computational thinking is encouraged throughout all year groups but are highly evident in EYFS and KS1.
- Encouragement of a growth mindset is evident throughout school to support children's resilience.

The role of the Subject Leader

There is a computing subject leader who is responsible for the implementation of computing policy across the school. Their role is to:

- offer help and support to all members of staff (including teaching assistants) in their teaching, planning and assessment of computing.
- provide colleagues opportunities to observe good practice in the teaching of computing.
- maintain resources and advise staff on the use of digital tools, technologies and resources.
- monitor classroom teaching or planning following the schools monitoring programme.
- monitor the children's progression in computing, looking at examples of work of different abilities.
- manage the computing budget.
- keep up-to-date with new technological developments and communicate information and developments with colleagues.
- lead staff training on new initiatives.

- attend appropriate in-service training.
- have enthusiasm for computing and encourage staff to share this enthusiasm.
- keep parents and governors informed on the implementation of computing in the school.
- liaise with all members of staff on how to reach and improve on agreed targets.
- help staff to use assessment to inform future planning.
- provide equality of opportunity using a range of teaching approaches and techniques.
- use appropriate assessment techniques and approaches.
- set suitable targets for learning as outlined in the inclusion policy.
- maintain up to date assessment records.

Online Safety

At Captain Webb Primary School we recognise that staying safe online is related to behaviour, personal and social development and knowledge of the risks of various online environments. We take a holistic approach to ensuring that children stay safe when they are online, that they are positive members of online communities and are respectful when they communicate using digital technologies. Online safety is taught through PSHE lessons, during Computing units of learning where appropriate, during an annual Online Safety Week (using guidance from Education for a Connected World – 2020 and resources adapted from Project Evolve) and through assemblies delivered by the Online Safety Lead and outside agencies. Age related Online Safety Agreements (See Online Safety Policy appendices) are discussed with each class by their teacher at the beginning of the year, agreed to and signed by each child before they are given access to technology and are displayed in every classroom. Intentionally breaking the Online Safety Agreement forms part of the whole school behaviour Rewards and Consequences Matrix (Behaviour Policy appendix 3). Staff receive regular CPD relating to Online Safety. Incidents that occur are dealt with by members of the Senior Leadership Team according to the Behaviour Policy and Online Safety Policy and are recorded on CPOMS. This enables us to keep a trail, address recurring issues and adapt the curriculum offer for Online Safety in our school.