

Whinmoor St Paul's C of E Primary
School



Computing Guidance Document



Introduction

At Whinmoor St Paul's we work together to ensure that our children are secure, happy and well-adjusted members of our society realising their potential as unique children of God. The use of Computing is an integral part of our curriculum as it contains key knowledge that our children will need to know in a technology-dependent society. Our aim is to ensure all our pupils are provided with a high quality, progressive curriculum to enable our children to become proficient in a world with endless possibilities relating to computer-based technology.

Intent

Aims and objectives – how do we inspire all of our children?

Computing has become an increasing part of our everyday lives and the way we all work and entertain ourselves, it is an integral part of ensuring our children are ready for future workplace and take part in the rapidly changing digital world. The use of technology includes and is not limited to;

- online lesson research, teaching plans and resource materials;
- publishing writing/information;
- lesson delivery via either visualisers or interactivewhiteboards;
- communication by e-mail;
- document distribution and storage;
- assessment information analysis;
- production and editing of reports.



Through teaching Computing we equip children to participate in a world of rapidly-changing technology. We enable them to find, explore, analyse, exchange and present information. We also help them develop the necessary skills for using information in an effective way. This is a major part of enabling children to be confident, creative, safe and independent learners.

The objectives of teaching Computing are to enable children:

- to develop ICT capability in finding, selecting and using information; for example, searching the Internet or databases.
- to use ICT for effective and appropriate communication; for example, Word processing, publishing and presentations.
- to monitor and control events, both real and imaginary; for example, control, sensing
- to apply their ICT skills and knowledge to their learning in other areas.
- to explore their attitudes towards ICT and its value to them and society in general for example, to learn about issues of security and personal e-safety, confidentiality and accuracy.

We aim to do this by inspiring all of our children to develop a thirst for learning and lifelong love of Computing. We provide themed days around Computing such as celebrating Online Safety Day and running competitions/ weekly certificates throughout school to promote the children becoming digital citizens. We also aim to show the children the various ways in which Computing can be used across other subjects and their life through days such as 'Virtual Reality' days with a History/ Geography focus.

Implementation

Teaching and learning style

In order to equip children with the technological skills & knowledge to become independent learners, the teaching style that we adopt is as active and practical as possible. We use direct instruction on how to use hardware or software to ensure acquisition of skills; and combine this with cross subject opportunities to allow individuals or groups of children to use ICT to help them progress in whatever they are learning. We ensure all classes follow a progressive document to enable the children to develop basic computing skills as well as accessing a range of software.

We recognise that all classes have children with a wide range of ICT abilities. This is especially true when some children have access to ICT equipment at home, while others do not. We provide suitable learning opportunities for all children by matching the challenge of the task to the ability and experience of the child. We achieve this in a variety of ways:

- setting tasks which are open ended and can have a variety of responses;
- setting tasks of increasing difficulty (not all children complete all tasks)
- grouping children by ability in the room, and setting different tasks for each ability group;
- providing resources of different complexity that are matched to the ability of the child;
- providing opportunities for children to access extra-curricular clubs to access technology
- working with families to ensure devices are available when possible



Computing curriculum planning

To support staff in planning and preparing these lessons we use the NCCE Teach Computing curriculum which is created by subject experts using the latest pedagogical research and is built around an innovative progression framework where computing content has been organized into interconnected networks

We carry out the curriculum planning in Computing in three phases (whole school overview, long term and short term).

The long term plan maps the Computing themes and units that the children study each term during the different year groups. It also highlights the themes that children have previously looked at as well as identifying when children will have worked on similar skills before showing that they are ready to progress their learning.

The units studied in Computing are planned to build on prior learning. While we offer opportunities for children of all abilities to develop their skills and knowledge in each unit, we

also plan progression into the scheme of work, so that the children are increasingly challenged as they move up through the school. This progression is naturally built into our scheme of learning.

We also use Project Evolve, part of the SWGFL toolkit, to support the teaching of staying safe online to ensure that key messages around staying safe online is shared with children within each ICT session.

KS1 pupils should be taught to:

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous 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.



KS2 pupils should be taught to:

- Design, 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 some simple algorithms work 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.



The Early Years Foundation Stage

We teach Computing in the EYFS as an integral part as set out in the EYFS long term plan. Our Computing scheme for the EYFS uses the Barefoot Computing scheme of work and Project Evolve to continue the message of staying safe online. Computing activities in the EYFS focus on building children's listening skills, curiosity and creativity and problemsolving.

In addition to following the Barefoot Computing scheme, technology in the Early Years can also mean:

- taking a photograph with a camera or tablet
- searching for information on the internet
- playing games on the interactive whiteboard
- exploring an old typewriter or other mechanical toys
- using a Beebot
- watching a video clip
- listening to music

Allowing our Early Years team to adopt a child-led curriculum allows them to develop a familiarity with equipment and vocabulary and ensure that they have a strong start when they move to Key Stage 1 and commence the NCCE Computing scheme.

Impact

The contribution of Computing to teaching in other curriculum areas

The teaching of Computing contributes to teaching and learning in all curriculum areas. It also offers ways of impacting on learning which are not possible with conventional methods. Teachers use software to present information visually, dynamically and interactively, so that children understand concepts more quickly. Computing enables children to present their information and conclusions in the most appropriate way.

English

Computing is a major contributor to the teaching of English. Children's reading development is supported through talking stories, e-books and access to a variety of texts available from the Internet. As the children develop mouse and keyboard skills, they learn how to edit and revise text on a computer. They also learn how to improve the presentation of their work by using desktop publishing software. There is in addition a variety of software and online resources which targets specific reading, grammar and spelling skills. They learn how to create short video sequences, with movie editing software.

Maths

Children use Computing in Maths to collect data, make predictions, analyse results, and present information graphically. Software is also used across school to support numeracy in all classrooms. For example, children will use apps to develop their times tables fluency and key skills. We also use Learning by Questions in Upper Key Stage 2 to support fluency, problem solving and reasoning.



Science

Software is used to animate and model scientific concepts, and to allow children to investigate processes which it would be impracticable to do directly in the classroom. Data loggers are used to assist in the collection of data and in producing tables and graphs. Strands involving programming and physical selection in computing builds on children's knowledge of scientific circuits through the use of micro-controllers such as 'Crumbles' and 'micro:bits.'

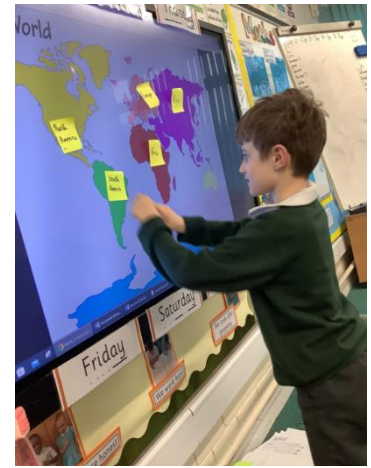
Personal, social and health education (PSHE) and citizenship

Computing makes a contribution to the teaching of PSHE and citizenship in that children in ICT classes learn to work together in a collaborative manner. They also develop a sense of global citizenship by using the Internet and email. Through discussion of safety and other issues related to electronic communication, the children develop their own view about the use and misuse of ICT. Our online safety policy (see separate policy) is a core thread running throughout PSHE & Computing.

ICT and inclusion

At our school we teach Computing to all children, whatever their ability and individual needs. Computing forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our Computing teaching we provide learning opportunities that enable all pupils to make good progress. 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, and we take all reasonable steps to achieve this.

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, differentiation – so that we can take some additional or different action to enable the child to learn more effectively (for example, a lot of software can be differently configured for different ability ranges). Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels. This ensures that our teaching is matched to the child's needs.



How do we ensure all children can access Computing sessions?

In Computing, we use a number of evidence-based strategies to support children with additional vulnerabilities or needs. Strategies include:

Scaffolding

- Small, simple steps to success are modelled and displayed to help children complete tasks independently.
- Visual prompts; this may include graphics of icons and tools.
- Support for SEN children with learning vocabulary; this may include flash cards.
- Games/songs to support vocabulary learning.

All scaffolding follows a 'I do, you do, we do' approach.

Explicit Instruction

- All steps, processes and algorithms are modelled first.
- Teacher to use a think out loud when problem solving e.g. when dealing with a pop up.
- Pupils may be supported in their thought process in Computing.
- Pupils will be given specific opportunities by adults to practise specific skills that are barriers to learning.
- Visual aids and concrete examples (where necessary) will be used to support learning.

Cognitive and Metacognitive Strategies

- Tasks may be 'chunked' into smaller steps.
- Vocabulary prompts may be used to support sentence work.

- Depending on ability, children with SEN may be asked to evaluate their own progress and discuss what they can do to move their learning forward.

Flexible Grouping/Fading

- Temporary groups may be established to support learning a particular concept.
- Pre-teaching and support with new processes, programs, vocabulary etc.
- Children may be paired in mixed ability to support needs.
- Prompt sheets may be used to support with ideas and planning.
- Checklists may be established to help with different processes. E.g. logging on or accessing a new program.

Use of technology

- Tasks set may include using different devices to meet needs.
- Speech generating apps may be used for recording ideas/processes.
- A visualizer may be used to model and magpie ideas.



How do we ensure that children remember more over time?

Assessment for learning

Teachers will assess children’s work in Computing by making informal judgements during lessons in relation to the NCCE progression document and assessment matrix. On completion of a piece of work, the teacher assesses the work, and uses this assessment to plan for future learning.

Written or verbal feedback is given to the child to help guide his/her progress. Older children are encouraged to make judgements about how they can improve their own work.

The NCCE Teach Computing curriculum is a progressive curriculum, meaning that children will follow the progression of skills, re-visiting key areas to ensure that they have remembered the prior learning to be able to progress to the next skill within that strands. Strands include, algorithms, computing systems, creating media, data and information, design and development, effective use of tools, impact of technology, networks, programming and safety and security. The progression map is shown below.

