

Panshanger Primary School

Computing Policy

Intent

(Why do we teach this? Why do we teach this in the way that we do?)

Computing is an essential part of everyday life in a world where technology is constantly developing. The teaching of computing equips pupils to use computational thinking and creativity to understand and change the world. The core of computing is computer science, in which pupils are taught how computers and networks work, problem solving, logical thinking and programming. Computing also ensures that pupils become digitally literate – able to use, express themselves and develop their ideas through ICT in a safe and responsible way, and at a level suitable for the future workplace. The topics taught throughout the school ensure that the three main strands of the curriculum (Computer Science, Information Technology and Digital Literacy) are covered and the school has a range of hardware and software to support this.

The development of SMSC in Computing

Spiritual Development

Computing creates a sense of wonder by the power of digital technology – using the different services on the Internet, programs, apps, devices and equipment such as Beebots, cameras or data loggers. It promotes the use of imagination and creativity children's learning.

Moral Development

Throughout the school, children are taught about the importance of online safety in school and at home. This is a feature of computing topics throughout the year and during Internet Safety week in February. Both children and their parents agree to the school's online safety agreement. Children consider the effects of social media and the consequences of cyberbullying, and are provided with the knowledge and tools to report any instances of bullying, cyber-bullying and online safety issues. They explore the moral issues around data and sharing information.

Social Development

Children are taught about and experience the different ways that the Internet has impacted on communication. They are prepared for the challenges of living and learning in a technologically enriched world. They are made aware of the guidelines about the ethical use of the Internet and how we keep others and ourselves safe by discussing the moral and social implications of cyberbullying. Children are encouraged to support each other when problem solving.

Cultural Development

Children are provided with the opportunity to learn about different cultures through the use of the Internet and online platforms – such as Newsround. They explore human achievements and creativity in relation to a worldwide communication platform, e.g. Tim Berners-Lee. They use the World Wide Web to explore locations they are studying but would not be able to visit, e.g. a virtual tour of Machu Picchu. They explore cultures in the past through virtual tours of museums or online objects. They are provided with the information to allow them to watch online theatre shows.

Aims (based on National Curriculum 2014)

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.

Objectives

In order to achieve the above aim, children will be taught to:-

In Key stage 1:

- 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.

In Key stage 2:

- 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.

Implementation

(What do we teach and what does this look like)

Teaching and learning style

The teaching style adopted for computing is as active and practical as possible and the school has a range of hardware and software. Wherever possible, children will use computing equipment individually or in pairs. Direct instruction and demonstration is given on how to use hardware or software and following this, children are given time to explore how something works for themselves before working on a more focused task to apply the skills they have learnt.

Planning

A long term plan has been drawn up, mapping the computing topics taught in each year group. Medium term planning is taken from published schemes of work, mostly Teach Computing, but we also make use of Herts for Learning and Barefoot and teachers' own plans which include basic computing skills.

Foundation Stage

Computing is no longer explicitly mentioned within the Early Years Foundation Stage statutory Framework, but at Panshanger we still provide many opportunities for the children to use technology in a range of different ways. Computing in the EYFS is centered around play-based, unplugged (no computer) activities that focus on building children's listening skills, curiosity and creativity and problem solving.

Technology in the Early Years can 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 children the opportunity to explore technology in this carefree and often child-led way, means that not only will they develop a familiarity with equipment and vocabulary but they will have a strong start in Key Stage 1 Computing and all that it demands.

Cross-curricular links

Computing contributes to the development of a variety of other areas of the curriculum. Recommended websites are provided for children to use in school and at home to support their learning in most subjects. Many websites are used regularly by class teachers in English, geography, history or science lessons, e.g. BBC Bitesize or Explorify which provide information, pictures, film clips, animations, quizzes etc. Relevant film clips from You Tube are also used to support learning. Google Classroom is used in key stage 2 for children to access their home learning. In each year group there is a computing unit on digital media. These topics teach skills in using drawing and painting programs, digital photography and manipulating images. Children are also given opportunities to use a computer to present their written work in subjects such as English, history and geography, allowing them to develop their word processing skills.

Reading

Computing lessons and activities provide several opportunities for supporting reading - each topic introduces the children to a range of key/technical vocabulary, programs such as Scratch use particular language for command and reading questions or criteria forms a part of database programs. Children also read a variety of web pages for research in a range of subjects.

SEND

As an inclusive school, we try to remove barriers to learning so that all children can achieve and make progress. When progress falls significantly outside the expected range (above and below the age related expectations), a child may have special educational needs. When assessing this, a range of factors is considered including classroom organisation, teaching materials, teaching style and differentiation, so that additional or different action can be taken to enable the child to learn more effectively. This ensures that our teaching is matched to the child's needs.

Computing is taught to all children whatever their ability. It forms part of the school's curriculum policy to provide a broad and balanced education to all children. We provide learning opportunities matched to the specific needs of children and we take into account the targets set for individual children in their individual needs e.g. Learning Plans and information from outside agencies.

Teachers take account of the three principles of inclusion that are set out in the National Curriculum:

- Setting suitable learning challenges.
- Responding to the diverse learning needs of pupils.
- Overcoming potential barriers to learning and assessment for individuals and groups of pupils.

There are children of differing ability in all classes. Suitable learning opportunities are planned for all children by matching the challenge of the task to the ability of the child. This is achieved through a range of strategies including:

- setting common tasks that are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty where not all children complete all tasks;
- grouping children by ability and setting different tasks for each group;
- providing a range of challenges with different resources;
- using additional adults to support the work of individual children or small groups.

Equal Opportunities/ Inclusion

It is the responsibility of all teachers to ensure that children irrespective of ability, race, gender, age, faith, sexual orientation, and disability are given full access to the history curriculum and make the greatest possible progress in accordance with recent legislation. Please refer to the schools Equal Opportunities Policy.

Impact

Assessment and Recording

Teachers assess children's work in computing through discussion, work in progress, finished projects, or focused assessment tasks. These methods are used to judge whether children are working at ARE, above or below for a particular topic and this information is then recorded on the medium term plan.

Children do not have a computing book for printed work, but all key stage 2 children have their own folder (some teachers also have class folders) on the server which the teacher and subject leader can access at any time. This folder is particularly useful for saving projects such as animated powerpoints or databases which cannot be printed. KS1 work is usually saved centrally in a year group folder. For some topics, children have their own log in details – e.g. Scratch,

Tinkercad which allows them to show their work to adults and other children. There is also an examples of work folder in the computing folder on the server.

Monitoring and review

The monitoring of the standards of children's work and of the quality of teaching in computing is the responsibility of the computing subject leader. The work of the subject leader also involves supporting colleagues in the teaching of history, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The computing subject leader provides an annual summary report in which strengths and weaknesses in the subject are identified, and with indication of areas for further improvement. This summary is informed by findings from work sampling, pupil voice, lesson observations and progression sheets as above.