



WHERE STARS SHINE

COMPUTING POLICY

Policy Lead Committee: Local Academy Committee

In consultation with: Senior Leadership Team

Approved by:

A handwritten signature in black ink, appearing to be 'R. J. F.', on a light blue background.

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1. Aims and Objectives

Computing prepares children to take part in the development of tomorrow's rapidly changing world. Creative thinking encourages children to make positive changes to their quality of life. The subject encourages children to become autonomous and creative problem-solvers, both as individuals and as part of a team. It enables them to identify needs and opportunities and to respond by developing ideas and eventually making products and systems. Through the study of computing they combine practical skills with an understanding

to apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.

to analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems will support their foundations for a world of ever-changing technology.

to evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems

support and develop responsible, competent, confident and creative users of information and communication technology.

2. UNITED NATIONS COVENTION ON THE RIGHTS of the CHILD

ARTICLE 1 Everyone under the age of 18 has all the rights in the Convention

ARTICLE 2 The Convention applies to every child whatever their ethnicity, gender, religion, abilities, whatever they think or say, no matter what type of family they come from.

ARTICLE 4 Governments must do all they can to fulfil the rights of the child.

ARTICLE 28 Education. The child has a right to education, and the State's duty is to ensure that primary education is free and compulsory, to encourage different forms of secondary education accessible to every child, to make higher education available to all on the basis of capacity and to ensure that school discipline is consistent with children's rights and dignity. The State shall engage in international cooperation to implement the right to education.

ARTICLE 29 Education shall aim to develop the child's personality, talents and mental and physical abilities to the fullest extent. Education shall prepare the child for an active adult life in a free society and shall foster in the child respect for his or her parents, for his or her own cultural identity, language and values, and for the cultural background and values of others.

3. P4C

P4C is embedded in Computing through the 4Cs (Creative thinking, Collaborative thinking, Caring thinking and Critical thinking). Pupils are given opportunities to use thinking skills that they have developed in P4C sessions to challenge what they already know and explore more complex ideas further.



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4. Children with Special Educational Needs

At Severnbanks Primary School, we recognise that children with identified SEND needs may have strengths in different areas, therefore we strive for them to be included in all areas of the curriculum. We also acknowledge that children with SEND may need differentiated work or further support appropriate to their specific needs and ability in order for them to take as full a part as possible in all school activities.

5. Teaching and Learning Style

The school uses a variety of teaching and learning styles in computing lessons, including 'plugged' and 'unplugged' activities, whole class, small groups, paired programming (drier/navigator) and 1:1. The principal aim is to develop children's knowledge, skills and understanding in computing.

As the aims of Computing are to equip children with the skills necessary to use technology to become independent learners, the teaching style that we adopt is as active, practical, relative and individualised as possible – encompassing, developing and challenging children's knowledge and understanding. As a result, we offer our curriculum in 3 stages:

- what we intend the children to learn;
- implementing the curriculum;
- bringing learning to life in meaningful, real and exciting ways.

There are 6 total elements within these stages: When teaching, the practitioner will provide varied lessons, adopting different approaches of learning to accommodate all learning styles. Lessons will include a combination of these elements to ensure the most effective learning takes place:

5.1 Tinkering

We provide pupils with a chance to 'tinker' (explore and experiment) with new software or hardware when they first encounter it, so they can figure out their own mental model for how it works. This can be particularly effective with younger pupils and promote curiosity, deeper thinking and questioning.

5.2 Making

A lot can be learnt through the process of making things to show to or share with others. This might be computer code, but it might also be PowerPoint presentations, web pages, edited video, digital photographs, various text documents, a blog etc. We allow for printing opportunities and uploading opportunities (linking to skills at different age groups).



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5.3 Discussion

Make the most of pupils' different insights, experiences and backgrounds by allowing them to share their ideas with one another and with others. Paired programming activities in class and online discussion forums are just two ways we facilitate this. Seesaw, Dojo, DB Primary are useful online platforms for this kind of learning.

5.4 Connecting

Learning from others need not be limited to the classroom. We encourage pupils to explore others' solutions to problems on the Kodu or Scratch community sites and in class, for example, or to search online for solutions to problems.

5.5 Direct Instruction

The traditional, direct instruction approach can work well on occasion. Complex ideas such as variables, how the internet works or how search engines operate could be learnt using discovery-based approaches, but direct teaching is likely to be more effective. Direct instruction is a useful style, adopted by many when teaching coding and algorithms, as these are instructional/direct.

5.6 Practise

We don't assume that once pupils have demonstrated they can do something or understand an idea that their learning is secure. We provide opportunities for them to practise applying their skills, knowledge and understanding, occasionally with an element of choice on how this may be done.

While at times we do give children direct instruction on how to use hardware or software, the main emphasis of our teaching in Computing is for individuals or groups of children to use technology to aid them in whatever they are trying to study (linking to the real world) – with the aim of promoting other areas of the curriculum and skills, alongside the main Computing objectives. [Children who are learning science may use computers or technology to model a problem or to analyse data; Spreadsheets and tables can be linked to maths; Beebots and Scratch can be linked to Geography, History etc.] We encourage the children to explore ways in which the use of Computing can improve their results, for example, how a piece of writing can be edited (using spellcheck); how the presentation of a piece of work can be improved by moving and altering text/font; or making calculations easier with the use of spreadsheets etc.

We recognise that all classes have children with widely differing abilities, and more specifically computing ability. This is especially true when some children have access to technology at home, while others do not; it is also the case for those children who have support from parents working in the IT industry and support from those with no experience. We provide suitable and engaging 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, by:



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- setting common tasks which are open-ended and can have a variety of responses
- setting tasks of increasing difficulty (not all children complete all tasks – working towards a mastery approach)
- children leading their learning – directed by the teacher (scope for the task to link to needs and learning/topic)
- grouping children by confidence/ability in the room and setting different tasks for each group
- providing resources of different complexity that are matched to the ability of the child
- using classroom assistants to support the work of individual children or groups of children
- using a wide range of computer resources (not solely the use of desktop PC's or laptops)
- teacher modelling and using technology outside of computing sessions.

In all classes there are children of differing ability. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies:

- setting common tasks that are open-ended and can have a variety of results;
- 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 through the provision of different resources;
- use of additional adults to support the work of individual children or small groups.

6. Computing Planning

At Severnbanks Primary School, we follow the Teach Computing programme (NCCE) to support the progressive teaching of the National Curriculum, of which Computing is a foundation subject. Our Computing programme aims to inspire pupils, ensuring that all pupils achieve highly in the key concepts, skills and processes of computing, appropriate for their age group, in order for them to make genuine progress, avoiding gaps in their understanding, that can provide barriers to learning as they move through education. The 10 strands of the Teach Computing Taxonomy: *Networks, Creating Media, Data & Information, Design & Development, Computing Systems, Impact of Technology, Algorithms, Programming, Effective Use of tools, and Safety & Security* are structured throughout the programme through all year groups. Assessment for learning and a strong emphasis on the stages of *tinkering, making, discussing, connecting, direct instructions* and *practise* are essential components of the approach to effective teaching and learning in this subject.

Our Computing programme enables pupils to meet the end of key stage attainment targets in the National Curriculum and the aims also align with those in the National curriculum.

The long term plan is set out in a progressive journey from throughout each specific year group, mapping key computing themes in each term. Medium term plans identify the topic, along with key aims/objectives, national curriculum and 'Education for a Connected World'



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links and supports cross curricular learning (which can be adapted to suit class topics). Links are also made to the Teach Computing Taxonomy (as stated above).

Flexibility is allowed in the delivery of the units of computing, although a suggested order is in place for guidance. Sessions are flexible in that they can be planned on a weekly basis or in extended blocked time.

Activities within computing are designed so that they build upon the prior learning of the children. We give children of all abilities the opportunity to develop their skills, knowledge and understanding and we also build planned progression into the scheme of work, so that the children are increasingly challenged as they move through the school, and beyond.

7. Early Years Foundation Stage

In the Early Years Foundation Stage Framework, the teaching of Computing is not specifically identified, nor are specific objectives and aims, but we can link computing to many different outcomes, ensuring we provide a range of opportunities that encompass 'computing' within the continuous provision – including plugged and unplugged activities. We provide a range of experiences that encourage exploration, observation, problem solving, critical thinking and discussion. These activities, indoors and outdoors, attract the children's interest and curiosity and allow them to build upon what they know.

8. Contribution to Teaching in Other Curriculum Areas

8.1 English

Computing is a major contributor to the teaching of English. Through the development of letter sounds and letter recognition (phonics), keyboard skills and the use of computers, children learn how to edit and revise text – progressive statements. Learners have the opportunity to develop their writing skills by communicating with people by using e-mail; they learn how to improve the presentation of their work by using a range of desktop publishing software for different purposes; they are exposed to a range of text-types and are encouraged to listen to or read information. A number of writing and spelling interventions require the use of computers/technology, fully enabling all level of learners to use and progress with technology, therefore supporting the development and need of each child and their level of computer skills. Drafting, creating, editing and publishing text, creating and developing story boards, presenting written outcomes, spell-checking, reading are some of the ways in which our Computing curriculum can develop and enhance skills within English.

8.2 Mathematics

Many computing activities build upon the mathematical skills of the children. Children use computational thinking – reasoning and problem-solving - and skills in mathematics (and vice-versa) to collect data, make predictions, analyse results, present information (including graphs). They also acquire measuring techniques involving positive and negative numbers, and



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including decimal places. The acquisition of android/apple tablets and laptops with wifi-connect ability ensures that the children can connect with suitable apps and websites designed to engage, consolidate and progress children in their learning. Building and developing repetition and pattern into networks, programming and creating media all link to maths objectives within the national curriculum.

8.3 Personal, social and health education (PSHCE), Citizenship, P4C and SMSC

Computing makes an outstanding contribution to the teaching of PSHCE, citizenship and to pupils' spiritual, moral, social and cultural development. Children learn to work together in a collaborative, safe and responsible manner – the heart of Digital Literacy. They develop a sense of global citizenship by using the Internet and e-mail, which is managed, rather than restricted. Through the discussion of moral issues related to electronic communication, children develop a view about the use and misuse of computing/technology, and they also gain a knowledge and understanding of the interdependence of people around the world. The computing curriculum has and will continue to provide children and teachers with a number of questions which have been and can be debated in sessions, applying P4C approaches, promoting much deeper and wider thinking. Children are given the opportunity to put themselves in others' shoes, use role-play and adapt approaches as a result – helping to creating confident, empathetic and sensible users of technology.

8.4 Art and Design & Technology

There are many opportunities for children to develop and progress these skills through the use of a variety of different applications to develop, design, enhance and a range of products, combining plugged and unplugged activities.

8.5 History

Computing offers the children opportunities to explore and monitor changes and development in technology around us, and how lives of people in the past compare to those of today and the future. Using computer systems and networks allows children additional resources to research various time periods as specified in the history long term plans, and present their findings with data and information or creating with media.

8.6 Science

Networks and Data and Information are key areas which link strongly to our science curriculum, and opportunities to develop and extend these skills include plugged and unplugged activities to enhance progression. These are areas are progressive throughout the year groups.

9. Teaching Computing to Children with Special Needs

We teach Computing to all children, whatever their ability. Computing also forms part of our school curriculum policy to provide a broad and balanced education to all children. Teachers provide learning opportunities that are matched to the needs of children with learning difficulties. Computing provides particularly strong activities for all children of all abilities to



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achieve success. Work in Computing takes into account the targets set for individual children in their My Plans.

10. Assessment and Recording

Teachers assess children's work in Computing by making assessments through observations, discussions, working during lessons, as well as by the outcome and evaluation. These observations build a picture of each child's achievements which is reported on the annual report to parents in the summer term. Photographs and are an important part of Computing curriculum, with all staff being encouraged to them during each unit of work. Saved documents and child-voice are also key in recording learning and development, especially in terms of vocabulary used.

All children who use the desktop and laptop computers are able to save their work in their personal folders, within their class file on the school's server; for younger children, this will initially be under the guidance of the teacher. Each class teacher is responsible for keeping samples of the children's work in a portfolio (floorbook) on the server, which is accessible and monitored by the Computing lead - demonstrating the level of achievement in Computing for each age group in the school. This portfolio must include the date and objective (TBAT) and could include a range of photographs, documents, screenshots, child's voice and any other evidence saved within each class folder on the school's system. Any paper-based tasks in computing sessions must be marked in accordance with the school's marking policy and kept in the children's desks in a Computing folder. At the end of each unit, staff use objectives on INSIGHT to assess the children, which the subject lead can access and monitor.

Recording learning for parents to see (sharing learning) is promoted within computing, with children having the opportunity to record/save some of their work (across all subjects) on their monitored class blog on Class Dojo. Children with internet access at home will be able to access their class page in school and home, enabling and promoting the sharing of work with family members and friends. They will also be able to upload any work produced at home, e.g. free-choice or directed homework tasks. [Each class is responsible for creating their own Class Blog Rules that comply with the Acceptable Use and E-Safety Policies. Each teacher is responsible for the monitoring, with the support of the computing lead.]

11. Resources

Our school has a range of resources to support the teaching of Computing across the school. Some classrooms have a range of basic resources, with the more specialised equipment being kept centrally in the 'Computer Suite'. Each Key Stage tablet trolley is kept in 1 KS2 class and 1 KS1 class.



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12. Links with Other Policies

- Acceptable Use
- Antbullying (and Hate) Policy
- Behaviour Policy
- Online Safety
- Home-School Agreement
- Mental Health and Wellbeing

13. 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 Computing, 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 informs the head teacher and governors annually about the strengths and weaknesses in the subject and indicates areas for further improvement. Pupil conferences are also held periodically to monitor the views and thoughts of children with regards their own learning and identifying new areas that are of interest to them. These meetings form part of the monitoring and review process.

**This policy is available on the school website: [Severnbanks Primary School - Policies](#).
Paper copies are available on request from the School Office.**