



Computing Policy -

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Head Teacher signature:	
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South Grove Primary School Computing Policy

Introduction

The use of information and communication technology is an integral part of the National Curriculum and is a key skill for everyday life. Computers, tablets, programmable robots, digital and video cameras are a few of the tools that can be used to acquire, organise, store, manipulate, interpret, communicate and present information. At South Grove Primary School, we recognise that pupils are entitled to quality hardware and software and a structured and progressive approach to the learning of the skills needed to enable them to use it effectively. The aim of this document is to provide an overview to the new Computing Curriculum across the Key Stages. It should also serve as a glossary of terms (Appendix 1) allowing a clear understanding.

Aims

South Grove Primary School aims to ensure all pupils are:

- provided with a relevant, challenging and enjoyable curriculum for computing.
- meeting the requirements of the National Curriculum programmes of study for computing.
- using computing as a tool to enhance learning throughout the curriculum.
- responding to new developments in technology.
- equipped with the confidence and capability to use computing throughout their later life.
- learning computing in other areas of the curriculum.
- developing their understanding of how to use computing safely and responsibly.

Rationale

We believe that Computing is a necessary subject which prepares children to live in a world where technology is moving at a rapid pace. So much so that children are being prepared to work with technology that doesn't even exist yet. For this reason, it is important that children are able to participate in the creation of these new technologies – placing greater emphasis on children as coders.

Computing, in the National Curriculum, is split into three strands (Computer Science, Digital Literacy and Information Technology). It is important that children recognise the difference between what makes each one relevant to their future, as well as their everyday lives. This will require high quality teaching of Computing, from reception to year six, that utilises a combination of practical lessons (within the computer suite) and theory lessons (within the children's classrooms). Theory lessons, which are designed to promote discussion and nurture understanding, are highly relevant to other areas of the non-statutory curriculum such as PSHE, Citizenship and SEAL.

Thus, the Computer Science strand should prepare children to understand what Computer Science is, as well as, complex computing concepts such as Algorithms and Binary code. At Key Stage Two, this knowledge should be taught at a deeper level encouraging children to learn about decomposition, debugging, variables and controlling physical systems.

The Digital Literacy strand should prepare children to use the internet safely by giving them the knowledge to deal with inappropriate computing behaviours. This is echoed in the teaching and learning of appropriate computing behaviours. What is more, children will be

taught how to take care of personal information, the differences between viruses and malware, and how to identify trustable sources.

The Information Technology strand should prepare children to work with computers and other devices (such as tablets, mobiles). This should enable them to understand how technology is developing and how it has progressed. This will require children to be taught about the main part of a computer, how data is stored and how to complete the most basic of computer functions (such as saving work, presenting information and creating art).

Programme of Study

By the end of each Key Stage, pupils are expected to know, apply and understand the matters, skills and processes outlined in the relevant programme of study.

Early Years

It is important in the foundation stage to give children a broad, play-based experience of computing in a range of contexts, including outdoor play. Computing is not just about computers. Early years learning environments should feature computing scenarios based on experience in the real world, such as in role play. Children gain confidence, control and language skills through opportunities to 'paint' on the whiteboard or program a toy. Recording devices can support children to develop their communication skills. This is particularly useful with children who have English as an additional language.

Key Stage 1

By the end of Key Stage 1 children should be able to:

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
 - Think of a cup tea, what steps need to be taken to make it? What decisions have to be made? Do you want milk? Do you want sugar?
 - Program a Bee-Bot through a maze, right down the instructions first, plan the instructions.
 - Program a Pro-Bot to travel to a specific point. What instructions do you need to include in order for it to get there? Links to maths, measuring, angles, turns.
- Create and debug simple programs
 - Why does my cup of tea not taste right? Is it too sweet, too milky?
 - Bee-Bot and Pro-Bot, where has it gone wrong, where does it need to change?
 - Flowol 4. Why are the lights not working?
- Use logical reasoning to predict the behaviour of simple programs
 - If I put in two spoons of sugar will I like my cup of tea?
 - If I put in these instructions where will the Bee-Bot/Pro-Bot end up?
 - Scratch. Where will the cat end up? Logic. Moving the turtle?
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
 - Create a folder and save work
- Use technology safely and respectfully, keeping personal information private; know where to go for help and support when they have concerns about material on the internet
 - Ceop
 - Hector the Protector
- Recognise common uses of information technology beyond school

- Learning Platform
- Create a poster on publisher for all the technology they use at home

Key Stage 2

By the end of Key Stage 2 children should be able to:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
 - What steps are required to make a cup of tea?
 - Robots, around the rally track or to check points around the fairground.
 - Trip to a centre that uses controls
- Use sequence, selection and repetition in programs; work with variables and various forms of input and output
 - Robots, repetition to draw shapes
 - Flowol, using mimics such as the greenhouse – when the temperature reaches a set point the water needs to come on, when the light drops below a set reading the lights need to come on.
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
 - Draw out the algorithms (processes) for making a cup of tea, the tea is too sweet because the decision to add sugar wasn't given a chance to follow on so it kept on adding.
- Understand computer networks including the internet; how they provide multiple services, such as the world-wide web; and the opportunities they offer for communication and collaboration
 - Using the learning platform to chat to peers and to communicate on joint projects together.
 - Skype on the tablets, video links between the classes on a shared learning day.
 - Use the learning platform to save work to, retrieving it and editing it in a variety of locations e.g. home and school.
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
 - Using advanced searches
 - Google is not the internet it is simply a search engine and there are others (Bing has a simple list of short cuts for advanced searches)
- Use technology safely, respectfully and responsibly; know a range of ways to report concerns and inappropriate behaviour
 - CEOP training
 - Hector the Protector
- Select, use and combine a variety of software (including internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information
 - Minibeast search – photograph the minibeast, upload to a computer. Another child views the uploaded images and creates a spreadsheet of what has been found. This has been analysed
 - Tablets to find facts
 - Internet to retrieve images
 - Cameras to create a digital image

(See 'Switched on Computing units of work' sheet attached)

Management and Organisation

The role of the Computing Co-ordinator is for them to be responsible for the development of Computing at South Grove Primary School. The role of Computing Co-ordinator involves:

- Raising standards in computing as a National Curriculum subject.
- Aiding the implementation of the new computing curriculum by providing training and support to all staff, when necessary.
- Monitoring the delivery of the computing curriculum and reporting to the SLT and the Head teacher on the current status of the subject.
- Ensure the development of computing through the construction and analysis of annual action plans.
- Liaising with other services, such as the LGfL and other professionals, for technical and curriculum support.
- Ensuring their own knowledge and understanding of computing is kept up-to-date by attending courses and sharing new knowledge with staff.
- Discussing financial decisions with the Head Teacher and Business Manager.
- Promoting the use of computing resources across school, working with the Head Teacher and Business Manager to ensure resources are current and up-to-date.

Staffing and Staff Development

Staff will:

- Have regular access to training and the knowledge of the Computing Co-ordinator.
- Be responsible for managing computing within their classrooms and computing suite.
- Be responsible for planning and delivering the computing curriculum in line with the 'Rising Stars Switched on Computing' schemes of work.
- Work with parents and carers to develop appropriate computing skills and behaviours.

Assessment

- Progress is assessed on an on-going basis using the Rising stars Switched on Computing/ICT scheme of work by using 'I can' statements for each thread of Computing. This ensures teachers are aware of individual pupil's progress in computer science, information technology and digital literacy.
- Formative assessment is used by the class teacher and teaching assistant during whole class or group teaching. Children's confidence and difficulties are observed and used to inform future planning.
- Each class teacher maintains a record, indicating pupils that are working beyond, at or below age-expected attainment. This is passed on to the next class teacher.
- Children are aware of the 'I can' statements and are encouraged to set success criteria for their work.
- Open questions are used to challenge children's thinking and learning.
- Children are encouraged to evaluate their own and others' work in a positive and supportive environment, including peer assessment.
- Information is shared with the school community through the school website, display, celebration events, newsletters, and end of year reports.
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E-safety

- A progressive e-Safety curriculum ensures that all pupils are able to develop skills to keep them safe online.
- Opportunities for learning about e-Safety are part of our Computing and PSHE lessons and are reinforced whenever technology is used.
- Clear rules for e-Safety are agreed by each class at the beginning of every year. Parents and pupils sign an acceptable use policy when a pupil first starts at the school. These are then signed annually by pupils and parents. Children are reminded (when they log onto the computer) of the acceptable use agreement form they had to sign.
- The Rising Stars Switched on Computing and Online safety schemes of work are used to ensure progression and coverage; and provides positive rewards for responsible use of technology.

- The school supports the international Safer Internet Day each February.
- The school has an e-safety policy in place that details how the principles of e-safety will be promoted and monitored.

Inclusion

We believe that all children have the right to access ICT and computing. In order to ensure that children with special educational needs achieve to the best of their ability, it may be necessary to adapt the delivery of the ICT and computing curriculum for some pupils. We teach ICT and computing to all children, whatever their ability. ICT and computing forms part of the national curriculum to provide a broad and balanced education for all children.

Through the teaching of ICT and computing we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Where appropriate, ICT and computing can be used to support SEN children on a one to one basis where children receive additional support. Additionally as part of our Autism friendly approach to teaching and learning we will use adapted resources wherever possible such as visual timetables, different coloured backgrounds and screen printouts.

Resources and Access

The school acknowledges the need continually to maintain, update and develop its resources and to make progress towards a consistent, compatible PC system by investing in resources that will effectively deliver the strands of the National Curriculum and support the use of computing across the school. Teachers are required to inform the ICT technician of any faults as soon as they are noticed. Resources, if not classroom based, are located in the computer suite.

Computing network infrastructure and equipment has been sited so that:

- Every classroom from nursery to Year 6 has a laptop connected to the school network and an interactive whiteboard with audio, DVD and video facilities.
- There is a computer suite of 31 desktops.
- There are two laptop trolleys in school containing 15 laptops each with internet access available to use in classrooms.
- Each year group has a iPad trolley containing 15 iPads with appropriate teaching apps installed onto them and internet access.
- There are 31 iPods, which can be used in the classroom, for virtual reality. The iPods have Google Expeditions installed onto them so the teachers can link this accordingly with their Topic units of work.
- Each class from Year 1 to Year 6 has an allocated ICT slot across the week for teaching of specific computing skills.

Along with computers, the school has the following resources to help teach specific units in Computing and across other areas of the curriculum:
(See 'All ICT resources Hardware sheet' attached)

ICT Hardware Resources in the ICT Suite – March 2017

Here is a list of all the Computing equipment we have in the ICT suite or my cupboard in my classroom. I thought this would be useful so you can see what there is and link the resources to your Computing units of work.

1. Floor Robots

a. 10 BeeBots (including one shaped like a tank)

- Very simple
- Require 2x AA Batteries each
- Suitable for EYF & KS1

b. 6 BlueBots

- Same as BeeBots, but can be connected to and controlled by an iPad App
- Internal Batteries - charged using a charging base

c. 6 ProBots

- Car shaped roamer robots
- Require 2x AA Batteries each
- More advanced than BeeBots
- Program can be built up on built in LCD
- Can turn a arbitrary number of degrees
- Can hold pen to allow drawing on paper

d. 4 Old Style Roamers

- Use 2 x 4V Lention Batteries
- Large 50cm Dome
- Insert for pen

e. 6x Zoo Bots

- Internal Batteries - charged using a charging base
- More advanced than BeeBots, and BlueBots. Mainly for Years 3 and 6
- For use with Scratch

2. Floor Robot accessories

- BeeBot Markers**- Mark different points of where you would like the BeeBot to start/stop
- BeeBot sequence cards**- Showing algorithms of how you would like the BeeBot to move
- BeeBot Fairytale, Pirate, Seaside, Atory books**- For use with Reception, Year 1 and Year 2.
- Bee Bot Mats**- Clear plastic (design your own where you can add cards to slot in), Pirate, Seaside, Fairytale, Treasure Island, Busy Street and two see through grids
- 3x BeeBot Tactile Readers**- Children can create algorithms on the tactile readers for the BeeBots to read and perform.

3. EasiSpeaks

a. 3x EasiSpeaks

- Small soundings (ppt)
- Can be charged, and audio file transferred via USB

b. 2 x EasiSpeak Pro

- Same as EasiSpeaks but more robust looking, and has a LCD screen

4. Scratch resources

a. 6x Scratch controllers

- To be used with Year 6 Only
- Use with 'We are Adventurers' unit of work
- Can play different games the children have made by using them

b. Scratch Resource cards

- Laminated cards with examples of different Scratch algorithms the children can create

5. 15x Lego WeDo2.0 boxes

- For use in KS2
- To link with Science topics and Computing extension topics

6. 4x Tuff cams

- Storage bag available
- Can be dropped several times without breaking
- For use in Early Years

7. Green Screen Pack

- Stand available

8. 6x assorted Canon Digital Still Cameras

- Use 2x AA Batteries
- 3x zoom and flash

9. 8 x Small Red Low Quality Cameras

- Extremely Cheap and Crappy
- No Zoom
- Use 2x AAA Batteries
- Flash must be forced to get usable photos

10. 8 x Alphasmarts

- Monochrome LCD screen
- 4 lines of text
- 3 x AA Batteries
- Text can be transferred easily to PC using USB

11. Microphones

- 3 Analogue Desk Microphones

12. 15 Spare headphones

- Mostly Coomber

13. 2 ActivSlates

- Connect to promethium whiteboards
- Can use like a wireless drawing tablet with BeeBots

14. 1 x Apple TV Latest Generation

- Got it from 399p
- Apps and games also available
- Optional

15. 31 x iPods

- To be used with virtual reality
- All iPods have Google applications downloaded already (in CM's room)
- 31 Virtual reality headsets to go with each iPod (in CM's room)

Appendix 1- Glossary of terms

Algorithm – an unambiguous procedure or precise step-by-step guide to solve a problem or achieve a particular objective.

Computer networks – the computers and the connecting hardware (wifi access points, cables, fibres, switches and routers) that make it possible to transfer data using an agreed method ('protocol').

Control – using computers to move or otherwise change 'physical' systems. The computer can be hidden inside the system or connected to it.

Data – a structured set of numbers, representing digitised text, images, sound or video, which can be processed or transmitted by a computer.

Debug – to detect and correct the errors in a computer program.

Digital content – any media created, edited or viewed on a computer, such as text (including the hypertext of a web page), images, sound, video (including animation), or virtual environments, and combinations of these (i.e. multimedia).

Information – the meaning or interpretation given to a set of data by its users, or which results from data being processed.

Input – data provided to a computer system, such as via a keyboard, mouse, microphone, camera or physical sensors.

Internet – the global collection of computer networks and their connections, all using shared protocols (TCP/IP) to communicate.

logical reasoning – a systematic approach to solving problems or deducing information using a set of universally applicable and totally reliable rules.

Output – the information produced by a computer system for its user, typically on a screen, through speakers or on a printer, but possibly through the control of motors in physical systems.

Program – a stored set of instructions encoded in a language understood by the computer that does some form of computation, processing input and/ or stored data to generate output.

Repetition – a programming construct in which one or more instructions are repeated, perhaps a certain number of times, until a condition is satisfied or until the program is stopped.

Search – to identify data that satisfies one or more conditions, such as web pages containing supplied keywords, or files on a computer with certain properties.

Selection – a programming construct in which the instructions that are executed are determined by whether a particular condition is met.

Sequence – to place programming instructions in order, with each executed one after the other.

Services – programs running on computers, typically those connected to the internet, which provide functionality in response to requests; for example, to transmit a web page, deliver an email or allow a text, voice or video conversation.

Simulation – using a computer to model the state and behaviour of real-world (or imaginary) systems, including physical and social systems; an integral part of most computer games.

- Software – computer programs, including both application software (such as office programs, web browsers, media editors and games) and the computer operating system. The term also applies to 'apps' running on mobile devices and to webbased services.
- Variables – a way in which computer programs can store, retrieve or change simple data, such as a score, the time left, or the user's name.
- World Wide Web – a service provided by computers connected to the internet (web servers), in which pages of hypertext (web pages) are transmitted to users; the pages typically include links to other web pages and may be generated by programs automatically. 'Naace- Computing in the National Curriculum- A guide for primary teachers'