

St Paul's C of E Primary School



COMPUTING POLICY

1. Purpose of the policy

This policy reflects the aims and values of St. Paul's CE Primary School. It ensures all stakeholders, including staff, governors, parents and pupils, are working towards the same goals.

The purpose of this policy is to:

- Set out a framework for all teaching and non-teaching staff, giving guidance on planning, teaching and assessment
- Demonstrate adherence to the National Curriculum objectives and guidelines
- Provide clear information to parents and carers about what their children will be taught
- Allow the governing board to monitor the curriculum
- Provide Ofsted inspectors with evidence of curriculum planning and implementation

2. Subject vision

At St Paul's, we know that high – quality computing education equips our children to use computational thinking and creativity to understand and change the world. It enhances learning across the curriculum and has deep links with our teaching of mathematics, design and technology and science. The children will be diving into coding, decomposition, debugging, all essential tools to familiarise themselves with what computing and technology has to offer.

Our computing curriculum enables our children to become digitally literate throughout the ever changing digital world. It is changing the lives of everyone, especially children and young people. It gives them a strong foundation to express themselves and develop their own ideas through information and communication technology at a level suitable for the future workplace.

3. Intent: Aims and outcomes

By the time our pupils leave St. Paul's, they should:

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

Key Stage 1

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.

Key Stage 2

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.

4. Implementation: Teaching and learning

At St. Paul's, we use a variety of teaching and learning styles in computing lessons. To support the teaching of computing, we use Kapow's programme of study to help deliver lessons with clear progression and to build upon basic skills. Lesson plans are based around the scheme of work with objectives adapted to suit the stage of development for the pupils in each class. The teaching of computing might involve:

- Whole-class teaching
- Small group discussions
- The use of the chromebooks or iPads
- Visitors coming into school to deliver workshops
- Role play/drama-based activities

At St. Paul's, we recognise that in all classes children have a wide range of abilities, and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways:

- We set tasks which are open-ended and can have a variety of responses
- We set tasks which can be adapted for different children either to increasing difficulty or support them
- We group children by ability for some tasks, in mixed ability groups for others and independently for some tasks. Sometimes each type of grouping will have different activities, other times this may just include having additional support offered to them
- We provide resources of different complexity, matched to the ability of the child
- We use adults in the classroom to support the work of individual children or groups of children.

All children regardless of their race, sex, religion or ability will be given equal opportunities to develop their knowledge, skills and understanding of computing. Care is taken when selecting source material that a range of perspectives and viewpoints are represented; including those of men and women of different racial, national or religious groups. Care is taken that societies are not just represented from the British perspective but also from their own.

5. Curriculum overview

Here at St. Paul's, pupils will follow a high-quality computing curriculum that gradually develops learning, equipping pupils to use computational thinking and creativity to understand and change the world. Children will know more, remember more and do more. Computing is taught and planned as a discrete subject. We carry out our curriculum planning in three phases: whole-school overview, schemes of work and short-term plans.

Our whole-school overview maps out the computing topics studied during each year group:

Computing Curriculum Overview Y1 – Y6						
Computer Science Can understand and apply fundamental principles and concepts, including abstraction, logic, algorithms, and data representation.		Information Technology Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.		Digital Literacy Are responsible, competent confident and creative users of information and communication technology.		
Computer systems and networks		Programming		Creating Media		Online Safety
Autumn 1		Autumn 2		Spring 1		Summer 1
Online Safety – L1		Online Safety – L2		Online Safety – L3		Online Safety – L4
Computing Systems and Networks				Programming: 1 & 2		Data Handling
Improving Mouse Skills				Programming Bee-Bots (Virtual)/ Algorithms Unplugged		Introduction to data
Online Safety – L1		Online Safety – L2		Online Safety – L3		Online Safety – L5
Computing Systems and Networks: 1				Programming: 1 & 2		Computing: Systems and Networks: 2
What is a computer?				Scratch Jr / Algorithms and debugging		Word Processing
Online Safety – L1		Online Safety – L2		Online Safety – L3		Online Safety – L4
Computing Systems and Networks: 1				Emailing L4/5		Creating Media
Networks				Programming: 1		Video Trailers
Online Safety – L1		Online Safety – L2		Online Safety – L3		Online Safety – L5
Computing Systems and Networks				Programming: 1		Checkpoint (Google programmes)
Collaborative Learning (Google)				Further coding in Scratch		
Online Safety – L1		Online Safety – L2		Online Safety – L3		Online Safety – L4
Computing Systems and Networks				Programming: 1		Data Handling
Search Engines				Scratch (Programming Music)		Mars Rover - 1
Online Safety – L1		Online Safety – L2		Online Safety – L3		Online Safety – L6
Creating Media/ Computing systems and Networks				Programming: 2		Skills Showcase
History of Computers/Bletchley Park				Micro:Bits		Inventing a product

Our schemes of work outline the knowledge nuggets taught in each topic and are based on the objectives found in the National Curriculum

(https://assets.publishing.service.gov.uk/media/5a7c576be5274a1b00423213/PRIMARY_national_curriculum_-_Computing.pdf). All children have access to knowledge organisers for reference and consolidation of skill information and vocabulary. Our knowledge organisers can be found on the school website: <https://www.stpaulsco.co.uk/year-group-curriculum-overviews/>

6. Cross-curricular links

Computing shares links with the following subjects:

- English: development of literacy skills through reading, writing, speaking and listening and learning new and specific computational language
- Maths: being able to reason and find solutions & Third Space Learning lessons
- ICT is also used to enhance all of the other curriculum areas through using the internet for research and to find, select and analyse information. Video clips are also used to show parts of the curriculum which would be impossible to do in the classroom.

Our computing curriculum offer highlights how computing impacts the rest of school life:

<https://www.stpaulsco.co.uk/computing-2/>

7. Impact: Assessment and recording

Assessment

St. Paul's uses assessment to enable staff to understand what pupils have learnt before, what they need to learn now and what they will learn next.

Formative assessment

Formative computing assessment is ongoing and will be used to inform teachers in relation to their planning, lesson activities and differentiation. During lessons, teachers will make informal judgements continuously. At the end of the lesson, the teacher assesses the pupil's work and will make a judgement to inform future planning. Feedback (either written or verbal) is given to each child to help guide their progress.

Summative assessment

Summative assessment is completed at the end of a computing unit, based on the computing skills and knowledge nuggets found on the schemes of work. This will be completed using teacher assessment. Teachers will use assessment checkpoints throughout the unit and the assessment criteria on the schemes of work to make their judgements.

Further assessment information can be found in the school's assessment policy.

Marking

Children receive regular verbal and written feedback and marking follows the school's marking policy.

Further marking information can be found in the school's marking policy.

Recording

In computing, pupils will record their learning on Seesaw or on the apps being used.

This may take the form of photographs, pictures, notes or written work, and may be worksheet-based or fully independent.

8. Enrichment Curriculum & Resources

Subscriptions

See Appendix 1.

RM Support – A technician attends school once a week to complete necessary tasks.

Resources

- iPads
- Chromebooks ??

External speakers, local museums, trips

- Visitors (e.g. Robotics workshop)
- Altru Drama Performances (e.g E-Safety)

9. Roles and responsibilities

Headteacher

The headteacher at our school will:

- Support the subject leader but also hold them to account for the effectiveness of the subject
- Support staff through the provision of training and resources
- Monitor the planning and delivery of the subject
- Ensure the requirements of the National Curriculum are met
- Ensure this policy is reviewed according to the timescales set out

Subject leader

The subject leaders at our school will:

- Prepare and review subject policy and curriculum plans
- Promote the study of the subject throughout the school
- Monitor the teaching and assessment of the subject (using subject leader journal)
- Attend appropriate CPD
- Stay informed regarding developments in the study and teaching of the subject
- Evaluate resources
- Provide support, training and CPD to staff on the subject curriculum and its delivery, and keep them informed about subject developments nationally
- Assess the impact of the subject curriculum on pupils' learning and development
- Make presentations to governors on the subject and how it is being taught

- Provide the Headteacher with a summary report in which the strengths and weaknesses of science are evaluated and indicated areas for further development

Classroom teacher

Classroom teachers at our school will:

- Plan, teach and assess the subject according to the principles laid out in this policy
- Report to the subject leader
- Maintain subject knowledge and appropriate CPD

Parents

The parent community at our school will:

- Make sure their children are prepared for learning
- Support their children to complete project book activities

10. Inclusion

At St. Paul's, teachers set high expectations for all pupils in computing, whatever their ability and individual needs. Computing forms part of the school curriculum policy to provide a broad and balanced education to all children and we acknowledge that learners with additional needs are likely to experience difficulties within their learning which may act as barriers. Through our computing teaching, we provide learning opportunities that enable all pupils to make good progress by adapting the teaching of computing to suit the needs of all pupils. We strive hard to meet the needs and will use appropriate assessment to set ambitious targets and plan challenging work for all groups, including:

- More-able pupils
- Pupils with low prior attainment
- Pupils from disadvantaged backgrounds
- Pupils with special educational needs (SEN)
- Pupils with English as an additional language (EAL)

Teachers carefully consider these adaptations as shown below:

Cognition and Learning	
Barriers	Provision
Reading and understanding instructions	➤ Increasing font size or allowing pupils to zoom in on a screen to make instructions clearer
Retention of key knowledge	➤ Use of coloured overlays or coloured documents to support with reading ➤ Regular low stakes quizzes with limited information
Recording of work using paper and pencil methods.	➤ Word banks with definitions available during lessons to support with use of new language ➤ I do: you do modelling
Understanding the concept of time/ passage of time.	➤ Access to headphones to support with hearing instructions ➤ Peer support/ mixed ability working ➤ Smaller steps in success criteria ➤ Use of retrieval practice for retention ➤ Use dual coding (pictures and images) to support with learning of new vocabulary ➤ Adapt pace of delivery to meet different processing needs ➤ Opportunities to apply computing techniques (typing, databases, spreadsheets, animation etc) in other areas of the curriculum to support learning in other contexts
Communication and Interaction	
Barriers	Provision
Understanding and using complex	➤ Recognition that language of computing can be complicated (algorithm, coding etc) and may be new concepts in a lot of instances

computing vocabulary Participation in lessons which are largely discussion based.	➤ Pre-teaching of key vocabulary ➤ Key language on display during lessons ➤ Breaking complication sessions down into smaller chunks ➤ Regular exposure to language during key knowledge quizzes ➤ Assess child's level of prior knowledge and vocab before the topic. ➤ Enable additional thinking/processing time. ➤ Give the child a whiteboard or method of jotting down ideas to support their participation. ➤ Adult support or print outs containing log in information for ease of access to devices ➤ Provide flashcards to support with understanding key vocabulary ➤ Use dual coding (pictures and images) to support with learning of new vocabulary
Physical and Sensory	
Barriers	Provision
Fine motor skills may limit typing ability Unusual/unexpected noises during coding exercises through headphones	➤ Larger keyboard/ split key board when using iPads ➤ Regular access to typing practice at the start of lessons to support development of this skill ➤ Use of ear defenders or noise cancelling headphones ➤ Option to mute laptop/ iPad ➤ Prior warning of anything unexpected ➤ Allowing children to follow instructions on their own screens rather than looking at whiteboard
Social, Emotional and Mental Health	
Barriers	Provision
Internet Safety sessions can contain sensitive information Accidentally accessing upsetting content online	➤ Prior warning of any sensitive topics. ➤ Liaise with parents/carers in advance of any triggering lessons/topics. ➤ Develop a way of communicating when a topic has become too much and a calm area that can be used if needed. ➤ Pre-teach the child some of the elements of the lesson etc. ➤ Consider carefully the groupings – prepare the children by ensuring they are aware of the group they will be working in. Assign roles to each member of the group with a clear outline of job roles. ➤ Specifically teach the skills of cooperation and interaction for practical work. ➤ When organising a practical session consider: - how you establish investigation routines - the level of supervision needed - consider the resources available – does there need to be close supervision? Do some resources need limiting? - how will resources be organised in the classroom – from a central point or at the table? - how the task can be broken down into manageable steps and the best way to present any instructions e.g. some children prefer diagrams, others a checklist. ➤ Opportunities to develop social skills including being taught these discretely to support engagement in group work and collaborative learning. ➤ Use of PSHE to discuss healthy relationships, promote wellbeing and explore emotive topics within learning.

Further information can be found in our statement of equality information and objectives, and in our SEN policy and information report.

11. Health and Safety

The school is aware of the health and safety issues involved in children's use of ICT and computing. All electrical appliances in school are tested accordingly. It is advised that staff should not bring their own electrical equipment in to 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 ICT technician, Computing Subject Lead or Headteacher who will arrange for repair or disposal. It is the responsibility of staff to ensure that classroom computing equipment is stored securely and when using shared equipment that their class or themselves leave the equipment clean and tidy after use. Staff should ensure that the children are seated at the computers comfortably and be aware of the dangers of continuous use (e.g. eye/wrist strain etc). An adult should always supervise children when they are accessing information via the Internet. RM does filter information but staff are advised to take great care on the content accessed by children and are ultimately responsible for information accessed by pupils. In line with current KCSIE guidance, live monitoring via Smoothwall is in place to ensure that any activity which would be regarded as a safeguarding concern is immediately picked up on by a member of the safeguarding team. Food and drink should not be consumed near computing equipment.

Children at St. Paul's are taught how to use equipment/resources safely and handle artefacts/resources with respect. They are taught how to use materials economically and to clean up after themselves with regard to the needs of other people. Risk assessments and school health and safety procedures should be followed when out of school on trips or when there are visitors in school.

Security

- The ICT and computing technician will be responsible for regularly updating anti-virus software.
- Use of ICT and computing will be in line with the school's 'acceptable use policy'. All staff, volunteers and children must sign a copy of the schools AUP.
- Parents will be made aware of the 'acceptable use policy'.
- All pupils and parents will be aware of the school rules for responsible use of ICT and computing and the internet and will understand the consequence of any misuse.
- The agreed rules for safe and responsible use of ICT, computing and the internet will be displayed in all ICT and computing areas.

12. Links to other policies

This subject policy links to the following policies and procedures:

- Curriculum policy
- Assessment policy
- Marking policy
- SEN policy
- Remote Learning policy
- E-Safety policy
- Acceptable use policy

13. Monitoring and review

This policy will be reviewed by staff and governors annually.

Appendix 1

School Software/Subscriptions

➤ Whole-school subscription to KAPOW.

<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
➤ Sketchpad ➤ Terrapin Logo – Beebots ➤ Google Photos ➤ Microsoft Photos ➤ Microsoft Powerpoint ➤ J2E	➤ Sketchpad ➤ Scratch ➤ Typing Club Jungle Junior ➤ Microsoft Word/Google Docs ➤ Scratch Jr ➤ J2E Animate ➤ Stop Motion Studio ➤ Microsoft Photos	➤ Scratch ➤ Gmail ➤ Microsoft Outlook ➤ Sketch Pad ➤ WeVideo (app) ➤ iMovie (app) ➤ Google Forms/Sheets ➤ Microsoft Forms/Excel
<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
➤ Google Docs/Slides/Forms/Sheets ➤ Microsoft Word/Forms/Excel ➤ Scratch ➤ Google Sites ➤ Microsoft Sway/Word ➤ Trinket ➤ SketchPad ➤ Imovie	➤ Sketchpad ➤ Sonic Pi ➤ Scratch ➤ Stop Motion Studio ➤ Microsoft Photos ➤ Micro-bit app ➤ Microsoft Excel ➤ Google Sheets ➤ TinkerCAD ➤ Google Forms/doc	➤ Turtle Academy ➤ Trinket ➤ Scratch ➤ Microsoft Excel ➤ Google Sheets ➤ Soundtrap/Audacity ➤ Google Docs ➤ Microsoft Forms ➤ Microbit app ➤ TinkerCAD ➤ Google Sites ➤ Microsoft Sway ➤ WeVideo