ST. LUKE'S CHURCH OF ENGLAND PRIMARY SCHOOL
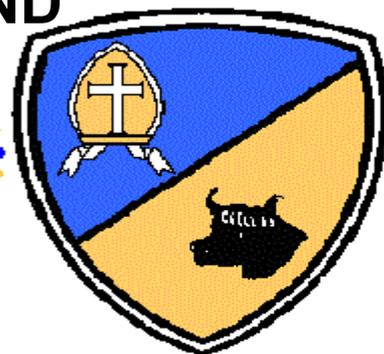
Computing Policy

Date of Policy: 2018

Review date: 2019

INTRODUCTION:

A high-quality computing education equips pupils to use **computational thinking and creativity** to understand and change the world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems. The **core of computing is computer science,** in which pupils are taught the principles of information and computation, how digital systems work and **how to put this knowledge to use through programming**. Building on this knowledge and understanding, pupils are equipped to **use information technology to create programs**, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Computing (principally but not exclusively computers) is used in many ways for the presentation, analysis and storage of information, but also to model, measure and control external events, to solve problems and to support learning in a variety of contexts, not least through the use of the Internet, across the whole curriculum. The term Computing is understood to incorporate IT.

Computing is an important and in many ways an essential feature of modern everyday life. Children will already be familiar with it in the home and in the environment.

New technology is continually developing and increasingly affects their lives. They need the confidence and capability to use it.

As our school's statement of philosophy states -

"We will design a curriculum within which our children will be entitled to develop the knowledge, skills and concepts necessary for life in a modern, technological society."

This policy has been drawn up by the Computing Subject Leader.

AIMS OF Computing

Through the teaching and use of Computing we aim to help the children develop these skills and attitudes -

- 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
- Keyboard/mouse dexterity
- Flexibility of thought
- Adaptability (using various computer systems, control tools, etc)
- Understanding of the effects of the use of Computing
- Responsibility for own learning
- Sensible use of computer - as a tool, not a game
- Confidence
- Perseverance
- Ability to communicate confidently with others

Through the use of Computing children will develop skills in other areas, e.g. redrafting, design, problem solving, etc.

Through the use of Computing the children will develop their knowledge over a wide range of subjects.

The children will appreciate the effectiveness of the Internet as a communication & research tool

IMPLEMENTATION OF COMPUTING

At St.Luke's, computing is arranged into 3 strands, the first dealing with computer science, the second dealing with information technology and the third dealing with digital literacy.

First Strand – **Computer Science**

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

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 pats.
- Use sequence, selection, and repetition in programs; work with variable and various forms of input and output
- Use logical reasoning to explain how simple algorithms work and to detect and collect errors in algorithms and programs
- Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web
- Appreciate how [search] results are selected and ranked.

Programs – A.L.E.X, Cargobot, SCRATCH, & the Internet

Second Strand – **Information Technology**

KEY STAGE 1
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

KEY STAGE 2
- Use search technologies effectively
- 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, evaluation and presenting data and information.

Third Strand – **Digital Literacy**
<u>KEY STAGE 1</u>
- 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.

<u>KEY STAGE 2</u>
- Understand the opportunities [networks] offer for communication and collaboration.
- Be discerning in evaluating digital content
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

E-Safety
- There is a separate e-Safety policy in addition to this computing policy. E-safety encompasses all three strands and all areas of the curriculum.
- At St Luke's we follow the 'digital literacy' scheme of lessons for e-safety from Year 1 to 6. Each class teaches these designated lessons as well as embedding e-safety skills into their everyday computing lessons.

Breadth, Balance and Progression through the School

To ensure the breadth and balance of the children's learning and the smooth progression up the levels of ability, we identify the areas (and programs where appropriate) covered each year to check there are no gaps. This is done through the evaluation of key skills planning to ensure coverage.

HOW THE CHILDREN ARE TAUGHT:
The main Computing skills are taught through cross-curricular planning - themes. Each class has 2 timetables slots in the ICT suite and a half class set of iPads is also available to be booked and used as appropriate.

The majority of the programs installed on the suite computers are also installed on the class-based computers so that the skills learned will be able to be perfected & utilised through their later class work.

<u>Teaching groupings</u>:
<u>Whole-class</u> teaching of Computing skills takes place in the Computing suite or using mobile devices (mini books, iPads), which can be used in classroom settings.
In the classrooms of the younger children, it is sometimes found that some programs are more suitable for <u>small group work</u>, e.g. adventure programs, and <u>pair work</u> is often useful to transfer the skills involved in a new program from one child to the next.

Whenever possible, especially in the Foundation Stage and in Key Stage 1, an adult such as a learning support assistant, a student or a parent will sit with the children to guide and monitor their work.

All children are taught the basic mechanics of how to use a computer, tape recorder, etc. sensibly & safely and care is taken to give all equal access.

Special Educational Needs
All children are given an equal opportunity to use Computing across the curriculum. Children with SEN may also be given extra opportunities to assist their learning & enable them to gain full access to the curriculum.
We also have specific programs to assist the Special Needs children in their literacy & numeracy work such as TalkingMaths etc.

Early Years

The computers in the Reception Class are available and in use from the children's first day in school. In this way, they view computers as an important but pleasant aspect of their learning and as an integral part of modern life. They are given the same opportunities in the classroom as the other children and are timetabled in the Computing suite but their full use of this facility is built up slowly.

As the children use the mouse and the keyboard, they learn manual dexterity and the use of the individual keys introduces them to both capital and lower case lettering. They learn how to print their work or how to save it to finish or to print later.

During this year they also begin to appreciate the Multimedia aspect of computers, as the SMART Table and classroom computer linked to the Interactive whiteboard are used across a broad range of topics.

They experiment with the control of robot-like toys, e.g. Beebots, remote control cars, etc.

LEARNING OUTCOMES

The learning of Computing skills by the children from Reception upward has been developed in school and is based on the National Curriculum (2014). Planning includes all of the objectives that the children must cover and these can be taught through core subjects or through key skills planning.

At the end of Key Stage 1, our children should:
- 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

At the end of Key Stage 2, our children should:
- 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 teachers are aware of the minimum skills that should be taught to this age group but also frequently aim to introduce additional extender skills, e.g. keyboard shortcuts, hyper-linking, as their own expertise increases over time.

ASSESSMENT, RECORDING AND REPORTING

Examples of most of each class' work are kept in class folders on the pupil shared drive (S).

We use the assessment sheets developed in school to monitor and track progress within Computing.

Each child's effort and attainment in Computing is reported to parents in their annual school report. (Progress in Computing in the Reception class is covered in the "Knowledge and Understanding of the World" section of their report, i.e. not identified separately.)

RESOURCES

We have a fully operational computer suite with 32 Multimedia computers all of which can access the Internet. This ensures that classes of up to 30 children can be accommodated with individual children at each computer. In addition, we have 15 iPads stored in a mobile charging trolley in the Computing suite for use in classrooms with children to enhance teaching and learning. The iPads connect to the internet and Teachers can also request apps to be purchased and installed on the iPads. Each teacher has use of an iPad for management and administration with access to the schools shared calendars and e-mail. A number of Kindles are available to be used by staff to support Guided Reading activities.

Each class has, in addition, a fixed interactive whiteboard and each class has a computer for use with the above (and for their own preparation & research). In addition, the EYFS classroom has a SMART Table where the teacher will leave activities for the children to access as part of their learning. The interactive whiteboards and SMART Table have changed considerably the way children are being taught in numeracy, literacy & in many other subjects. Topics and concepts are more easily explained to the children. Learning becomes clearer and more enjoyable and frequently individual children can play an interactive part. In this way, they all learn Computing vocabulary & many additional Computing skills.

All the school computers, including laptops, are connected to the Internet via a network link so that up-to-date material can be accessed and used in an imaginative way.

Each class or computer area in school has
- Access to a network colour printer copier
- At least one multimedia computer capable of running all the software necessary for their computing and core skills curriculum.
- Computer/s, which operate the same word-processing, database, & spreadsheet programs used throughout the school.
- Access to a great number and variety of other programs on CD or via the Internet.
- Access to a network copier that can be used as a scanner – (though staff need more training on their use.)

The library multimedia computer is linked to the Internet & also has the Junior Librarian bar-coding system installed. The older children learn how to operate this system and the intention for the future is for them to use the book & borrowing data for their research skills.

Non-computer items:
- televisions and video recorders
- CD players, class listening stations (in some infant classes) and a selection of other audio recorders and players.
- Electronic keyboards (Multimedia computers incorporate musical software.)
- A fax machine in the school office.
- Control equipment – Remote controlled toys, Roamers (robots), control Lego, Beebots
- Sensing equipment – Remote sensors, sensors to be used in conjunction with the Roamers.
- Calculators available for use in every classroom.

Human Resources

Staff are frequently consulted about their perceived level of Computing skill and their need for further training. As each new piece of hardware (and some new items of software) is acquired, training and sharing-skills sessions are planned into the time allocated for INSET.

HEALTH AND SAFETY

As electricity is integral to the use of Computing, we observe strict safety rules in its use.

Care is taken over the length of cable and the use of adapters. All portable equipment is tested for electrical safety annually. Only equipment labelled with a test certificate dated within 12 months will be used by the school. In KS1 the teacher controls the electrical output and, under supervision, the children learn to operate the switches. In KS2 the children are trained in its safe use. The younger children are under close adult supervision in the Computing suite, as are the older children when accessing the Internet. A password must be used to access Computing accounts which then access the Internet, we have a separate acceptable use policy.

ROLE OF THE SUBJECT LEADER

Organise the hardware, software and consumable items.

Advise staff on its best use, programs suitable for different areas of the curriculum, etc.

Design and review the Computing curriculum.

Help staff with individual software programs.

Keep up to date with new technology.

Correct problems/contact technical staff.

Liaise with school technical assistant, contracted technical support and the head-teacher.