

# St. Wilfrid's Church of England Primary Academy



## Computing Policy

June 2017



## Our Christian Values

As a Voluntary Aided Church of England Primary Academy, we have eight Christian Values, underpinned by love at the heart of everything we do.

Our Christian Values are:

**Fair, Kind, Joy, Courage, Forgive, Hope, Peace and Trust**  
**Love**

### 1 Our Vision

***Our Vision at St Wilfrid's is to embrace current and emerging technologies and embed them in our curriculum in order to provide our pupils with the learning they need today, to build their future tomorrow.***

**1.1** The 2014 National Curriculum introduced a new subject, Computing, which replaced ICT. We have had the chance to review and enhance our current approaches in order to provide an even more exciting and rigorous curriculum that addresses the challenges and opportunities offered by the technologically rich world in which we live.

**1.2** Computing is concerned with how computers and computer systems work, and how they are designed and programmed. Pupils studying Computing will gain an understanding of computational systems of all kinds, whether or not they include computers. Computational thinking provides insights into many areas of the curriculum, and influences work at the cutting edge of a wide range of disciplines.

The new National Curriculum has a focus on computational thinking and creativity, as well as opportunities for creative work in programming and digital media. There are three aspects of the Computing curriculum: computer science (CS), information technology (IT) and digital literacy (DL).

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.

### 1.3 Pupils

The National Curriculum for Computing has four main 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. See glossary.
- 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.

We aim to enable pupils of all abilities to take greater control of their learning through the application of Computing in and out of school. This will be supported by the use of Computing in a balanced way throughout the curriculum. Pupils will develop the skills to know when and when not to use Computing, and have the ability to use it effectively when needed. They will have access to high quality digital learning resources whenever and wherever they are needed and have links to their classmates and teachers while studying out of school. Pupils, following the National Curriculum, will reach levels of attainment and Computing capability at the end of each Key Stage that match or exceed national expectations, or where necessary or appropriate,

other measures of achievement.

The new National Curriculum (Key Stage 1 & Key Stage 2) states that pupils should be taught to:

### **Computer Science**

- 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
- 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
- Appreciate how [search] results are selected and ranked

### **Information Technology**

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- 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, evaluating and presenting data and information

### **Digital Literacy**

- 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
- 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

**1.4 Parents** - To give parents and carers enhanced opportunities to participate in their child's education and school affairs through the use of Computing. They will have access to relevant information on their child and current programmes of study and resources to support learning out of school. (Purple Mash/J2Easy). To raise awareness of how to help their child, use technology safely, respectfully and responsibly.

**1.6 School staff and school leaders** - To ensure that the continuing professional development of school staff and school leaders enables them to reach nationally defined standards of competence in Computing. School staff will apply these competencies to improve the quality of teaching and learning. School leaders will apply these competencies to improve the quality of leadership and management.

**1.7 Governors** - To provide support and opportunities by the use of Computing for active participation in school affairs, including improved information flow and opportunities to discuss and respond to issues online. Governors will plan and provide leadership to achieve the vision.

**1.8 Management and administration** - To reduce the burden of administration through effective use of Computing including general administrative communications and data transfer between schools, the LA and central Government. To promote the effectiveness of management in information gathering, analysis, decision-making and communication through effective use of Computing in the line with the school development plan.

**1.9 The wider community** - To promote inclusion for all, the wider community will have the opportunity to use school Computing facilities outside normal curriculum time. For example coding club open to parents and grandparents.

**1.10 Connectivity and technical support** - To have a standard hardware, software and communications base in school will help us to match or exceed the national targets. This will include broadband to give effective access to the Internet and high quality digital resources. Appropriate and efficient technical support will be in place to ensure the daily availability of the Computing resources.

## **2 Aims and objectives**

**2.1 Computing** teaches us how to makes sense of the technological world in which we now live. It enables pupils to communicate and handle information and develop confidence satisfaction and understanding in the use of Computing. Through their growing knowledge and understanding, pupils learn to appreciate and make informed judgements about Computing applications and their effect on the quality of life for society and the individual.

### **2.2 The aims of Computing are:**

- To promote enjoyment and enthusiasm and learning through practical activity, exploration and discussion;
- To promote confidence and competence with Computing in many contexts;
- To broaden pupils' understanding of the effects of the use of Computing;
- To enable pupils to take greater responsibility for their own learning and provide opportunities for them to decide when it is appropriate to use Computing in their work;
- To develop a practical understanding of the ways in which information can be gathered and stored.
- To encourage the flexibility needed for pupils to adjust to and take advantage of future developments.
- To continue to take part in new initiatives to aid in the development of Computing within the school such as handheld iPads, robots, gaming devices, portable notebooks etc;
- To encourage the pupils to explore new experiences, new technology and initiatives;
- To ensure the safe use of Computing throughout the school and to promote the safe use of Computing; beyond the school.
- To instil in our pupils the confidence to experiment ('tinker') and explore new technologies to enhance their learning experience at school and at home.

## **3 Teaching and learning style**

**3.1** The school uses a variety of teaching and learning styles in Computing lessons. Our principle aim is to develop pupils' knowledge, skills and understanding in Computing and by encouraging the use of Computing across the curriculum. During these lessons we encourage pupils to solve problems independently and develop their skills in the use of Computing. They have the opportunity to use a wide range of resources such as computers, Ipads, online resources, laptops, roamers, inter-active whiteboards, control devices, tape recorders, digital cameras, electronic musical instruments etc. to support their work. Pupils use Computing across the curriculum where it will enhance their learning as in modelling ideas and methods or in the construction of professional style publications of their work. Wherever possible, we encourage the pupils to use and apply their learning in everyday situations.

**3.2** We provide suitable learning opportunities for all pupils by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies – In some lessons through differentiated work and

in other lessons by organising pupils to work in pairs on open ended problems and tasks.

**3.3** Computing is delivered through a variety of teaching methods and approaches. At St Wilfrid's we use Adobe Photoshop, Purple Mash, Microsoft Office, J2Easy and a variety of other software.

**3.4** Pupils are given the opportunity to:

- Develop Computing skills to understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation;
- Use Computing equipment to manipulate and present written word, images and sounds to convey a message effectively;
- Use Computing equipment to store information, and retrieve then present it in ways which enhance interpretation and analysis;
- Develop an awareness of the role of Computing in daily life in the control of equipment and potential careers;
- To be able to talk about their use of Computing and its place within real live contexts;
- Follow a range of alternative methods to develop their confidence in making choices in the Computing equipment and programs they use to complete a task;

## **4. Implementation**

4.1 Computing will be taught as a discrete subject. Opportunities will be sought to make use of Computing skills in a cross curricular way.

4.2 The Computer Suite and the PCs/laptops/Ipads distributed around the school will be used to help pupils access the Computing curriculum, along with a range of other resources such as programmable toys.

4.3 The Computing subject leaders and the Senior Leadership Team will continually monitor the resources required to deliver the Computing element of the new National Curriculum.

## **5 Computing curriculum planning**

**5.1** Our medium term Computing plans give details of the main teaching objectives and define what we teach. They ensure an appropriate balance and development of skills across each year and these skills are developed as pupil's progress through the school.

**5.2** Lesson plans list the specific learning objectives for each lesson, give details of how lessons are to be taught and highlight cross curricular elements. Teachers are encouraged to annotate their lesson plans after they have been utilised to create a reference point for the process of self-evaluation and self-improvement regarding Computing teaching at St Wilfrid's. These plans are stored centrally on the server held in school backed up four times a day. Access to the server is password protected and the class teacher and subject leaders discuss them on an informal basis.

## **6 The Foundation Stage**

**6.1** In the Foundation Stage, the Information Communication Technology requirements stated in the Knowledge and Understanding of the World element of the Early Learning Goals Foundation Curriculum, are covered in continuous and blocked units.

**6.2** Pupils are assessed informally throughout the year by the class teacher and this formative assessment guides annual and termly planning.

## **7 Assessment**

**7.1** Assessment of pupils' work in Computing is ongoing in line with St Wilfrid's Church of England Primary Academy assessment model.

**7.2** Achievement is reported to parents at the end of each academic year.

**7.3** Pupils' work is saved to the server for reference throughout the year. This is accessible by teaching staff only. Folders are kept from Y1 to Y6 then 12 months after.

**7.4** We use ongoing assessments to measure pupils' achievements and progress against the key objectives. These assessments are tracked using the St Wilfrid's assessment model and are used to assess progress against school and national targets. We pass this information on to the next teacher at the end of the year, so that s/he can plan for the next school year. We also make annual assessments of pupils' progress measured against the level descriptions of the new National Curriculum.

**7.5** The Computing subject leaders maintain an online portfolio of pupils' work. This demonstrates what the expected level of achievement is in each year of the school. Subject leaders meet regularly to review individual examples of work against the level descriptions of the National Curriculum. Pupils will also be tracked digitally and this will follow pupil achievement and highlight any areas for development.

## **8 Health and Safety**

**8.1** To avoid continuous focus on the screen, teachers should direct attention away from the screen at regular intervals by the use of discussions and demonstrations.

**8.2** Staff and pupils should avoid standing directly in front of the whiteboard projector.

**8.3** The projector beam should not be looked at directly at any time.

**8.4** Pupils are constantly reminded of our Online-Safety rules to keep them safe on the computers. (See separate Online-Safety policy for more details).

**8.5** Everyone should know how to report faults or concerns with the functioning of ICT equipment. Pupils to inform member of staff. Staff to use online ICT help desk.

## **9 English**

We will ensure that Computing contributes significantly to the teaching of English in our school by actively promoting and supporting the skills of reading, writing, speaking and listening. For example, we encourage pupils to express themselves through a written form using a range of Computing programs and to explore different ways of communicating and presenting information. The pupils explain and present their work to others during plenary sessions and through inter-active presentations using programs such as Power Point, inter-active whiteboards, tape recorders etc. Younger pupils enjoy practical work, where they are encouraged to use Computing language in a range of situations.

## **10 Mathematics**

We will ensure that Pupils use and apply Computing to Maths in a variety of ways when solving problems. Younger pupils will use Computing to communicate results with appropriate mathematical symbols. Older pupils will use it to produce graphs, tables, spreadsheets and databases when explaining and organising their results or when creating repeating patterns such as tessellations. When working on control, pupils use standard and non-standard measures for distance and angle. They use simulations to identify patterns and relationships. All pupils also have access to our online resource—My Maths. This program is used to complete homework.

## **11 Science**

The ability for pupils to observe, predict and form their own conclusions from virtual experiments furthers their understanding of investigations which time or the confines of the classroom would not allow. The opportunity for pupils to further their research through the use of the internet is encouraged to extend pupils' knowledge. Programs such as Purple Mash and Excel are used to record in a variety of forms. Digital and video cameras are also used to record observations in a visual form.

## **12 Personal, Social and Health Education (PSHE) and Citizenship**

Computing contributes to the teaching of PSHE and citizenship. The work that pupils do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. Older pupils are encouraged to make choices as to when and how they use Computing to develop and extend their work. The planned activities that pupils do within both the classroom and Computing suite encourage them to work together, to solve problems and tasks and respect each other's views. We present older pupils with real life situations in their work on databases, power point presentations, graphic modelling and in the production of newspaper articles for live publication on the schools newspaper and website. Online-Safety is embedded in the PSHE and Citizenship curriculum.

## **13 Spiritual, Moral, Social and Cultural development**

The teaching of Computing supports the social development of our pupils through the way we expect them to work with each other in lessons. Pupils often work in pairs or groups to achieve a task, and we give them the chance to discuss their ideas and results. The use of the internet contributes to the cultural development of our pupils as it gives them the opportunity to explore other parts of the world and interact with people in different countries.

## **14 Teaching Computing to pupils with special educational needs and disabilities**

It is part of the school curriculum policy to provide a broad and balanced education to all pupils. We provide learning opportunities that are matched to the needs of pupils with learning difficulties. We offer personalised log ons to allow pupils with specific needs to access the server. Computing can support pupils in their learning across the curriculum e.g. personalised settings for pupils with sight difficulties, I pads for autistic children to help them access the computing curriculum. We also cater for more able pupils by extending their knowledge.

## **15 Resources**

There are a wide range of resources to support the teaching of Computing across the school. Computing materials, equipment and resources are located in a central store with the Computing subject leader and in a designated Computing suite. Teachers are made aware of the location of all Computing resources in the school and the procedures in which the equipment is logged in and out and is cared for. This system is managed by the ICT technician. Each classroom is equipped with at least one computer and has access to a printer. Further computers are available in designated work areas between classrooms. We have three banks of iPads available for use in class and outside, e.g. clubs and lunchtime activities. Inter-active whiteboards are found in every classroom in each year group and each class teacher has a mini iPad for use as a resource for the staff and pupils and to replace a camera. The designated Computing suite has the capacity for 38 pupils sharing computers in pairs and is complete with an inter-active whiteboard for demonstration and modelling. The Computing suite is timetabled but is also available for teachers to book during non-designated times. Staff have access to a long term loaned laptop and mini iPad, which is used in accordance with the schools' Acceptable Use Policy.

## **16 Monitoring and Reviewing**

Monitoring of the standards of pupils' work and the quality of teaching of Computing is the responsibility of Computing subject leaders. The work of Computing subject leaders 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 leaders give the Headteacher and governors an annual summary in which they evaluate the strengths and areas for development in the subject and indicate areas for further improvement. The Headteacher allocates regular management time to the Computing subject for subject leaders so that they can review samples of pupils' work and undertake lesson observations of Computing teaching across the school. Within this time subject leaders evaluate the provision of Computing resources across the school, allocate funding for new resources, monitor planning and assess the quality of Computing teaching, learning and management, against the standards set out by the quality mark for Computing and discuss ways to promote the importance of Computing across the curriculum. All subject leaders are responsible for the purchasing of cross-curricular Computing resources. The Computing Link Governor is briefed about the overall progress of Computing in the school.

## **17 Family Computing links**

It is important that parents/carers should feel actively involved in their pupils' Computing learning. It is our experience that parents and carers want to help their pupils with Computing but many would value guidance on how best to achieve this. E.g. club workshops to model aspects of the new curriculum that the parents aren't familiar with. - Coding club. At St Wilfrid's we aim to include parents/carers in their pupils' Computing education by:

- Sharing the Computing learning objectives for their child via target booklets and discussing them at Parents evening.
- Giving guidance on what parents can do at home to support their child's learning of Computing.
- Keeping parents/carers formally informed of developments of Computing via newsletters, booklets and leaflets.
- To support families in accessing new Government initiatives.
- Discussing an individual pupils' progress in Computing in parents' meetings.
- Producing an annual written report on their child' progress on Computing.
- Contacting parents/carers promptly if their child is experiencing significant difficulties in the subject.
- Sharing the pupils' learning experiences via our school website and Computing twitter account (@stwilfridsICT)
- Offering clubs/workshops for parents/carers to come to if they want support their child's learning
- Awareness of the consequences of misuse of ICT equipment or misuse of the internet
- Use of current government safety guidance 'Click clever, Click safe'

## **18 Other documents available to support this policy are**

- Online-safety policy and Guidance
- Acceptable Use Policy
- Acceptable use posters displayed for the pupils

## **19 Monitoring and Review**

The Headteacher monitors the effectiveness of this policy on a regular basis. The Headteacher also reports to the governing body on the effectiveness of the policy and, if necessary, makes recommendations for further improvements.

## Appendix 1

### Glossary of Computing Terms (with thanks to 2 Simple Software)

**Actions:** Actions are types of commands which are run on a particular object, and cause it to alter its behaviour. Actions could be used to move an object, for example "UP" "DOWN" or "STOP". Actions are often called "methods". See also (object)

**Algorithm:** A precise step by step set of instructions used to solve a problem or achieve an objective.

**Assignment operator:** A type of operator that is used to assign or reassign (or change) the value of a variable. Examples are "set to" which changes a variable to a new value. For example the code:"A SET TO 2" will change the value of the variable A to 2. See also (variable)

**Block:** A group of commands that are grouped together and are run when a specific condition is met or when an event occurs. For example one could have a "WHEN CLICKED" command and the commands in the "WHEN CLICKED" block would be run when the mouse click occurs. In 2Code, commands in a block are given the same indentation and background shading to indicate they are part of the same block. In real code mode and in many other computer languages blocks of code are indicated with the use of curly brackets { } . See also (events)

**Bug:** A mistake in computer code that prevents the computer program from behaving in the way the coder intended. See also (debugging, debugger)

**Button:** An element on the screen that the user can click on. Usually click on a button generates an event that runs some code. See also (user interface)

**Coder:** A person who writes computer code.

**Collision detection:** Detecting when two sprites on the screen bump into each other. They are often used in a game to detect when a character hits a 'baddy'. See also (sprite)

**Command:** A command is a single instruction within a computer program. A computer program usually contains several commands. Sometimes commands are called 'statements'.

**Condition:** This is the 'trigger' for an 'IF' or 'REPEAT UNTIL' command, and is the test that must be fulfilled to trigger the next stage. The test result determines whether or not to run the "IF" or "ELSE" block in an "IF/ELSE" command or whether to keep repeating in a "REPEAT UNTIL" command. For example in the snippet:  
If A EQUALS B THEN PRINT... A EQUALS B" is the condition See also (selection, IF/ELSE)

**Conditional operator:** An operator (symbol) which evaluates to either true or false depending on the values either side of it. It is used as part of a condition. Examples are "equals" (as in: 'IF A=B') which will evaluate to true if the values either side of the operator are the same. Other examples include "not equals" or "less than" or "greater than" See also (operator, condition, selection, if/else, repeat until)

**Console log:** The console log is an output 'window' for the computer program that used purely for debugging purposes. It typically is a scrolling list of messages. The messages could contain information about what the program is doing or they could be notification of errors or problems within the program. See also (debugging, debugger)

**Debugger:** A tool that helps coders fix problems in their code. Debuggers often contain a console log, the ability to pause a program, step through a program line by line and the ability to inspect variables. See also (debugging, coder)

**Debugging:** Fixing problems in code. Often computer programmers spend as much time debugging code as writing code. See also (debugger, coder)

**Events:** An event is an occurrence that causes a block of code to be run. The event could be time related (see timer) or could be some kind of user input such as the user pressing a key or clicking the screen. In 2Code, the event commands are used to create blocks of code that are run when events happen. See also (block)

**Functions:** Sometimes a coder wants a group of commands to be run many times within the same program. To save having to repeat the group of commands the coder can put the commands into a 'function' and can give the function a name. Then the coder can 'call' the function (use its name within the program), which will run all the commands in that function.

**IF/ELSE:** An "IF/ELSE" command tests a condition. If the condition is true then the commands inside the "IF" block are run. If the condition is not true and there is an "ELSE" block then the commands inside the "ELSE" block are run. See also (condition, block)

**Input:** Input is information going into the computer. An input could be user the moving or clicking the mouse, or the user entering characters on the keyboard. On tablets there are other forms of input such as finger swipes, touch gestures and tilting the device.

**Method:** Another word for an action. See also (action)

**Object:** An object is an element in a computer program that can be created and manipulated using the object's actions or properties. In 2Code all the elements on the screen are objects. See also (action, properties)

**Operator:** A symbol that represents a process to apply to the objects on either side, for example "+", "=", or "AND". For example, "a+b" or "IF a=b". In 2Code there are four types of operators: assignment operators, conditional operators, mathematical operators and logical operators. See also (assignment operator, conditional operator, mathematical operator, logical operator)

**Properties:** Properties are qualities that are associated with an object. Examples include colour, speed or angle. Properties of an object can be changed in a similar way to variables using assignment operators. See also (operators, actions, variable)

**Repeat:** a "repeat" command can be used to make a block of commands run a set number of times. See also (sequencing)

**Repeat Until:** a "repeat until" command will repeat a block of commands until a condition is met. See also (condition, sequencing)

**Selection:** A decision command, where a program chooses a different outcome depending on a condition, such as "REPEAT...UNTIL" or "IF...ELSE".

**Sequencing:** When a computer program repeats a sequence of commands. This could be done using "REPEAT", "REPEAT UNTIL" or using a "Timer". See also (repeat, repeat until, timer)

**Sprite:** An element on the screen that is typically an image. Sprites are often animated and they can be set to move around the screen and can be used, for instance, to represent characters within a game. See also (user interface)

**Statement:** Another word for a command. See also (command)

**Strings:** In code, pieces of text are often called strings.

**Timer:** The timer is a command that allows a block of commands to be run either after a timed delay or at regular timed intervals. Real programming languages often have a similar type of command. See also (sequencing, block)

**User interface:** The part of the computer program that the user sees on the screen. Usually this consists of

various visible elements such as buttons, sprites or input fields. See also (design mode)

**Variable:** Variables are used for storing pieces of information within a program. The coder gives a variable a name and this name is used in other parts of the program to refer to the information stored within the variable. Variables can also be manipulated using assignment operators. In 2Code a variable can either contain a piece of text or a number. See also (operators, object, properties, assignment operators)

**Signed:**

**Headteacher: Mr. S. Colothan**

**Date: June 2017**

