# INGOLDISTHORPE C of E PRIMARY SCHOOL

**Policies**

**Computing Policy.**

**Original signed copies in staff room with copies on: website and intranet.**

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***November 2018***

Signed: Chairman of Governors Date: *Dec 2018*

Signed:  Head teacher Date: *Dec 2018*

*Reviewed by Governors at the December 2018 meeting*

*Ratified at the December 2018 meeting.*

Policy to be reviewed Autumn Term 2021.

**Purpose of study**

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.

**Aims**

The national curriculum for computing 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.
* 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.

Teaching and learning style

The aims of computing are to equip children with the skills necessary to use technology to become independent learners, the teaching style that we adopt is as active and practical as possible. While at times we give children direct instruction on how to use hardware or software, the main emphasis of our teaching in computing is for individuals or groups of children to use computers to help them in whatever they are trying to study. For example, children might research a history topic by using the internet or a specific website such as Discovery Espresso. Children who are learning science might use the computer to model a problem or to analyse data e.g. Excel. We encourage the children to explore ways in which the use of computing can improve their outcomes. For example, how a piece of writing can be edited or how the presentation of a piece of work can be improved by selecting and re-arranging text using Word or PowerPoint etc. We recognise that all classes have children with widely differing computing abilities. This is especially true when some children have access to computing equipment at home, while others do not.

Therefore, we provide suitable learning opportunities for all children by matching the challenge of the task to the ability and experience of the child. We achieve this in a variety of ways, by:

* Setting common tasks which are open-ended and can have a variety of responses;
* Setting tasks of increasing difficulty (not all children complete all tasks);
* Grouping children by ability in the room and setting different tasks for each ability group;
* Providing resources of different complexity that are matched to the ability of the child;
* Using classroom assistants to support the work of individual children or groups of children.

Computing curriculum planning

EYFS

In EYFS, Computing is integrated into all topic work throughout the year. All children in EYFS have daily access to computers and other hardware. We relate all aspects of Computing to the objectives set out in the Development Matters/ Early Learning Goals which underpin the curriculum for children aged three to five.

Children will focus on the key skills of becoming familiar with different forms of hardware and software suitable for their age range.

Key skills include:

* Becoming confident with computer keyboards and mice
* Making shapes using computers and IWB
* Understanding instructions and messages
* Becoming game players
* Becoming creative with hardware and software like Tizzy, cameras and Beebots
* Taking turns and counting
* Becoming successful learners and community members

**The National Curriculum Programmes of Study**

The school uses the [National Curriculum](https://www.gov.uk/government/publications/national-curriculum-in-england-computing-programmes-of-study) programme of study for KS1 and KS2.

The children have a minimum of 1 hour Computing lesson per week and are taught using our school laptops or the computer suite at Smithdon High School.

The teachers plan using the National Curriculum and the key objectives through the key stages set out in it. Teachers plan in conjunction with the Computing co-ordinator who makes sure all objective are covered within each Key stage.

**Subject content**

**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.

The contribution of computing to teaching in other curriculum areas

Computing contributes to teaching and learning in all curriculum areas. For example, graphics work links in closely with work in art, and work using databases supports work in mathematics and the internet prove very useful for research in humanities subjects. Computing enables children to present their information and conclusions in the most appropriate way.

English

Computing is a major contributor to the teaching of English. Through the development of keyboard skills and the use of computers, children learn how to edit and revise text. They have the opportunity to develop their writing skills by communicating with people over the internet through email. They learn how to improve the presentation of their work by using desk-top publishing software.

Mathematics

Many computing activities build upon the mathematical skills of the children. Children use computing in mathematics to collect data, analyse results, and present information graphically. They also acquire measuring techniques involving positive and negative numbers, and including decimal places.

Personal, social and health education (PSHE) and citizenship

Computing makes a contribution to the teaching of PSHE and citizenship as children learn to work together in a collaborative manner. They develop a sense of global citizenship by using the internet and e-mail. Through the discussion of moral issues related to electronic communication, children develop a view about the use and misuse of computing, and they also gain a knowledge and understanding of the interdependence of people around the world.

Teaching computing to children with special needs

At Ingoldisthorpe C of E primary school we teach computing to all children, whatever their ability. Computing forms part of our school curriculum policy to provide a broad and balanced education for all children. We provide learning opportunities that are matched to the needs of children with learning difficulties. In some instances the use of computing has a considerable impact on the quality of work that children produce; it increases their confidence and motivation.

Assessment and recording

Teachers assess children’s work in computing by making judgements as they observe them during lessons. On completion of a piece of work, the teacher marks it and comments as necessary. At the end of a unit of work the teacher makes a summary judgement about the work of each pupil in relation to the national curriculum programme of study and records these judgements in school reports issued in March and July. This is used as the basis for assessing the progress of the children and to pass information on to the next teacher at the end of the year.

**Identifying Gifted and Talented in Computing**

At Ingoldisthorpe Primary school all staff have high aspirations to challenge and motivate children of all abilities. In Computing, pupils who are identified as gifted are challenged within lessons in school, and are additionally offered challenges; as well as encouraged to attend extra-curricular activities such as after school club and work outside of school e.g. homework projects and access to espresso at home.

Below are a series of markers that can help identify pupils who are gifted and talented:

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| **Gifted Markers to look for in Computing** |
| Finds and uses new technology (hardware/software) to further learning |
| Uses own skills and knowledge to help support (and ‘teach’) peers |
| Uses technology to help solve problems, *and understands when it also creates problems* |
| Considers the limitations of technology, and looks for ways to overcome these limitations |
| Considers the purpose to which information is processed and communicated, and how the characteristics of different kinds of information influence its use |
| Uses technology innovatively to support learning in other subjects |
| Understands the positive impact using technology has in supporting the learning of less able pupils |
| Uses skills and knowledge of Computing to design, create and ‘debug’ programs when only given a specified outcome |
| Consider some of the social, economic and ethical issues raised by the use of technology both in and out of school |

Resources

Our school has a network of computers for all children, in EYFS and KS1 classrooms there is a constant bank of computers where the children can easily access the internet or programmes needed for work or for social requirements. In KS2, there is a joint bank of 15 laptops which are easily accessed during lesson time and after school. They are available for children to work on at any time with permission from an adult.

The school has internet access for computers and we keep resources for computing, including software, in a central store in the activities room. Most software is located on the network or loaded locally onto the desktop or laptop by our ICT technician. Disks are kept within the classrooms or the central store.

Monitoring and review

The monitoring of the standards of the children’s work and of the quality of teaching in computing is the responsibility of the computing subject leader. The computing subject leader is also responsible for supporting colleagues in the teaching of computing, for keeping informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school. The computing subject leader has specially-allocated time for carrying out the vital task of reviewing samples of the children’s work and for visiting classes to observe the teaching of computing. Monitoring and evaluation will be based on oral work, pupil’s prepared work and on assessments.

Regular inset training is accessed by all staff who would like it. The inset is guided by the needs of the staff and the requirements of the children. Continuous CPD is encouraged and filtered through all staff to help their knowledge and the growing knowledge of the children.

 **Partnership** **with** **Parents**

The children have access to a wide variety of resources that enable them to continue their learning of Computing and technology at home. There are a range of resources made available through the school’s website ***www.ingoldisthorpeprimary.com*** about E-Safety. Our pro-active stance supports parents to be better informed about computing inside and outside of school. There are hyper- links to help parents understand the online world and suggestions of how help them equip their children for modern life. The school also has a dedicated E-safety page which is regularly updated for children and parents to access.

An annual parent information event run by the headteacher and the computing co-ordinator, to help parents understand the benefits and the risks open to their children. It also allows parents to get to grips with the rigors of computing in school and how best to help their children at home.

**Appendix 1**

ICT Code of Conduct found in every room – discussed in PSHE with all children in the school.