

Computing and ICT

Curriculum Statement

INTRODUCTION

Within The Warriner Multi Academy Trust we believe that Computing and the use of ICT is central to the education of all children. We aim to give each pupil the opportunity to apply and develop their technological understanding and skills across a wide range of situations and tasks. Pupils are encouraged to develop a confident and safe approach to Computing and the use of ICT, with the understanding of the capabilities and flexibility of their resources. With the knowledge that Computing and ICT will undoubtedly continue to form a major part in the children's life at home, in further education and places of work, we ensure the Computing and ICT experiences and abilities that the children are equipped with are effective and transferrable life skills.

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.

SUBJECT CONTENT

FOUNDATION STAGE (Nursery & Reception)

Pupils should be taught to:

- Know how to operate simple equipment, e.g. turn on a CD player and use a remote control.

- Show an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones.
- Show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.
- Know that information can be retrieved from computers
- Complete a simple program on a computer.
- Use ICT hardware to interact with age-appropriate computer software.
- Recognise that a range of technology is used in places such as homes and schools.
- Select and use technology for particular purposes.

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.

TEACHING & LEARNING

Within The Warriner Multi Academy Trust we make Computing an engaging and challenging learning experience. As a Trust we believe it is important to keep up to date with the technological changes that go on in the world. Our aim is to give children the skills that will allow them to thrive in the modern world. Our curriculum allows children to engage with the National Curriculum objectives in a range of ways using a variety of tools including iPads, laptops and desktop computers. Children's learning is carefully planned and sequenced, ensuring that skills are taught at an

appropriate age and are being built on each term and year. Children in the Early Years use BeeBots and other physical devices to create and execute simple algorithms. This is built on in Key Stage 1 where children learn to write and debug more complex algorithms using physical devices as well as coding software.

In Key Stage 2 children develop this further by using a range of software to write their own computer programmes. We recognise that all classes have children with differing abilities and differing ICT experiences. We provide suitable learning opportunities for all children by ensuring that appropriate teaching and learning strategies and opportunities are used to scaffold their learning where necessary.

E-SAFETY

Computing and the use of technologies within The Warriner Multi Academy Trust is underpinned by e-safety being central to the curriculum. While showing children the benefits of using new technologies we are also rigorous in teaching them about how to use technology safely and responsibly. When starting a new unit of work, teachers discuss with the children how they can keep themselves safe when using technology. E-Safety is also taught as part of our PSHE Curriculum, for example in Key Stage 1 children follow a unit on staying safe which includes rules for, and ways of physically and emotionally safe – including safety on-line, responsible use of ICT, the difference between secrets and surprises, and understanding not to keep adults' secrets only surprises.

In Key Stage 2, a unit on the On-line World includes the importance of protecting our personal information, including passwords and distribution of images. Our E-Safety Policy outlines further information about our Trust's approach to E-Safety.

CURRICULUM PLANNING

The Warriner Multi Academy Trust uses the National Curriculum in England 2014 Framework for Computing as the basis for its curriculum planning. Medium Term Plans are developed with a range of technologies in mind and we aim to use computing to support and link to the creative curriculum where appropriate. The approach of the school is to pro-actively identify and incorporate Computing into other subject areas. It is important to give children the opportunity to use a variety of hardware and programmes/apps. While there are opportunities for children of all abilities to develop their skills and knowledge in each teaching unit, the planned progression built into the computing curriculum means that the children are increasingly challenged as they move through the school. Long-term plans identify when the different areas and skills of the National Curriculum in England 2014 taught across the year group phases and follow a two-year cycle. Computing is taught by individual class teachers who take responsibility for planning, resourcing and delivering the computing curriculum.

CURRICULUM LINKS

Effective teaching of Computing and ICT involves making connections across other curriculum areas. Computing has deep links with mathematics, science and design technology and provides insights into both natural and artificial systems. E-safety is also an important part of PSHE.

Throughout all subjects, children within The Warriner Multi Academy Trust will have opportunities to gain skill, knowledge and understanding in the following areas:

- Finding things out, gathering information from a variety of sources, entering, storing, and retrieving information.
- Developing ideas and making things happen through text, tables, images and sound
- Selecting and adding to information by planning and giving instructions to make things happen,
- Exchanging and sharing information sharing ideas and presenting information in different forms, to best effect,

- Reviewing, modifying and evaluating work.

EARLY YEARS FOUNDATION STAGE

In Nursery and Reception classes technology is an integral part of the topic work covered during the year. Long-term planning indicates the appropriate descriptors from the Birth to 5 document that relate to the unit of work and area of learning and also identifies how this understanding will support learning as the child moves through EYFS and KS1.

SPECIAL EDUCATIONAL NEEDS

We have high expectations for all of our children and work to ensure that barriers are able to be overcome. To that end we expect our staff to plan and deliver lessons where pupils with SEND are able to access their learning in an appropriately supported manner.

SPIRITUAL, MORAL, SOCIAL & CULTURAL DEVELOPMENT

Within computing lessons children are given the opportunity to work collaboratively and communicate effectively with each other. We encourage children to reflect on evaluate their ability to work together and to discuss how their communication had an effect on their learning. The cultural and social impact of computing and digital technology are made clear in the ability to share, add to and create content in a connected way with others.

RESOURCES

Within The Warriner Multi Academy Trust, children and staff have access to a range of I.C.T equipment, including computers, laptops and i-Pads. The technologies are linked to the school network and server and have facilities to connect to the Internet through broadband connection.

Within The Warriner Multi Academy Trust we are constantly evaluating our use of different resources and equipment as technology changes at a fast pace. Key pieces of software are used throughout the school and use of these is developed as the children progress. Other software is used to support I.C.T work in a range of curriculum areas. Teaching resources are kept within each class and the internet is used regularly as a rich and varied provider of a variety of resources. Interactive Whiteboards and display screens are installed in all classrooms. Equipment other than computers is also available and is used throughout the National Curriculum. These include digital cameras, scanners, Bee Bots and remote-control toys. Through the use, experience and discussion of a varied range of equipment, children gain knowledge about the use of I.C.T. and its implications in day to day life.

ASSESSMENT & RECORDING

Teachers assess children's work in ICT by making informal judgements as they observe them during lessons and by providing written and or verbal feedback throughout a unit of work. When appropriate, computing work is saved on the school network. Other work may be printed and filed within the subject from which the task was set. At the end of the year, the teacher makes a summary judgement about the work of each pupil in relation to the skills they have developed in-line with the National Curriculum in England 2014 and these are reported to parents as part of the child's annual school report. We use this as the basis for assessing the progress of the child and we pass this information on to the next teacher at the end of the year.

MONITORING & REVIEW

Class teachers are responsible for the standard of children's work and for the quality of their teaching in ICT lessons. Subject leaders work with their school teams to develop subject pedagogy across the school and to monitor the ICT teaching and learning taking place through book looks, pupil interviews and learning walks. Where strengths and examples of good practice are noted, they are shared and where areas requiring additional support are highlighted, the necessary CPD is provided.