

# **CANTRELL PRIMARY AND NURSERY SCHOOL**



## **COMPUTING POLICY**

**June 2022**

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## 1. Introduction

This policy document sets out the school's aims, principles and strategies for the delivery of Computing.

- 1.1 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
- 1.2 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.
- 1.3 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.

## 2. INTENT

Cantrell School's Computing Curriculum is broad and ambitious, and designed to give all our pupils, particularly those that are disadvantaged and pupils with SEND, the knowledge and cultural capital they need to succeed in life.

### Aims and objectives

- 2.1 Our aim is to develop children with the computational thinking and problem-solving skills they will need to succeed in and contribute to our rapidly changing world.
- 2.2 To achieve this aim we will follow the 2014 National Curriculum for Computing which 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 competent, confident and creative users of information and communication technology
  - are aware of safe and responsible computing practices (see separate e-safety policy)

### **3. IMPLEMENTATION**

Cantrell School's Computing Curriculum is designed in a way that allows pupils to transfer key knowledge to long-term memory; it is sequenced so that new knowledge and skills build on what has been taught before and towards defined end points.

#### **Organisation of Teaching and Learning**

**3.1** As 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 do 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 and Computing to help them in whatever they are trying to study.

**3.2** 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. 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.

### **4. Computing curriculum**

**4.1** In line with the statutory requirements of the 2014 National Curriculum, Key Stage 1 pupils will 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.

**4.2** In line with the statutory requirements of the 2014 National Curriculum, Key stage 2 pupils will 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

## **5. Early Years Foundation Stage**

The positive and noticeable benefits of young children using Computing are similar to those of the older pupil. Thinking and problem-solving skills are developed through a structured focus which is stimulating and linked to other activities. Children will have Computing experiences indoors, outside and through role play in both child-initiated and teacher directed time. The Computing Subject Leader works with the EYFS Subject Leader to ensure that resources are appropriate to the needs of the pupils in order to enhance life skills and support the six areas of Learning and Development.

## **6. The contribution of Computing to teaching in other curriculum areas**

Computing is used to enhance teaching and learning across all curriculum areas, challenging the most able while supporting those with learning difficulties. Opportunities for embedding Computing to support learning and teaching across the curriculum are identified in the school's planning format.

### **6.1 English**

Computing is integral to the teaching and learning of communication, language and literacy skills. For example, in speaking and listening, the use of digital and visual media enhances communication both face-to face and remotely. Writing can be explored using different media, including webpages and multimodal formats that combine text and images, video or sound clips.

### **6.2 Mathematics**

Many Computational thinking activities will enhance the mathematical skills of the children. Children will also develop their computing skills in Mathematics to collect data, make predictions, analyse results and present information graphically.

### **6.3 Personal, social and health education (PSHE) and citizenship**

Computing contributes 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.

## **7. Inclusion**

**7.1** At our school all learners, regardless of race, gender, culture or disability shall have the opportunities to develop their Computing capability. Computing forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our Computing teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress.

**7.2** When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, differentiation – so that we can take some additional or different action to enable the child to learn more effectively. This ensures that our teaching is matched to the child's needs.

**7.3** Children identified with special educational needs and needing additional support will be provided with an Individual Provision Map (IPM). The IPM may include, as appropriate, specific targets relating to Computing. 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.

**7.4** We enable pupils to have access to the full range of activities involved in learning Computing. Where children are to participate in activities outside the classroom, we carry out a risk assessment, if appropriate, prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

## **8. Assessment and recording**

**8.1** It must be remembered the process more than the outcome is the important issue when assessing Computing. Wherever possible assessment will be planned into schemes of work and will be used both formatively and diagnostically, helping teachers to meet the developmental needs of each child.

**8.2** A skills ladder has been developed to set out the expectations in Computing in each year group. Attainment of pupils is monitored against these expectations.

**8.2** A portfolio containing examples of work in Computing is kept during the school year.

## **9. Resources**

**9.1** Resources are purchased to meet the requirements of the Foundation Stage Curriculum and the National Curriculum and a Computing asset register is maintained by the School Business Manager.

Currently, teaching and learning hardware includes four PCs and an interactive whiteboard in each classroom throughout school and nursery. The school also has a suite of 34 PCs for whole class use. All PCs have internet access and the use of network printers. We have 2 class sets of I-Pads with Wi-Fi access

**9.2** Along with the computers, the school has a variety of other Computing equipment to meet the needs of the curriculum. All year groups follow the Purple Mash scheme of work which includes providing Continuing Professional Development as required.

**9.3** We buy into Nottingham City Council IT Services to support and maintain our hardware, software and other IT needs and requirements.

## **10. Health and safety (see e-safety policy)**

Age appropriate e-safety rules are displayed in the learning environment.

Equipment is maintained to meet agreed safety standards.

When the Internet is being used, the school's SMART Rules will always be strictly adhered to. These are displayed next to the bank of computers in each classroom. Lessons are taught in each year group 1- 6 using Purple Mash and other appropriate e-safety resources. There is also important information related to e-safety to be found on the schools website.

## **11. IMPACT**

The school implements a broad balanced and enriched Computing curriculum as a result:

- Pupils develop detailed knowledge and skills across the Computing curriculum and, as a result, achieve well. This is reflected in results from national test which exceed government expectations.
- Precision in planning, we know that the Computing curriculum is covered in the required depth exemplified within the statutory and non-statutory guidance of the national curriculum.
- Pupils have the opportunities to regularly revisit concepts and link ideas together.
- Learning begins from two years old. Pupils have access to a range of resources.
- Development of the whole child and gaining a sense of awe and wonder, pupils are happy engaged learners eager to share their learning with adults, family and class peers.
- High focus on developing specific subject knowledge, as well as the skills in each subject, pupil's progression through the Key Stages is ensured and readily exemplified; through display and performance and demonstrable achievements.
- Active engagement with parents, the curriculum goes beyond the classroom and promotes home study and research, parents are engaged and have ownership of the school and see it as part of the community.
- The computing curriculum being fully inclusive for all, pupils have time and opportunities to work alongside their class peers who may have a range of additional needs, this creates a strong sense of care and inclusivity.

## **12. 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 them 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 and the Computing Suite to observe the teaching of Computing.

This policy will be reviewed periodically by the Computing Subject Leader and Leadership Team and shared with all stakeholders.