

Duke Street Primary School Computing Policy



Subject Lead: Mrs Nicola Worth

Provisional policy : September 2020

Updated : September 2022



Computing at Duke Street Primary School

Rationale

'A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world.' Computing programme of Study, DfE, 2013.

Computing encompasses every part of modern life, and it is important that our children are taught how to use these tools and more importantly, how to use them safely. 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.

At Duke Street, we believe that Computing is an integral part of preparing children to live in a world where technology is continuously and rapidly evolving, so much so that children are being prepared to work with technology that doesn't even exist yet. For this reason, we feel that it is important that children are able to become competent, confident users of technology; are able to problem solve and think outside the box.

Computing Programme of Study

We can analyse the Computing Curriculum through three interrelated strands: computer science, information technology and digital literacy. These strands are all equally important as they provide pupils with functional skills that are crucial for their learning both at school and outside school.

Computer science is basically the study of how computer systems work. Teaching children to think like a computer scientist helps them to understand how computers think when solving problems, which in turn promotes computational thinking. Children develop these skills through designing algorithms, debugging and writing programs. Children learn what a computer is, how computers work, how computers link / network together, what the internet is.

Information Technology focuses on how computer applications can be used in a creative way to design solutions for a wide range of problems. This strand of the curriculum equates to what was most of the areas from the old ICT scheme of work. Children should understand that technology is everywhere, be able to identify the technology they encounter and have a basic understanding of how it works. This will link to work on programming and algorithms.

Digital Literacy- Children need to be able to use technology safely. They need to keep their personal information private and treat other people with respect. If something goes wrong or they see something they do not like they should know what to do and where to go for help. As children get older, they need to know about how to use technology responsibly. As well as thinking about how their online behaviour affects others, they need to be aware of legal and ethical responsibilities, including respecting copyright and intellectual property rights, keeping passwords and personal data secure and observing terms and conditions for online services. Some of this strand is covered in 'Educated for a Connected World' document; and is taught through a mixture of Computing lessons and PSHE lessons.

Subject Content

KS1 - Computer Science, Information Technology, Digital Literacy

Pupils should be taught to:

1. understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
2. create and debug simple programs
3. use logical reasoning to predict the behaviour of simple programs
4. use technology purposefully to create, organise, store, manipulate and retrieve digital content
5. recognise common uses of information technology beyond school

6. 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.

KS2 - CS, IT, DL

1. design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
2. use sequence, selection, and repetition in programs; work with variables and various forms of input and output
3. use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
4. 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
5. use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
6. 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
7. use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Aims / Intent

At Duke Street, we want our children to be **MASTERS** of technology and not slaves to it. Technology is everywhere and will play a pivotal part in their lives. Therefore, we want to model and educate them on how to use technology positively, responsibly and safely. We want our children to be creators not consumers and our curriculum encompassing computer science, information technology and digital literacy reflects this.

As a school we aspire :

- To enable children to become autonomous, independent users of computing technologies, gaining confidence and enjoyment from their activities.
- To develop a whole school approach to computing, ensuring continuity and progression in all strands of the Computing National Curriculum.
- To explore their attitudes towards Computing and its value to them and society in general. For example, to learn about issues of security, confidentiality and accuracy.
- To use computing technologies as a tool to support teaching, learning and management across the curriculum.
- To enable the children to be ready for the ever-changing world of technology by becoming computational thinkers.

Implementation / Curriculum / scheme of work

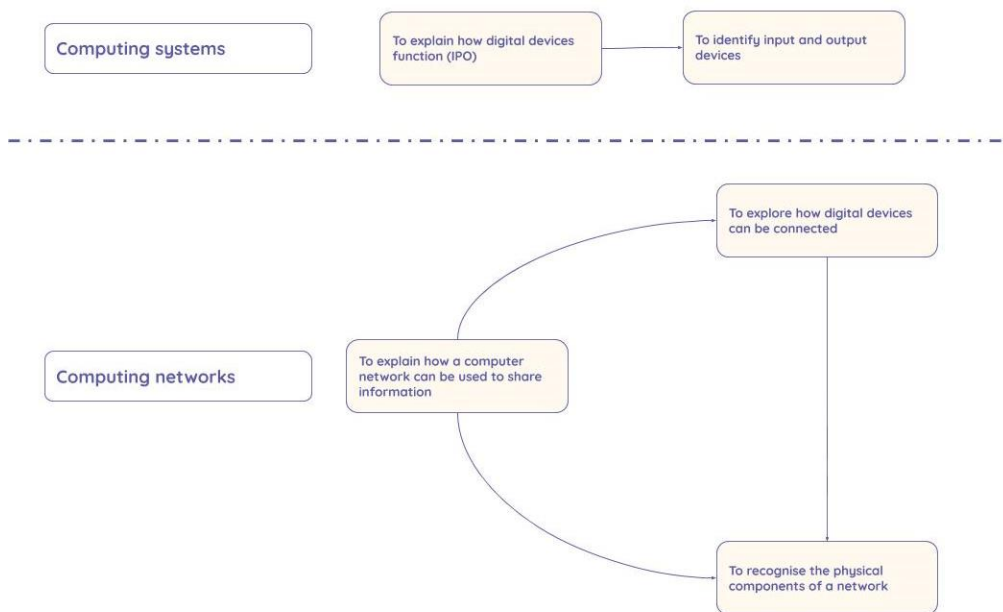
By its very nature, the Computing curriculum is liable to change frequently. The plan for developing the curriculum and managing changes is outlined in the school's Computing Action Plan which is updated at least once a term by the Computing Subject Leader. It includes proposals for future development of the curriculum, use of resources, staff training needs and long-term replacement of hardware. Not all the required changes can be made in the short term because of the cost and training time involved. The delivery of the computing curriculum at Key Stages 1 and 2 will be taught through the NCCE Teach Computing Curriculum.

<https://teachcomputing.org/curriculum>

After successfully completing the 'The National Centre for Computing Education Certificate in Teach primary computing' in June 2020, (*nationally recognised qualification will demonstrate your commitment to developing your own practice and to computing as a school subject.*), Mrs Nicola Worth, felt there was a need to update and improve the scheme of work. This is when the Teach Computing Curriculum was introduced to Mrs Worth. It is

based on the 'learning' in the lessons, not on the 'content' of the lessons. Six units of work have been produced for each year group 1 to 6. Each unit contains a learning graph which allow teachers to sequence the concepts and skills that they're introducing in their lessons when teaching these units. This allows for progression within units as well as across the units. They show which skills and concepts are reliant on prior knowledge and where (conceptually) to go next if learners have mastered one. These are all available on the school's One Drive and www.teachcomputing.org/curriculum

Learning graph taken from Year 3 Connecting Computers unit.



Each unit comes with a unit overview (MTP) that contains:

- Unit introduction
- Overview of lessons including learning objectives (WILF)
- Progression (included prior learning)
- Learning graph
- National curriculum links
- Assessment opportunities
- Subject knowledge for teachers.

Each unit then also has 6 individual lesson plans for each unit. There is also a teacher PowerPoint, any worksheets or resources needed for the lesson and when required any assessment activities. Again, this is all available on the school One Drive for the teaching staff.

Introduction

This lesson introduces the concepts of **input, process, and output**. These concepts are fundamental to all **digital devices**.

Learning objectives

To explain how digital devices function

- I can explain that digital devices accept inputs
- I can explain that digital devices produce outputs
- I can follow a process

Key vocabulary

Digital device, input, output, process

Preparation

Subject knowledge:

You will need an understanding of digital and non-digital devices. The key difference is that a digital device is capable of some processing, i.e. it has functions beyond being either on or off. You will also need to be familiar with the concept of input, process, output (IPO) which underpins all digital devices. There are cross-curricular links with maths for IPO which can be referenced during this lesson.

Lesson plan snippet. Includes key vocabulary that is needed. Step by step instructions for the lesson.

We will approach this with a 2-year cycle to enable appropriate coverage in our mixed age classes. The subject leader will organise the order of the units for each term and each cycle. Where possible, the coverage will be based on the same strand of the computing curriculum; this will enable the subject leader to monitor progression; and to offer whole staff CPD when appropriate. This new scheme is in its infancy, therefore a complete 2 year cycle is only provisional and likely to change after usage and evaluation.

As the Teach Computing Curriculum has been put together by a panel of experts, we are aspiring to give the children the best computing education possible. It helps to build teacher subject knowledge and therefore pupil understanding and application. This, we feel, follows our school ICARE values.

EYFS

Reception children are taught through the EYFS curriculum using 'Development Matters' goals and is assessed using the Early Learning Goals where clear outcomes are found in the section related to Understanding the World (UTW). The work is ongoing throughout the year and is differentiated according to ability. It is important in reception to give children a broad, play-based experience of ICT in a range of contexts, including outdoor play. Computing is not just about computers but encouraging them to become problem solvers and computational thinkers. Early years learning environments should feature ICT scenarios based on experience in the real world, such as in role play. A variety of ICT equipment is available in reception classrooms for the children to explore.

Impact / Monitoring / Assessment

Teachers are continually assessing and adapting lessons as they feel appropriate. The Teach Computing scheme has assessment opportunities and guidance within its planning. There is also learning objectives and self-assessment opportunities in the PowerPoints linked with each lesson. In KS1 and LKS2, teachers are asked to print off examples of work for a class floor book, which shows levels of attainment.

Monitoring is completed by the subject leader at least twice a year. This includes looking at evidence of work and through pupil conferencing. The findings of this is then shared with the teachers and SLT.

This enables the subject leader to measure the impact that the teaching of Computing is having and where further support and guidance can be offered. This also enables us to adapt the overview when it is felt needed.

Online Safety

This is integrated through the Teach Computing scheme. We also supplement the learning with lessons and themes from Project Evolve. This has been compiled to fully support the framework in 'Education for a Connected World'. All 330 statements are covered within the lessons. Some of these statements are covered through our PSHE lessons.

Education for a Connected World is a tool for anyone who works with children and young people. It enables the development of teaching and learning as well as guidance to support children and young people to live knowledgeably, responsibly and safely in a digital world. It focuses specifically on eight different aspects of online education: 1. Self-image and Identity 2. Online relationships 3. Online reputation 4. Online bullying 5. Managing online information. 6. Health, wellbeing and lifestyle 7. Privacy and security 8. Copyright and ownership The framework aims to support and broaden the provision of online safety education, so that it is empowering, builds resilience and effects positive culture change. The objectives promote the development of safe and appropriate long term behaviours, and support educators in shaping the culture within their setting and beyond.

Online safety is referred to in our Safeguarding and PSHE policies, which are available on our website. We also celebrate Internet Safety Day every year.

Any issues involving concerns about a child's online safety are reported in the usual safeguarding procedures using CPOMs. This is then dealt with by our DSL/Safeguarding team.

Equal Opportunities, Inclusion, Special Educational Needs and Disabilities (SEND)

It is our policy to ensure that all children, regardless of race, class or gender, should have the opportunity to develop computing and ICT capability. We aim to respond to children needs and overcome potential barriers for individuals and groups of children by:

- Ensuring that all children follow the scheme of learning for Computing.
- Providing curriculum materials and programmes, which are in no way class, gender or racially prejudice or biased.
- Providing suitable challenges for more able children, as well as support for those who have emerging needs.
- Responding to the diversity of children's social, cultural and ethnographical backgrounds.
- Overcoming barriers to learning through the use of assessment and additional support.