



**Knavesmire Primary School's
Computing Programme of Study**

Introduction:

The use of information and communication technology is an integral part of the national curriculum and is a key skill for everyday life. Computers, tablets, programmable robots, Chromebooks, digital and video cameras are a few of the tools that can be used to acquire, organise, store, manipulate, interpret, communicate and present information. At Knavesmire Primary School we recognise that pupils are entitled to quality hardware and software and a structured and progressive approach to the learning of the skills needed to enable them to use it effectively.

Aims:

- Provide a relevant, challenging and enjoyable Computing curriculum for all pupils.
- Meet the requirements of the national curriculum programmes of study for computing.
- Use computing as a tool to enhance learning throughout the curriculum.
- To respond to new developments in technology.
- To equip pupils with the confidence and capability to use computing throughout their later life.
- To enhance learning in other areas of the curriculum using computing.
- To develop the understanding of how to use computing safely and responsibly.

The national curriculum for computing aims to ensure that all pupils:

- Can understand and apply the fundamental principles of computer science, including logic, algorithms, data representation, and communication
- 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 digital devices and the Internet.

Rationale:

The school believes that computing:

- Gives pupils immediate access to a rich source of materials.
- Can present information in new ways which help pupils understand access and use it more readily.
- Can motivate and enthuse pupils.
- Can help pupils focus and concentrate.

- Offers potential for effective group working.
- Has the flexibility to meet the individual needs and abilities of each pupil.

Objectives Early years:

It is important in the foundation stage to give children a broad, play-based experience of Computing in a range of contexts, including outdoor play. Computing is not just about computers.

Early years learning environments should feature Computing scenarios based on experience in the real world, such as in role play. Children gain confidence, control and language skills through opportunities to explore using non-computer based resources such as metal detectors, controllable traffic lights and walkie-talkie sets. Recording devices can support children to develop their communication skills. This is particularly useful with children who have English as an additional language.

Glossary of Terms

All children should be made aware of the following computing terms and understand their means:

Abstraction

Only focussing on the details relevant to the task, in computing this may be by using a database to handle data. In doing this the data can be looked at in specific groups. An example is using Target Tracker to show the progress of pupils on Pupil Premium.

Logic

The non-arithmetic operations performed by a computer, such as sorting, comparing, and matching, that involve yes-no decisions. This might be completed using programs such as Excel or Flowol.

Algorithms

The step-by-step procedure for a machine to complete a task, for example the instructions given to a pro-bot to guide it round a track, or the instructions put into a bee-bot to guide it through a maze.

Data Representation

The way in which information is presented. In its simplest form this could be representing a data set as a graph. However it is also using the appropriate software for the task

By the end of 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 a sequence of instructions
- Write and test simple programs
- Use logical reasoning to predict and computing the behaviour of simple programs
- Organise, store, manipulate and retrieve data in a range of digital formats

- Communicate safely and respectfully online, keeping personal information private, and recognise common uses of information technology beyond school.

By the end of key stage 2 pupils should be taught to:

- Design and write 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; generate appropriate inputs and predicted outputs to test programs.
 - Use logical reasoning to explain how a simple algorithm works 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
 - Describe how internet search engines find and store data; use search engines effectively; be discerning in evaluating digital content; respect individuals and intellectual property; use technology responsibly, securely and safely.
 - Select, use and combine a variety of software, (including internet services), on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

Computing at Knavesmire Primary School

Knavesmire Primary School believes that Computing is an integral part of the learning and teaching across the entire curriculum.

We are a well-resourced school with a computing suite, Chromebooks, Ipad, recording devices, programmable toys and interactive whiteboards available to support the delivery of high quality computing lessons. The computing suite has the software required to deliver the computing curriculum through the planned Programmes of Study. All computers are networked and linked to the Internet.

Entitlement

The children’s entitlement to Computing is based upon the Programmes of Study for Computing as defined in the 2016 National Curriculum. Knavesmire has split this programme of study into 5 key areas called the ‘Key Skills’. Each year group has a set of Key Skills to cover under the following headings to ensure a progression of skills throughout school.

- E-safety
- Programming

- Handling data
- Multimedia
- Technology in our lives

The schemes of work used to deliver these programmes of study are:

- E-safety: Ceop resources
- Programming: Barefoot resources
- Handling data: Staff training using excel
- Multimedia:
- Technology in our lives:

Implementation

Children will have the opportunity to develop their computing capability in the core and foundation subjects. For details of specific applications, see the 2016 National Curriculum for all other curriculum areas. The children will work in the classroom and computing suite in order to develop their computing skills. Opportunities provided by the class teacher will enable the children to work both individually and in small groups. For all Computing lessons the teacher will ensure that interactive strategies are used and will include class demonstrations, introductions and plenary sessions to meet the learning objectives and success criteria and will follow the Key Skills for each year group.

In this school, children will have experience with networked PCs, printers, Bee-Bots, data logging equipment, sensing equipment, calculators, digital media, Interactive Whiteboards, laptops and Chromebooks. They will also have experience with the Internet and a variety of software that allows teachers to provide for progression of skills, concepts and applications.

As an inclusive school, Computing is made accessible to children with Special Educational Needs, by providing them with suitable software and tasks, and with extra support in the use of software packages and peripherals available.

In computing lessons, pupils with specific learning needs also have access to, where appropriate:

- Visual prompts to engage and increase attention.
- Real objects to explore and manipulate.
- Symbols for key vocabulary.
- Opportunities for repetition, to consolidate and reassure.
- Opportunities to use special interests where appropriate.
- Be fully supported where necessary and encouraged to develop new skills.

Assessment

The children's work in Computing is assessed continuously throughout the topics that are taught.

Records are kept in the form of teacher evaluations on key skill plans. Ladders are used to identify which children have met the key skills and percentages are then taken from the class record and analysed for areas of strengths and weakness. Once areas of weakness are identified, staff are provided with teacher training and support to address any issues that have risen during the teaching of the Computing Curriculum.

Management

The Computing Curriculum Leader is responsible for the implementation of this policy; the management and repairs of Computing resources through School Based Curriculum Support, monitoring Computing standards of achievement and progression, and working with SLT to arrange appropriate Inset for all members of staff where necessary. Knavesmire is committed to continuing the reliability of the network and Vital is currently employed by the school to support with technical matters.

The Class Teachers are responsible for the delivery of this policy and the care and security of the hardware and software.

The school is committed to the ongoing resourcing of Computing equipment and software, in relation to the School Development Plan.

The school is responsible for ensuring that copyright regulations are not infringed.

Effective and efficient deployment of ICT resources

ICT resources are deployed throughout the school to maximise access, to enhance teaching & learning and to raise attainment. To enable regular and whole class teaching of computing the school has an ICT suite which all classes in Key Stages 1 & 2 use for approximately 1 hour per week to develop their ICT skills. Children also have access to class sets of iPads, tablet computers and Chromebooks in Year 5 & 6. All classrooms, including the ICT room, have interactive whiteboards available at all times. A consistent interface is provided on all machines to enable familiarity and continuity with generic 'toolkit' software licensed and available on all curriculum computers in school. A curriculum 'peer to peer' network enables internet access on all machines as well as storage and access to shared files.

Review

The policy will be reviewed regularly with the aim of meeting any new developments and initiatives both nationally and locally.

Background Documentation

This policy was drafted by the Curriculum Leader for Computing; implemented by the Curriculum Leader for Computing; presented to the whole staff for discussion. It is reviewed on a regular basis.

Internet Access and Online-safety

All pupils must have returned a signed consent form for them to use the internet. (Letters are available from the office.) Although Internet Access within school is protected by Firewall and Filtering systems, the risks of internet use are still present. We believe it is vital to teach Online-safety as part of the Computing curriculum. This is embedded into each unit by the class teachers through personalised planning.

In recent years there has been a boom in the education opportunities that are available online. We have bought into the following to give children safe access to online educational opportunities outside of school. These are:

- Mymaths
- Bug Club

All pupils have passwords that can be used to access these sites. Children have been shown how to use them and how to keep their passwords safe from others.

Copyright

Knavesmire Primary School has a responsibility to teach and uphold the laws and guidance on copyright. Images on the internet are not freely available and we have a responsibility to teach children how to check and use information and images appropriately.

Computing Curriculum Co-ordinator
September 2020