



MELLERS PRIMARY SCHOOL
COMPUTING POLICY
May 2022

National Curriculum

'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 has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. 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 Mellers, 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 participate in the creation of these new tools to fully grasp the relevance of and the possibilities of emerging technologies thus preparing them for the world of work.

Vision for Computing

We need to keep the children up to date with technology to prepare them for secondary school and beyond. In order to adequately prepare our children for their future, the use of technology in the classroom is vital. They will be using these devices throughout secondary, college and their future careers, which are becoming more tech-based every day. At Mellers, computing is used to support and enhance learning across all areas of the curriculum. The National Curriculum defines three clear aspects of computing curriculum: Computer Science, Information Technology and Digital Literacy. Children at Mellers are given the opportunity to develop their knowledge and understanding in each area from the Foundation Stage to Year 6.

Our children's wellbeing, happiness and safety is of utmost importance here at Mellers, and our pupil's safety while they are online is of no exception. We believe that it is crucial to teach pupils how to use the internet safely, both at school and at home. We will ensure that children:

- are aware of the possible risks when using the internet
- understand the necessary precautions to take to stay safe
- know where to seek help.

A crucial element of our intent for computing, is the delivery of a high-class and relevant internet safety curriculum, which supports our children to be responsible and responsive digital citizens, who recognise and act upon the benefits and dangers of the internet and digital devices. We strive to deliver a curriculum and education that instils and equips our children to be responsible online citizens who can make informed decisions. We will also empower parents, carers and the wider community with up to date information regarding keeping children safe online.

INTENT

Aims and objectives

Computing at Mellers is embedded throughout each year group as well as across the curriculum. We believe that technology is a tool that we harness effectively to strengthen the teaching of all subjects. We ensure that the computing curriculum is progressive and each year the children build on skills they have previously learnt. Teachers model good practise of how to utilise technology and how to use it safely. Year 5 'Digital Leaders' are trained each year and assist in the delivery of computing in the years below. They use knowledge that they have previously learnt to help other

children in their learning. This is a strength in computing at Mellers, it incorporates teamwork and problem solving in all pupils' learning. This policy document sets out the school's aims, principles and strategies for the delivery of computing. This policy will be reviewed at regular intervals and updated as necessary by the Computing Co-ordinator.

Our aim is to develop children's computational thinking and problem solving so that they can succeed in and contribute to our rapidly changing world. In addition to this, we strive to ensure our pupils know how to stay safe physically and mentally in the online world.

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 and ICT Acceptable Use Policy)

Computing curriculum planning

Computing is a foundation subject in the National Curriculum. We are using the 2014 National Curriculum framework to adapt and develop our current planning (see below). In addition to this, we also use Purple Mash as a tool to support with resources and subject knowledge.

We carry out curriculum planning in computing in three phases (long-term, medium-term and short-term). The long-term plan (see below) maps the topics studied in each term during each key stage; this is taken from Purple Mash as it ensures coverage of objectives, progression of skills and avoidance of repetition. Medium term plans for each subject area are created by teaching staff with an emphasis on the knowledge and skills that will be taught and how they will be taught. Computing is taught discretely but staff make meaningful links across subjects where appropriate. Prior knowledge is linked to new learning to deepen children's understanding and to ensure new concepts and skills are retained. Knowledge organisers are used to share planning with the pupils.

The year group teachers create the short-term lesson plans for each computing session. These plans list the specific learning objectives and resources for each lesson. These are for the year group teachers' use but may be shared with colleagues, as necessary.

IMPLEMENTATION

Pedagogy

As the aims of computing are to equip children with the skills necessary to use technology responsibly to become independent learners, the teaching style that we adopt is as active and practical as possible. Whilst we ensure that children have access to direct instruction on how to use hardware or software, the majority of the lesson is spent completing practical tasks. We ensure that there are scaffolds and support to help their development.

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.

In planning and delivering computing lessons, we use 'Rosenshine's Principles of Learning' to ensure that the teaching is based on cognitive science and research. The principles are:

- 🛡️ Begin a lesson with a short review of previous learning
- 🛡️ Present new material in small steps with student practice after each step
- 🛡️ Ask a large number of questions and check the responses of all students
- 🛡️ Provide models
- 🛡️ Guide student practice
- 🛡️ Check for student understanding
- 🛡️ Obtain a high success rate
- 🛡️ Provide scaffolds for difficult tasks
- 🛡️ Require and monitor independent practice
- 🛡️ Engage students in weekly and monthly review.

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 Co-ordinator will work with the EYFS Co-ordinator 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.

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.

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

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.

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, blogging and multimodal formats that combine text and images, video or sound clips.

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.

Personal, social and health education (PSHE) and citizenships

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.

Geography

Geography provides a meaningful context to practise and apply computing skills. Websites, such as Google Earth or Digimaps, allow children to experience online mapping. This can help them better understand a locality they are investigating or reflect on what they have learned after an off-site visit.

Science

Where appropriate, teachers are encouraged to make meaningful links to science when planning and teaching computing. Children use computing to support their work in science by learning how to find, select, and analyse information on the internet. Children use computers to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

Special educational needs (SEN)

At our school we teach computing to all children, whatever their ability. Computing forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our 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 against expected levels.

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, and 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.

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. We enable pupils to have access to the full range of activities.

Equal opportunities

As a staff we endeavour to maintain an awareness of, and to provide for equal opportunities for all our pupils in Computing. We aim to take into account cultural background, gender and language differences, both in our teaching attitudes and in the published materials we use with our pupils.

Resources

Resources for each unit are kept centrally for use by all in the server room. A class set of iPads, laptops and a suite of computers is available for delivering the curriculum.

Monitoring and review

Monitoring of the standards of children's work and of the quality of teaching in computing is the responsibility of the subject leader. The work of the subject leader also involves supporting colleagues in the teaching of computing, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The subject leader has specifically allocated time in which to fulfil this role by reviewing samples of children's work and visiting classes to observe teaching in the subject. They also monitor planning and ensure that the intent for computing is being effectively implemented.

A named member of the school's governing body is briefed to oversee the teaching of computing. This governor meets with the subject leader to review progress termly and receives a written report. Where children are to participate in activities outside the classroom, for example, a visit to an outside site, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

IMPACT

Assessment and recording

We expect most children to achieve age related standards or better in computing within each year group. We also look for pupils that show a greater depth of understanding. We assess children's work in computing by making informal judgements as we observe them during each computing

lesson. The pupils save their work into individual folders and this work is checked by the teacher with feedback given when appropriate.

Children's progress and attainment per unit of study is tracked through the assessment framework on SIMS on an annual basis. The computing subject leader reports on:

- 🛡 recent development work
- 🛡 performance analysis
- 🛡 pupil outcomes in relation to development priorities, their impact on teaching and learning, and future developments.

Governors monitor the effectiveness of the school twice a year through a variety of other activities including learning walks and classroom observation as per the Monitoring and Evaluation framework in the School Improvement Plan.

Signed:

Date: