



Studlands Rise First School
First Steps on the Learning Journey

Agreed: March 2017
Review date: March 2020

“ICT has enormous potential not just for the National Curriculum. It will change the way we learn as well as the way we work.”

Chris Yapp, ICL Fellow for Lifelong Learning

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 and objectives

ICT has become part of the way in which we all work and entertain ourselves. Almost everything we do at school now involves the use of ICT. Computing happens alongside all areas of the curriculum, but is also taught explicitly as a subject to ensure that all pupils:

- 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.

Through teaching computing, we equip children to participate in a world of rapidly changing technology. We enable them to find, explore, analyse, exchange and present information. We also help them to develop the necessary skills for using information in an objective and effective way. This is a major part of enabling children to be confident, creative and independent learners.

Our objectives in the teaching of computing are:

- to facilitate the finding, selection and use of information;
- to facilitate the representations of information;
- to teach the use of ICT for effective and appropriate communication;
- to apply ICT to creativity;
- to apply ICT to solve problems;
- to understand and use principles of computer science e.g. create and debug algorithms;
- to enable the monitoring and control of events, both real and imaginary;
- to apply ICT to children’s learning across the curriculum;
- to explore the value of ICT, both to children and to society in general;
- to examine issues of security, personal safety, confidentiality and accuracy;
- to develop the cross-curricular use of ICT in all subjects.

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Teaching and learning style

Our computing curriculum follows the Herts scheme of work, and teaches specific skills through 5 areas of computing, developing in complexity and skills across the key stages and year groups.

Computing is also embedded in all curriculum areas. Here it aims to secure their learning and equip children with the technological skill to become independent learners. At these times children are reminded of previous explorations and any direct instruction on how to use hardware or software, but the main emphasis is for individuals or groups of children to use computers and ICT resources to help them to progress in whatever they are studying. So, for example, children might research a history topic by using role-play software that engages them in a highly visual way, or they might place themselves in a historical setting by manipulating a digital photograph, or they might investigate a particular issue on the Internet.

We recognise that all classes have children with a wide range of 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 use the Herts scheme to achieve this in a variety of ways:

- setting 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 teaching assistants to support the work of individual children or groups of children;
- creating extension activities for the high achievers
- assessing after each unit with evaluated independent tasks, used as formative assessment to plan subsequent unit differentiation.

We have clear computer suite and internet safety rules to ensure that e-safety procedures are followed.

Computing curriculum planning

The school uses the Herts ICT scheme of work as the basis for its curriculum planning. Key Skills are delivered through specific weekly teaching sessions, and at times reinforced throughout out the year discretely as applied when required in other aspects of the curriculum.

The class teachers adapt their class/ key stage Herts planning and keep these individual plans in their planning files which should be made available upon request for monitoring and evaluation purposes by the subject leader or head teacher.

The units studied in computing are planned to build on prior learning. While we offer opportunities for children of all abilities to develop their skills and knowledge in each unit, there is planned progression in the scheme of work, so that the children are increasingly challenged as they move up through the school.

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In KS1

Pupils are 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 KS2

Pupils are 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.

In the Foundation Stage

We teach computing in nursery and reception classes as an integral part of the topic work covered during the year. We relate the ICT aspects of the children's work to the objectives set out in the Revised EYFS document, linking to the computing aspect of Understanding the World, and Literacy. The children have the opportunity to use the computers, Ipads, laptops, digital cameras, interactive toys and floor robots. Then, during the Reception year, they gain confidence and start using the computers in the ICT suite and the mobile technology (Ipads and laptops) in a variety of ways.

The contribution of Computing to teaching in other curriculum areas

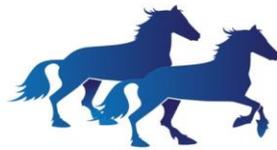
The teaching of computing contributes to teaching and learning in all curriculum areas. It also offers ways of impacting on learning which are not possible with conventional methods. Teachers use software to present information visually, dynamically and interactively, so that children understand concepts more quickly. For example, graphics work links in closely with work in art, and work using databases supports work in mathematics, while role-play simulations and the

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Internet prove very useful for research in humanities subjects. ICT enables children to present their information and conclusions in the most appropriate way. Much of the software we use is generic and can therefore be used in several curriculum areas.

English

ICT is a major contributor to the teaching of English. Children's reading development is supported through talking stories. As the children develop mouse and keyboard skills, they learn how to edit and revise text on a computer. They have the opportunity to develop their writing skills by communicating with people via e-mail. They also learn how to improve the presentation of their work by using desktop publishing software. There is in addition a variety of software which targets specific reading, grammar and spelling skills.

Mathematics

Children use ICT in mathematics to collect data, make predictions, analyse results, and present information graphically. Screen robots allow pupils to give exact instructions for a particular route, or to use their knowledge of angles to draw a range of polygons.

Science

Software is used to animate and model scientific concepts, and to allow children to investigate processes which it would be impracticable to do directly in the classroom. Data loggers are used to assist in the collection of data and in producing tables and graphs. Digital microscopes are used to enable the whole class to examine very small materials and specimens.

Personal, social and health education (PSHE) and citizenship

Computing makes a contribution to the teaching of PSHE and citizenship in that children in ICT classes learn to work together in a collaborative manner. They also develop a sense of global citizenship by using the Internet and e-mail. Learning to use the internet efficiently and safely is therefore a key component of ICT teaching. The scheme aims to develop a set of safe and discriminating behaviours for pupils to adopt when using the Internet and other technologies. Through discussion of safety and other issues related to electronic communication, the children develop their own view about the use and misuse of ICT, and they also gain an insight into the interdependence of ICT users around the world.

Computing and inclusion

At our school, we teach computing to all children, whatever their ability and individual needs. 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 good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this. ICT can make a significant contribution to the progress made by children with barriers to learning. For example: the use of Google translate to support EAL learners in understanding learning intentions and responding to activities when multi-lingual assistants are not available.

Assessing progress against the expected levels of attainment through the Herts scheme's assessment allows us to evaluate each child's progress. This ensures that our teaching is matched to the specific needs of every child.

For some children additional support plans may include, as appropriate, specific targets relating to the use of ICT to support access to the rest of the curriculum. In some instances, the use of ICT has a considerable impact on the quality of work that children produce, by increasing their confidence and motivation and by enabling children to work more independently.

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We enable pupils to have access to the full range of activities involved in learning ICT.

We have a range of software which is designed to include all learners. Our hardware can accept a range of input devices catering to pupils with specific difficulties. Where children are to participate in activities outside the classroom, e.g. a visit to a local lead ICT school, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

Assessment for learning

Teachers will assess children's work in computing by making informal judgements during lessons. On completion of a piece of independent work, the teacher assesses the work, and uses this assessment to plan for future learning within the Herts scheme. Written or verbal feedback is given to the child to help guide his/her progress. Older children are encouraged to make judgements about how they can improve their own work.

The subject leader has portfolio to be filled with samples of the children's work for each unit. This will help demonstrate the expected level of achievement in ICT for each age group in the school.

Resources

Our school has a growing range of computing resources. Each class has an allocated laptop to be used for planning. There are 2 visualisers in the school, that are currently in KS2. Each class has a digital camera. Classes can access data loggers, hand held cameras to be used by children, sound buttons (to be used by children to record and play back sentences during writing and other activities) talk trackers, beebots, and bluebots. In addition, there are 12 I pads and 12 laptops that can be signed out during any lesson to support the children's learning in computing or in a cross curricular way.

School employs a part time ICT network manager, through Interm, to support the strategic leadership of ICT, and act as a technician on a fortnightly basis as issues occur. This ICT technician helps to ensure that Hardware is always in good working order; when he is not in the building staff write problems in the ICT faults book, this book is then regularly checked and updated by our ICT technician.

In order to keep our school computers virus-free, no software from home will be installed on school computers. Pupils bringing in work on portable storage disks must first have it scanned, but it is easier if the work is e-mailed to the teacher concerned in such instances. Where teachers are transferring files between their home and school, they must have up-to-date virus protection software on their home computers and/ or work on their staff laptops.

Monitoring and review

The coordination and planning of the computing curriculum are the responsibility of the subject leader, who also:

- supports colleagues in their teaching, by keeping informed about current developments in computing and by providing a strategic lead and direction for this subject;
- gives the headteacher a summary of the strengths and areas of development in computing and indicates areas for further improvement for the school development plan;

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The quality of teaching and learning in computing is monitored and evaluated by the subject leader and the headteacher as part of the school's agreed cycle of lesson observations.
This policy will be reviewed every three years or sooner if required.

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