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**Whittaker Moss Primary School:**

**Computing Subject Policy**

**2022**

## *“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.”*

At Whittaker Moss we appreciate that within an increasingly digital world there now exists a wealth of software, tools and technologies that can be used to communicate, collaborate, express ideas and create digital content. We recognise that pupils are entitled to a broad and balanced computing education and we aim to prepare pupils with the knowledge and skills they need to participate in a rapidly changing world where technology is constantly developing. With these skills, the children will become independent creative thinkers who are prepared to meet the challenges of the future.

**Aims**

The school’s aims are to:

* Provide a broad, balanced, challenging and enjoyable curriculum for all pupils.
* Develop pupils’ computational thinking skills that will benefit them throughout their lives.
* Meet the requirements of the National Curriculum programmes of study for computing at Key Stage 1 and 2.
* To respond to new developments in technology
* To equip pupils with the confidence and skills to use digital tools and technologies throughout their lives.
* To enhance and enrich learning in other areas of the curriculum using IT and computing.
* To develop the understanding of how to use computers and digital tools 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 IT.

**Rationale**

The school believes that information technology, computer science and digital literacy:

* Are essential life skills necessary to fully participate in the modern digital world.
* Allows pupils to become creators of digital content rather than simply consumers of it.
* Provides access to a rich and varied source of information and content.
* Communicates and presents information in new ways, which helps pupils understand, access and use it more readily.
* Offers opportunities for communication and collaboration through groups working both inside and outside of school.
* 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 IT and computing in a range of contexts, including off-computer activities and outdoor play. We relate the computing aspects of the children's work to the objectives set out in the Early Learning Goals (ELGs) which underpin the curriculum planning for children aged birth to five. The children have the opportunity to use the computers, IWB, IPADs, a listening centre and a floor robot. Then, during the year, they gain confidence and start using the computer, using a variety of software, to communicate in a variety of ways.

Computing is not just about computers.  Early years learning environments should feature IT scenarios based on experience in the real world, such as within the role-play environment. Children gain confidence, control and language skills through opportunities such as ‘programming’ each other using directional language to find toys/objects, creating artwork using digital drawing tools and controlling programmable toys.

Outdoor exploration is an important aspect and using digital recording devices such as IPADs and cameras can support children in developing communication skills.

**By the end of key stage 1 pupils should be able 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 able 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.

## **Teaching and learning style**

As an objective of the teaching of IT/Computing is to equip children with the technological skill 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 IT/Computing is for individuals or groups of children to use computers 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 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.
* Grouping the children by ability.
* Providing resources of different complexity – matching the resources to children based on ability.

**Planning**

We carry out the curriculum planning in three phases (long-term, medium-term and short-term). The long-term plan maps the computing skills that the children cover in each term during each key stage linked to their topics. The long-term plan is completed in conjunction with teaching colleagues in each year group, and the children often study Computing as part of their work in other subject areas. Our long-term computing plan shows how teaching units are distributed across the year groups, and how these fit together to ensure progression within the curriculum plan.

Our medium-term plans, which we have adopted from the Purple Mash scheme of work, give details of each unit of work for each term. They identify the key learning objectives for each unit of work, and stipulate the curriculum time that we devote to it. The Computing developer is responsible for keeping and reviewing these plans.

The class teacher is responsible for writing the short-term plans linked to the relevant computing skills for each lesson. These daily plans list the specific learning objectives and expected outcomes for each lesson. The class teacher keeps these individual plans and s/he and the computing subject leader often discuss them on an informal basis.

The topics 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, we also plan progression into the scheme of work, so that the children are increasingly challenged as they move up through the school.

## **Computing 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 Internet prove very useful for research in humanities subjects. Computing 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.

**Literacy**

Computing is a major contributor to the teaching of Literacy. 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 email, and they are able to join in discussions with other children through class blogs. 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. We are beginning to make greater use of Computing in Literacy through the use of Oxford Owls and Serial Mash, which are online reading programmes.

**Mathematics**

Children use Computing 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. It can also be used for times tables practice.

**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 logging software is used to assist in the collection of data and in producing tables and graphs.

**Personal, social and health education (PSHE), HRE and citizenship**

Computing makes a contribution to the teaching of PSHE, HRE and citizenship in that children in Computing classes learn to work together in a collaborative manner. They also develop a sense of global citizenship by using the Internet and e-mail. The teaching of appropriate online behaviours is an important aspect of the PSHE curriculum and teaching about appropriate online relationships forms part of our HRE curriculum.

## **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 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.

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 all children to learn more effectively (e.g. a lot of software can be differently configured for different ability ranges). Assessing progress against Computing National Curriculum requirements through the O Track Statements for each year group (school assessment system) ensures that our teaching is matched to the child's needs.

## **Assessment for learning**

Teachers will assess children's work in Computing by making informal judgements during lessons. On completion of a piece of work, the teacher assesses the work, and uses this assessment to plan for future learning. The use of O track to record judgements allows the class teacher to identify any gaps within the learning by highlighting specific outcomes from the curriculum. Teachers then plan and deliver lessons to ensure all children progress and meet each outcome. 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 developer keeps samples of the children's work in a portfolio and classes keep evidence, where appropriate, in class curriculum books. This demonstrates the expected level of achievement in Computing for each age group in the school.

## **Resources**

Our school has an appropriate computer-to-pupil ratio, and Internet access. Most software is already installed on PCs/laptops. Some software is installed only on the class teacher’s computer. Other school resources include: 30 voting pods, Interactive White boards in every classroom, extra laptops for free access in some classrooms, digital sound recorders, a set of Beebots, 30 HP laptops, 31 Lenovo lap-tops, 30 IPADs, a set of headphones, Cybercoach plus mats and each class teacher has an IPAD.

We employ a technician to keep our equipment in good working order. Members of staff report faults via the app installed on class and office lap-tops. The technician will also set up new equipment, and install software and peripherals.

In order to keep our school computers virus-free, no software from home will be installed on school computers. Where teachers are transferring files between their home and school, they must have up-to-date virus protection software on their home computers.

**Roles and Responsibilities**

# **Senior Management**

The overall responsibility for computing, including making final decisions is with senior management.

**The Headteacher, in consultation with staff:**

* Determines the ways computing should support, enrich and extend the curriculum;
* Decides the provision and allocation of resources;
* Decides ways in which developments can be assessed, and records maintained;
* Ensures that computing is used in a way to achieve the aims and objectives of the school;
* Ensures that there is a Computing and E-safety policy.

**The SLT has a responsibility to:**

* Liaise with computing staff to ensure provision and teaching and learning of computing is at least good.
* Consider and arrange training opportunities for staff where necessary.
* Support the Computing developer with progressive schemes of work/progressive skills genres.
* Ensure sufficient software and hardware to enable successful teaching and learning across the school.

**Computing Developer**

**The computing developer has a responsibility to:**

* Raise standards in computing as a national curriculum subject.
* Facilitate the use of computing across the curriculum in collaboration with all subject coordinators.
* Keep the progression of skills for each aspect up to date and ensure the staff are using this to inform teaching.
* Provide feedback from any training to keep staff skills and knowledge up to date.
* Advise colleagues about effective teaching strategies, managing equipment and purchasing resources.
* Monitor the delivery of the Computing curriculum and report back to the headteacher on the current status of the subject.
* Support and liaise with computing technicians to ensure equipment, hardware and software are running smoothly throughout school.
* Keep up to date with developments in Computing and where possible ensure these are reflected in school.
* Liaise with staff in order to embed computing into the curriculum.
* Ensure that any new computing equipment is reported to technical staff so it can be added to school audit.

**Computing Technicians**

**Computing Technicians have a responsibility to:**

* Provide technical support for the whole school infrastructure.
* Ensure Server backup is in place and a weekly backup is kept offsite
* Ensure security is maintained at all times.
* Constantly monitor usage of equipment and internet facilities.
* Ensure equipment conforms to health and safety guidelines.
* Ensure relevant upgrades and virus checks are completed.
* Contribute to and enhance the whole Computing experiences in school enabling children to gain the maximum benefit.
* Research and develop new ideas and technologies to benefit children’s learning.
* Provide a professional and efficient service to all stakeholders.
* Keep up to date with developments in Computing.

**Class Teachers**

Even though whole school coordination and support is essential to the development of computing throughout the school, it remains the responsibility of each class teacher to plan and teach appropriate computing activities and monitor/assess pupils’ progress in computing.

**Class teachers have a responsibility to;**

* Provide a discrete computing curriculum for children on a termly basis in line with school scheme of work/national curriculum;
* Complete audits of teacher knowledge and ask for support where needed in advance of teaching;
* Set up computing equipment for their lesson or ask for support in doing this;
* Ask for additional computing equipment such as cameras and video recorders in advance of when they are needed, in order that batteries can be charged and equipment ready for use;
* Ensure equipment is safely used and stored especially if taken on school trips;
* Return equipment promptly after use to its correct storage place so it can then be used by others;
* Report any technical problems to computing technicians via the problem reporting app on the desktop of their class lap-top.

**CPD**

* Staff to be given support in school, INSET, support from external agencies or sent on training on an as needs basis in order to ensure that computing is taught and embedded sufficiently in school.
* Audits are given to staff termly in order to see if support is needed prior to teaching a topic. This is then arranged as appropriate.
* Yearly audits are given to teachers to assess their IT capabilities.
* Lessons are monitored and feedback and support given where needed.

**HEALTH AND SAFETY AND SECURITY**

* All equipment is checked by an approved engineer annually.
* Regular breaks are encouraged to avoid RSI and eyestrain. Screens and the height of the table are all in line with Health and Safety regulations.
* It is school policy that no one other than technical staff are to unplug, detach, attach or disassemble any major leads, cables or equipment (not including external drives). This is to avoid any health and safety issues arising or damage to equipment.
* All laptops are school property. Any problems with laptops should be reported as with any other equipment in school. Any requests for laptops to be returned for health and safety checks or any updates should be complied with.
* Teachers are responsible for ensuring that they keep their laptops away from food, drink, sinks, that they are placed on stable surfaces and not left on the floor or with trailing leads.
* It is the responsibility of the Health and Safety Coordinator to conduct a risk assessment of the IT facilities when school checks are done and liaise with IT staff should any issues arise.
* The school takes steps to ensure anti-virus software is updated regularly and firewalls are in place and working.
* Administrators, teachers and children have their own levels of access and usernames.
* The server is kept in a secure room and backed up on a regular basis; passwords for the server are only accessible by administration and senior management.
* Server backups are kept off site in case of fire, theft or flood. There are daily backup’s onsite.

## **Monitoring and review**

The coordination and planning of the Computing curriculum are the responsibility of the

Subject developer, 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;
* Keeps the Head teacher informed about any strengths and weaknesses in Computing and indicate areas for further improvement;
* Uses specially allocated management time to review evidence of the children's work, and to observe Computing lessons across the school.

**This policy will be reviewed yearly by the Head Teacher, the Developer and Technical Team and any changes made in consultation with staff and governors.**

Signed: Melanie Backhouse (Head teacher)

Signed: Sarah Cadogan (Curriculum coordinator)

Signed: Eliza Buckley (Subject developer)

Date: November 2022