COMPUTING POLICY

This is the computing policy for both Alexandra Infants School and Alexandra Junior School. Our schools understand that every pupil has the right to an education (*as in accordance in with UNCRC article 28*). The teaching of computing will fulfil the children's rights.

Intent

We know that our pupils start school with varying levels of understanding of computing. For this reason, our curriculum is designed to ensure that all pupils have access to progressive, creative and engaging opportunities in all aspects of computing; thus preparing them for their future as a lifelong learner. Specific language development enables them to understand the technical vocabulary linked to computing, and the skills that they are learning.

Through the study of computing, pupils will be able to develop a wide range of fundamental skills, knowledge and understanding that will equip them for the rest of their life. Computers and technology are such a part of everyday life that our pupils would be at a disadvantage would they not be exposed to a thorough and robust computing curriculum. Pupils must be taught in the art form of 'Computational Thinking' in order to provide them with the essential knowledge that will enable them to participate effectively and safely in the digital world beyond our gates.

Implementation

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, digital and video cameras are just a few of the tools that can be used to acquire, organise, store, manipulate, interpret, communicate and present information. At Alexandra Infant School and Alexandra Junior 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.

We aim to inspire all pupils to reach their full academic potential. In computing, this means ensuring a curriculum that is fully inclusive of all pupils which develops:

- A positive attitude towards computing and an awareness of the fascination of digital learning;

- Understanding in computational knowledge, concepts and skills;

- An ability to solve problems, to reason, to think logically and to work systematically and accurately;

- Initiative and an ability to work both independently and in co-operation with others;

- An ability to communicate computationally;

- An ability to use and apply computing across the curriculum and in real life;

- An understanding of computing through a process of enquiry and experiment;

- Opportunities for all pupils within the school to develop their full potential in computing.

This policy is set within the context of the schools' vision, aims and policy on teaching and learning. As a result of their learning in computing across the curriculum pupils will:

- Be prepared for applying their skills effectively in everyday life situations, in their future learning and in the work place.

- Be provided with a solid foundation leading onto secondary, further and higher education.

Through teaching with a problem solving approach, pupils will learn to understand, distil and clarify information; consider what they know that will help them to solve problems, realise what they need to know next; create systems and strategies, organising information in a way that helps find patterns and ultimately solutions and to communicate and present their findings effectively.

Strategy for implementation

Computing is divided into the following areas:

- Programming
- Data
- Communication
- Digital Literacy and Research
- Multimedia

Opportunities to use and apply key computing skills exists throughout all the strands, as well as opportunities to address online and e-safety through Project Evolve.

E-Safety is divided into the following areas:
- Self-image and Identity

- Online Relationships
- Online Reputation
- Online Bullying
- Health, Well-Being and Lifestyle
- Privacy and Security

The new 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 information and communication technology.

Teaching and learning

Foundation Stage

In the Foundation Stage it is important to provide pupils a broad, play-based experience of computing in a range of contexts; including water play, outdoor play, role play ideas, games and challenges. Early years learning environments should feature computing scenarios based on experiences in the real world. However, computing does not comprise solely of the use of technology, rather it should also promote opportunities for problem solving, thus developing computational thinking. Pupils gain confidence, control and language skills through opportunities to develop these skills.

In the Foundation Stage we use Barefoot Computing at School to support the planning of such opportunities whilst ensuring progression in computational thinking. The units of work are largely based on different aspects of problem solving whilst providing a context that staff are already familiar with, such as floating and sinking. This helps to prepare pupils by laying the foundation for their learning in Key Stage 1. Lessons are documented on Tapestry where appropriate.

Key Stage 1

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 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 Key Stage 1 we use the scheme of work provided by Teach Computing to support the planning and teaching of computing lessons. Units have been developed with the curriculum skills in mind and ensure progression is evident throughout the key stage with pupils building upon skills learnt in previous year groups. Whilst online safety is woven through the units where appropriate, teachers are asked to include an additional lesson on a termly basis focused solely on online safety, ensuring pupils are fully equipped to use technology whilst doing so in a safe and appropriate manner. Lessons are documented in class floor books.

Key Stage 2

Pupils need to understand general internet safety before moving into the elements of what they use the internet for, therefore E-Safety is the first unit we will cover in each year group. We know that our pupils are more often corresponding with each other through chat and instant messaging with many of them using social software including online gaming. In the summer term, before the summer holiday it is important to recap everything under the topic of using mobile phones and the mobile internet as this is more than likely to be the way they contact over the 6 week break and they need to be reminded of how to use them appropriately and responsibly.

Although there are E-safety units in the Teach Computing sequence, we ask that teachers spend the first lesson of each half term with a focus on E-Safety, using Project Evolve to ensure progression throughout the year groups.

Autumn 1 – Self-image and Identity
Autumn 2 – Online Relationships
Spring 1 – Online Reputation
Spring 2 – Online Bullying
Summer 1 – Health, Well-Being and Lifestyle
Summer 2 – Privacy and Security

Each year group will focus on elements relevant to their year group's age and needs according to current issues.

We use Teach Computing to support the planning and teaching of computing lessons as this programme has been created with progression of skills in mind. Units have been selected carefully to ensure progression in evident throughout the key stage with pupils building upon skills learn in previous year groups. Some units do stand alone, but the key computing skills the pupils will be learning will continue to progress through these units too.

Teachers will sometimes decide, that in order to adapt learning for a pupil who requires further support, mixed ability pairs or groupings will be used to give the pupil peer support and allow for discussion between the children.

Not all lessons will require the pupils to physically use the digital devices, some will be 'unplugged', but all lessons should be a balance of discussion about the learning and digital learning.

Our school delivers the computing curriculum through topic areas and discrete lessons. We have a range of equipment to enable us to do this: interactive whiteboards, laptops, Chrome books, kindles and iPads.

By the end of key stage 2, pupils should 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.

Planning

Teachers will follow the school's curriculum overview and where possible cross-curricular links are to be made to show real life uses of computing.

We recognise that all classes have pupils with widely differing computing abilities. This is especially true when some pupils have access to equipment at home, whilst others do not. We adapt learning opportunities for all pupils by matching the challenge of the task to the ability and experience of the child. We achieve this in a variety of ways, by:

- Setting common tasks which are open-ended and can have a variety of responses.

- Setting tasks of increasing difficulty (not all pupils complete all tasks).

- Grouping pupils 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 classroom assistants to support the work of individual pupils or groups of pupils.

Coverage in Key Stage 2

We use Teach Computing to help us to ensure we appropriately cover the national curriculum objectives in our Computing lessons. Teach Computing includes lesson plans, slides, activity sheets and assessments that staff can access in order to meet the requirements of the National Curriculum. It is built around an innovative progression framework where computing content has been organised into interconnected networks we call learning graphs and was created by subject experts, using the latest pedagogical research and teacher feedback.

The computing lessons support our school context-based drivers, the 5Es (Excel yourself, Embrace yourself, Explore the world, Engage with others, Express yourself). These are explicitly shared with the children.

Vocabulary

Key vocabulary is introduced within each lesson and the children are encouraged to use the technical vocabulary when talking about their computing. We want to ensure that children build up a bank of technology-based vocabulary, alongside a clear understanding of it, that will allow them to function confidently within an ever more technology focused world. This key vocabulary is then added to the computing floor book so that the children can reflect on the language learned during the lessons.

VIPs

Each lesson is focused around at least one very important point (VIP) that has been selected by the computing lead. These VIPs are the crucial things for the children to understand each lesson. They are introduced at the beginning of each lesson and will be discussed throughout the lesson. They are added the floor book as a way of enabling the children to reflect on previous lesson's learning. At the end of the half term, the children complete a VIP quiz to assess their knowledge of the VIP from that half term. At the end of the end of the summer term a VIP quiz is taken by the children with a mixture of VIPs from throughout the school year.

Assessment

Assessment is an integral part of the teaching and learning process. Assessment is used to inform planning and to facilitate differentiation. The assessment of pupil's skills is on-going to ensure that understanding is being achieved and that progress is being made.

In Computing we use assessment to:

● Check understanding,
● Identify misconception,
● Set targets for future success,
● Raise self-esteem,
● Provide motivation.

Key Stage 1

Pupils are assessed on a lesson by lesson basis, through the use of a success criteria grid. These are completed by staff to indicate which pupils have achieved (green), partially achieved (orange) and not achieved (pink) the overall learning objective. At the end of each unit pupils are assessed on their development of the intended skill, for example using technology for a purpose, and based on teacher judgement will be graded as working at, below or above their age expectations. All assessment documents are kept within the floor books and are readily accessible ensuring every pupil can be tracked.

Key Stage 2

Listening to the pupils is an important way of assessing what they really understand and may identify misconceptions to aid future planning.

This form of assessment can take place:
i)   Between teacher and child in private conversation
ii)   Between children in a group

iii) Between teacher and class

Assessment in computing comes is evident throughout the learning sequence and 'I can' statements have been designed for each objective that will be evident in the floor book for each lesson. Where a pupil has achieved the objective green will be used to indicate this. If a pupil has not achieved the objective, then the space will be left blank.

Teaching and Learning Techniques

As the aims of computing are to equip pupils with the necessary skills to use technology to become independent learners, the teaching style that we adopt is as active and practical as possible. While at times we do give pupils direct instruction on how to use hardware or software, the main emphasis of our teaching in computing is for individuals or groups of pupils to use computers to help them in whatever they are trying to study. So, for example, pupils might research a history topic by on the Internet. Pupils who are learning science might use the computer to model a problem or to analyse data. We encourage pupils to explore ways in which the use of computing can improve their results, for example, how a piece of writing can be edited or how the presentation of a piece of work can be improved by moving text about, etc.

Resources

The school acknowledges the need continually to maintain, update and develop its resources and to make progress towards a consistent, compatible system by investing in resources that will effectively deliver the strands of the national curriculum and support the use of computing across the school such as new iPads and Chrome books. Teachers are required to inform the technicians of any faults as soon as they are noticed via the book in the office.

Health and Safety and Safeguarding

The school is aware of the health and safety issues involved in the pupils use of computing. All electrical appliances in school are tested accordingly. It is advised that staff should not bring their own electrical equipment in to school but if this is necessary, then the equipment must be PAT tested before being used in school. This also applies to any equipment brought in to school by, for example, people running workshops, activities, etc. and it is the responsibility of the member of staff organising the workshop, etc. to advise those people beforehand. All staff should visually check electrical equipment before they use it and take any damaged equipment out of use. Damaged equipment should then be reported to the ICT technician, bursar or head teacher who will arrange for repair or disposal.

(See E-safety and Anti-Bullying Policies)

Monitoring and Reviewing

The monitoring of the standards of the pupils work and of the quality of teaching in computing is the responsibility of the subject leader. The subject leader is also responsible for supporting colleagues in the teaching of computing as well as for keeping staff informed about current developments in the subject. The subject leader gives the head teacher an annual summary report in which s/he evaluates the strengths and weaknesses in the subject and indicates areas for further improvement.

Security

- The ICT and Computing technician will be responsible for regularly updating anti-virus software.
- Use of computing will be in line with the school's 'acceptable use policy'. All staff, volunteers and pupils must sign a copy of the schools AUP.
- All pupils and parents will be aware of the school rules for responsible use of computing and the Internet and will understand the consequence of any misuse.
- The agreed rules for safe and responsible use of computing and the Internet will be displayed in all computing areas.
- Pupils are aware of the SMART rules and these are sent home.

Inclusion

At Alexandra Infants' and Junior School, it is our belief that all pupils have an equal right to a broad and balanced curriculum, which enables them to meet their full potential. 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 who are deemed more able and talented and those learning English as an additional language, and we make all reasonable adjustments to achieve this. For further details, see separate policies: Special Educational Needs; SEND Information Report; Equality policy and scheme; Able and Talented; English as an Additional Language (EAL).

As a school we strive to ensure that all pupils, staff and members of our school community are treated fairly and equally. All pupils have equal rights to access all areas of the curriculum, regardless of race, gender, religious beliefs, sexual orientation and disability. Within this subject area, the Senior Leadership Team (SLT) and all staff endeavour to provide the appropriate provision for this to occur. This policy follows the guidelines and practices that are stated and outlined in Alexandra Infants' and Junior Schools Equality Scheme. Please see this policy for further detail.

Review date: Sarah Heath (Infants) Stephanie Barnett (Juniors)

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