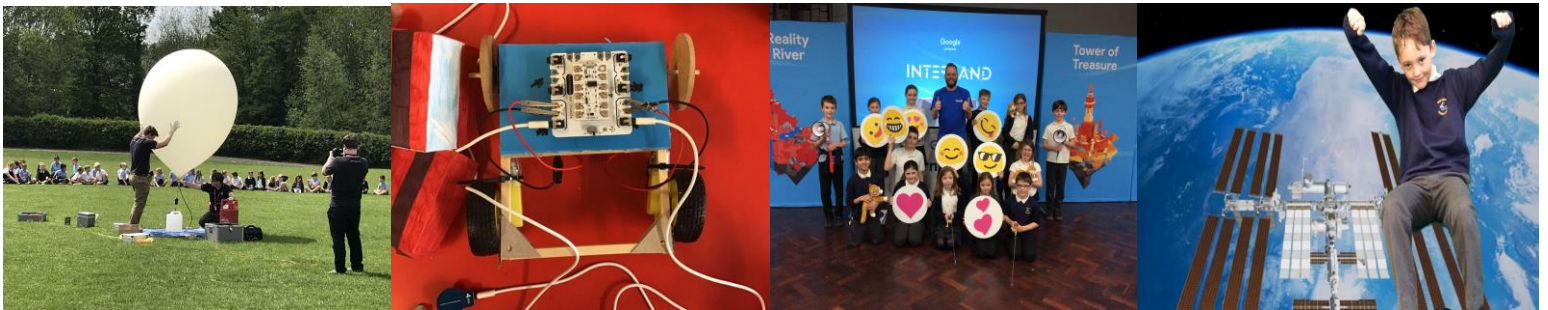# Brockwell Junior School

Computing / STEM Teaching and Learning Policy - 2023

"It gave a tremendous level of self-confidence, that through exploration and learning one could understand seemingly very complex things in one's environment." – Steve Jobs

Introduction

At Brockwell we aim to give **all** children access to an engaging and inclusive STEM curriculum (Computing and D&T) focussing on high quality 'computational thinking' and reasoning skills. Keeping safe in an ever-changing, digital world underpins our entire STEM curriculum and is taught implicitly across all areas of the curriculum. We aim for all children to be able to succeed in the digital world, by the end of KS2. Children will develop an acute awareness of the dangers faced in the digital world and gain the necessary skills to deal with these appropriately.

Through real, relevant problems, within a variety of contexts and STEM projects, all children have the opportunity to explore systems and gain an understanding of how they can use technology to **change the world**. At Brockwell, we ensure all children have access to the internet and online resources. Children who do not have access at home will be allowed supervised time online in school.

At Brockwell, computing is taught by a specialist teacher across all year groups. The Teach Computing curriculum is structured into units for each year group, and each unit is broken down into lessons. Units can generally be taught in any order, with the exception of programming, where concepts and skills rely on prior knowledge and experiences. The curriculum is enhanced with a number of exciting STEM opportunities throughout each year group.

Computing is broken down into three core principles: Computer Science, Information Technology and Digital Literacy. Design and Technology is broken down into the core principles: Design, Make, and Evaluate.

Our Vision and aims
- All learners will be provided with the experiences of Computing that will enable them to access a rapidly changing, technology-filled world.
- All learners will be aware of how to act appropriately and safely in the online world.
- Children will be confident and independent in their use of Computing to solve problems across the curriculum and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.
- Children will have a growing awareness of how Computing is used in the world around them and of the benefits that it provides.
- Children will be responsible, competent, confident and creative users of information and communication technology and have a sound understanding of what personal information they are responsible for to do this

Computing @ Brockwell

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.

Special Needs and Inclusion
Pupils with special educational needs have the same computing entitlement as all other pupils and are offered the same curriculum. However, particular application/tools are used for:

- Pupils with learning difficulties need to be motivated to practice basic skills regularly and intensively. They will benefit from the use of programs which practice skills is set in the context of an enjoyable and motivating scenario
- Pupils with physical disabilities and communication difficulties are encouraged to use iPad accessibility tools
- Pupils of high ability who may be extended through the use of programs which offer challenge and opportunities for investigation such as a digital leader group.
- Additional core skills lessons will be added by class teachers when appropriate to support the development of mouse, keyboard and iPad skills.

Assessment
- Subject coordinator monitoring, termly formative assessment of each National Curriculum strand and pupil self-assessment informs future planning.
- Progress is assessed against National Curriculum aims by using the NCCE units, stating which children are emerging, expected or above expectations. (End of Year)
- Class teacher judgements are supported through a portfolio of evidence for each National Curriculum strand for each year group and by evidence gathered on Seesaw.
- Information is shared with the whole school community through display in the IT Suite, Twitter and Seesaw.

Responsibilities
Class teachers are responsible for:-
- Differentiating and adapting lessons to cater for all ability levels, ensuring SEN (Special Educational Needs), MAT (More Able and Talented) are suitably challenged to meet their needs.
- Incorporating IT, where appropriate, when planning classroom activities. Including using Seesaw for home learning.
- Understanding and utilising the range of software available in school and its use in relation to cross curricular activities.
- Recognising and dealing with common faults and mistakes that can arise when using computing hardware and software.
- Maintaining own knowledge and skills of computing in accordance with educational developments.
- Ensuring children are responsible, respectful and safe when using IT and working online.
- Reporting problems or faults to technician or subject coordinator.

The Computing coordinator is responsible for:-
- Assisting Senior leadership with coordinating, developing and implementing the schools policy on Computing.
- Promoting and overseeing staff training and CPD activities relating to Computing development.
- Ensuring the school has a robust remote learning solution
- Developing strategies for the efficient deployment of existing computing resources in the school.
- Keeping abreast of and understanding and current technology, developments and trends relating to Computing and its use in Education by attending network meetings and work with STEM ambassadors.
- Arranging for the upgrading or replacement of hardware and software as appropriate. Including deployment of iPads across all year groups.
- Updating school policies relating to the teaching of Computing.
- Ensure all staff are following the Education for a Connected World document to teach Online Safety.
- Lead Online safety assemblies.

Intent

At Brockwell Junior School, we believe that computing is an essential skill for all our students. Our computing policy outlines our commitment to providing a safe, inclusive, and effective learning environment for the use of technology. Our intent is to equip our students with the necessary skills and knowledge to become responsible digital citizens, preparing them for the digital world they will encounter in their future education and careers.

Aims and Objectives

Digital Literacy: To ensure that all students develop strong digital literacy skills, enabling them to use technology effectively and responsibly.

Safety and Well-being: To create a safe online environment for students, emphasizing responsible online behaviour, and the importance of online safety.

Curriculum Integration: To integrate computing into the broader curriculum, enhancing learning opportunities across subjects.

Teach Computing Scheme: To implement the Teach Computing scheme to ensure a structured and comprehensive approach to teaching computing concepts and skills.

Inclusivity: To ensure that computing education is inclusive, catering to the diverse needs and abilities of our students.

Implementation

Teach Computing Scheme:

Curriculum Design: We will implement the Teach Computing scheme to guide our curriculum design. This scheme ensures that our students receive a well-structured and progressive computing education, covering key concepts and skills appropriate for their age and developmental stage.

Teaching Strategies: Our teachers will receive training to effectively deliver the computing curriculum using the Teach Computing scheme. This will include hands-on activities, projects, and interactive learning experiences.

Assessment: Regular assessments will be conducted to measure students' progress in computing skills and knowledge. These assessments will help tailor instruction to individual needs and monitor the effectiveness of our teaching.

Integration: We will encourage the integration of computing skills across subjects wherever relevant, fostering cross-curricular learning opportunities.

Online Safety:

E-Safety Curriculum: We will include a comprehensive e-safety curriculum as part of our computing education to ensure students understand the risks and know how to protect themselves online.

Safe Internet Use: We will employ internet filtering and monitoring tools to ensure students' safe internet usage during school hours.

Parental Engagement: We will actively engage parents and guardians in educating their children about online safety, providing resources and guidance.

Impact

Our computing policy will be assessed through ongoing monitoring and evaluation to ensure its effectiveness. The impact of our policy will be measured by:

Student Progress: Regular assessments and evaluations will track students' progress in computing skills and knowledge.

Safety and Well-being: A reduction in incidents related to online safety issues, along with increased awareness among students about responsible online behaviour.

Curriculum Integration: Measurable improvement in cross-curricular learning opportunities through the integration of computing skills.

Inclusivity: Evidence of catering to the diverse needs and abilities of all students in our computing education.

Parental Involvement: Increased engagement of parents and guardians in supporting their children's computing education and online safety.

Monitoring

Monitoring by the computing coordinator includes the reviewing of termly plans, regular discussions with pupils and colleagues, observations of teaching and learning, and Seesaw scrutiny. This is to ensure that our intent and the appropriate continuity and progression are being implemented and maintained. Judgements are made regarding impact in the subject, and feedback will be given to the Headteacher, the SLT and the Governors of the school. The work of the subject leader also involves supporting colleagues in their teaching, being informed about current developments in computing and providing a strategic lead and direction for this subject in the school.

Maintenance

Maintenance is carried out by the school's technician who visits the school when requested to complete technical support and maintain hardware and networks. The technician is also responsible for regular iPad maintenance of iPads including managed the online management system.

Staff Development and CPD

To implement this vision effectively, all staff need to be confident in all areas of the computing curriculum. Staff who have identified areas of development in computing will be identified and through communication between the Computing co-ordinator and the Headteacher, relevant course will be

located or training brought into/held at school. The computing coordinator will lead regular staff training sessions. All teachers and teaching assistants are invited to complete the Apple Teacher program. Staff have also completed the Seesaw pioneer training and are required to update this annually. Training will also be offered on new hardware and software purchased. In addition, the Computing co-ordinator and/or other staff will be able to support staff members in using various programmes. The computing co-ordinator will complete and audit of skills to establish which areas of computing staff need more support with and use this to plan CPD. The Computing Co-ordinator keeps up to date with the latest technological advancements and curriculum developments by attending conferences, network and STEM ambassador meetings. Computing coordinator has been attending virtual CPD with STEM ambassadors for 12 months. Information is then fed back to the rest of the school during staff meetings.

POLICY REVIEW

This policy will be reviewed at least every two years.

Dan Power
October 2023

To be reviewed by September 2025