

Computing at BJCFPS.

November 2024

Computing Curriculum Statement

Intent

At Broughton Jewish, we recognise that Computing is a National Curriculum subject in its own right, and its inclusion in Numeracy, Literacy and Science core subjects is not only statutory, but good practice. We aim to equip our learners with the skills to navigate an increasingly digital world, and the knowledge of how to safely transverse the digital world whilst adhering to the ethos and principles of the Jewish faith.

Our computing curriculum has been specifically tailored to meet the unique context of our school. It is designed to be broad and balanced within the context of the limitations based on our community and religious ethos, providing all pupils with the opportunity to master their learning and deepen their knowledge, making sense and giving purpose as to why we learn about computing. Teachers will provide pupils with opportunities to help them change and transform our society, putting their faith into action.

At Broughton Jewish we use computing to better prepare the children for life in 21st Century Britain, encouraging children to develop a greater understanding of the technological world around them. We have used the learning during lockdown to keep our curriculum relevant and useful.

We aim to build high levels of competence in the subject specific skills of:

- Algorithms and Programming
- Information Technology
- Digital Literacy

Implementation

Through learning Computing at BJCFPS, our learners will:

- Master the skills to use Computing safely, responsibly, and with confidence in tackling challenges.

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- Use Information Communication Technology (ICT) to support learning across both Kodesh and Secular lessons, understanding computing's capabilities and limitations.
- Apply key principles of computer science, including logic, algorithms, and data representation.
- Develop computational thinking and problem-solving skills that apply to everyday life.
- Become responsible, competent, and creative users of technology.

Curriculum organisation.

Through the use of Chromebooks and Beebots, our pupils leave Key Stage 1 with the ability to;

- Understand what algorithms are, how they are turned into programs on digital devices, and how these programs run by following clear and precise instructions.
- Use understanding gained through creating simple programs, to predict the behaviour of and debug simple programs.
- Use technology to purposefully create, organise, store, retrieve and manipulate digital content.
- Recognise common uses of information technology in our everyday lives.
- Use technology safely and respectfully, keeping personal information private and be able to identify where to go for help if they have concerns about content or contact.
- Engage in evaluating and applying information technology to solve problems and understand its capabilities and limitations.

Through the use of Chromebooks, Microbits and 3D printer software and hardware, our pupils leave Key Stage 2 with the ability 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 key programming concepts like sequences (step-by-step instructions), selection (decision-making), and repetition (loops) in programs.; work with variables and various forms of input and output.
- Use logical reasoning and computational thinking to make predictions about algorithms, understand their functionality, and identify and fix errors effectively.
- Understand computer networks including the internet; how they can provide multiple services, and the opportunities they offer for communication and collaboration.
- Understand how search engines work, including how they rank results, and develop critical skills to evaluate digital

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content effectively, including consideration of diverse perspectives such as those aligned with the Jewish Faith.

- Select, use and combine a variety of software to design and create programs, systems and content (such as 3D models) 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 and respond to concerns about content and contact.

Delivery.

Our Computing curriculum is taught to the entire class using Chromebooks and Beebots in Key Stage 1, with Microbits and 3D printing technology introduced in Key Stage 2. Each year group has access to a set of Chromebooks, and lessons are held twice a month. These sessions combine hands-on activities that apply computing skills with unplugged lessons that promote understanding without screens. This approach ensures that students gain practical experience while developing a strong foundation in computing.

Discrete Computing.

In addition to the fortnightly computing lessons, we also integrate discrete computing instruction within foundational and core subjects throughout the curriculum. Students use Chromebooks to engage with a variety of software and applications, enhancing their learning in subjects like maths, science, and literacy. This approach not only familiarises pupils with a range of technology commonly used in everyday life but also allows for the consolidation of essential computing skills and knowledge. By embedding computing into other areas of study, we ensure that students can apply their digital literacy in meaningful contexts, fostering both their academic growth and their ability to navigate the digital world confidently.

Continuity and Progression.

Our curriculum planning is guided by the 'TeachComputing' scheme, 'Barefoot Computing,' and 'ProjectEvolve.' This collaboration helps us create a bespoke curriculum that reflects our school ethos and available resources. We ensure continuity and progression in skills, with each year building on the previous year's learning. Our curriculum aims to ensure that students can understand and apply fundamental principles of computer science, such as logic and algorithms, while

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also becoming responsible and creative users of technology. We integrate computing into Kodesh and other subjects when appropriate, enhancing students' learning experiences and deepening their understanding of ICT and computing concepts.

Assessment.

Class teachers evaluate students' mastery of computing through both formative and summative assessments. This is recorded on PiXL and informs future planning and curriculum development. Additionally, where possible, class teachers discuss students' use of computing during Kodesh lessons, providing a holistic view of each learner's progress in line with the national curriculum objectives, which emphasise the importance of understanding algorithms, programming, and the responsible use of technology.

Use of computing to support SEN

Pupils with special educational needs can benefit from using ICT as it enhances access to the curriculum and encourages motivation and development of skills which can improve achievements and overall enjoyment of learning. Our teachers at BJCFPS use professional judgement to discern if it would be beneficial to the learner in question, and will plan for such accommodations either in the child's individual education plan or in the medium term computing planning. This will be discussed with relevant parties, including but not limited to parents, SENCOs, Kodesh Teachers and the subject coordinator.

E-Safety

At BJCFPS we recognise that E-Safety is a crucial aspect of digital literacy, ensuring that students can engage with the digital world both safely and responsibly. We formally teach e-safety once a term, covering vital topics such as safeguarding personal information, identifying online risks, and practising appropriate online behaviour. To reinforce this, we conduct brief e-safety refresher sessions at the start of each computing lesson. These quick top-ups help maintain ongoing awareness, ensuring that students are continuously reminded of their responsibilities and are equipped to navigate the online environment with confidence and care.

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Impact

Computing is taught a part of an embedded curriculum approach and enhances the learning through our topics. As children progress through school they will become increasingly confident in:

- The application of their digital skills within all aspects of the curriculum,
- Becoming increasingly efficient and effective communicators, collaborators and analysts,
- Showing imagination and creativity in their use of ICT in different aspects of their learning and life beyond school.
- E-safety and the risks involved when using the internet.

We seek to inspire in children a love of computing and the aims of computing are to equip children with the skills necessary to use technology to become independent learners. The teaching style that we adopt is as active and practical as possible.

Glossary

Algorithm	A set of step-by-step instructions that a computer follows to complete a task. It's like a recipe that tells the computer what to do.
Beebots	Small, programmable robots used to teach children basic programming skills. They are simple, child-friendly devices that help students learn how to input commands and see the results.
Chromebooks	A type of laptop that runs on Google's Chrome operating system. Chromebooks are widely used in schools because they are affordable and easy to use, offering access to web-based applications.
Computational	A problem-solving process used in computing that involves breaking down problems into smaller parts

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Thinking	(decomposition), looking for patterns, using logic to predict outcomes, and developing solutions that can be carried out by computers.
Data Representation	How information (such as numbers, text, images, or sound) is stored and processed by a computer. It includes understanding binary code, which computers use to represent data.
Debugging	The process of finding and fixing errors or bugs in computer programs. Just like correcting mistakes in writing, debugging ensures that a program runs as expected.
Discrete Computing	The teaching of computing skills separately, but also integrated into other subjects, such as Maths or Literacy. This means computing is both taught on its own and used to support learning in other areas.
E-Safety	The practice of using technology and the internet in a safe and responsible manner. It includes protecting personal information, recognising online risks, and behaving appropriately when online.
ICT (Information & Communication Technology)	A broad term that refers to the use of technology for communication, data management, and various forms of digital learning. It includes tools like computers, tablets, and software used to create, store, and share information.
Microbits:	Small, programmable devices that students use to learn about coding and electronics. They are used in Key Stage 2 to teach students more advanced programming and problem-solving skills.
Program	A series of instructions written in code that tells a computer how to perform a specific task. Programs can be very simple, like making a robot move, or complex, like designing a video game.

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ProjectEvolve:	An educational program designed to teach e-safety and digital literacy, ensuring students understand how to behave safely and responsibly online.
Sequence, Selection, and Repetition	Key concepts in programming: <ul style="list-style-type: none">- Sequence means that instructions are followed in a specific order.- Selection involves decision-making, where the computer chooses between different paths based on conditions (for example, if-else statements).- Repetition (or loops) is when a set of instructions is repeated until a condition is met
TeachComputing	A government-backed framework for teaching computing in schools. It provides guidelines, resources, and lesson plans to help teachers deliver computing lessons effectively.
3D Printer	A device that creates three-dimensional objects by building them layer by layer from digital designs. Students in Key Stage 2 use 3D printer software and hardware to bring their designs to life.