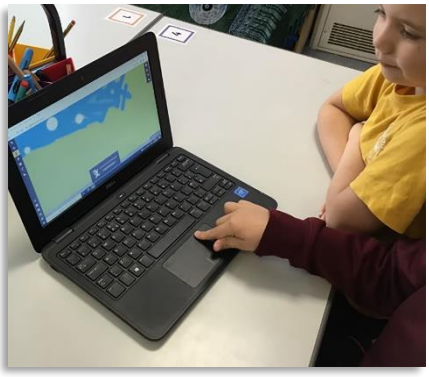
Browick Road Primary and Nursery School

Achieving Success Together

Curriculum Overview:

Computing



School Vision:

Our Teachers… are creative, engaging and adventurous, offering an excellent curriculum that challenges and inspires to ensure every child is ACHIEVING.

Technology is becoming a more and more integral part of our children's lives and futures, and our Computing curriculum gives teachers the tools to inspire our children to be the most digitally literate citizens they can be. Children are encouraged to be creative by using computational thinking, solving problems in exciting and engaging ways. They are challenged to programme games and animations, present learning using a variety of software and create, edit and publish media. Through their school journey, children will use a range of information technologies to develop their understanding of how digital devices and our online world is intertwined.

Our Children… learn resilience and are happy, confident and independent learners who thrive on celebrating their SUCCESS.

Computing teaches children about the opportunities our online world presents. They learn about significant individuals who have changed our digital world. Learning is taught in a spiralled curriculum that builds on knowledge, empowering children to constantly build on and apply their knowledge independently. Opportunities to share learning with teachers and peers are threaded into the curriculum, and children are encouraged to utilise their skills beyond the classroom.

Our School…is a safe and nurturing environment, where everyone works TOGETHER to role model our core values of respect, trust and honesty.

Online safety is an essential part of the curriculum that provides children with the skills, knowledge and support network to independently and safely explore an ever evolving online landscape. They are taught how to be responsible digital citizens and spot risks or dangers. They look at a range of communication technologies, the mechanics behind them and the associated expectations of using them. Together, the children learn how to be respectful, independent and confident online citizens.

Intent:

At Browick Road Primary and Nursery School, we are dedicated to delivering a high-quality computing education which will give our children the skills to become responsible, fluent, confident and creative participants of an increasingly digital world. Our intention is for the children to have a foundation of skills and knowledge to prepare them for a life with constantly evolving modes of communication, computer science and information technology.

At our school, the children have opportunities from the very youngest ages to use a variety of devices and software. As they move through the year groups, they will learn new skills and apply these in new and creative contexts. We strive to stay up to date with changes in the fluid computing landscape and use elements of the Teach Computing and Kapow curriculums to keep our curriculum fresh and engaging.

We encourage staff to embed computing across the curriculum to help make learning creative and accessible. We promote fluency with a range of tools to best express their understanding with the hope that all children will head to high school with the confidence and knowledge to choose the best tool to fulfil the task and challenge set by their teacher.

Implementation:

Our curriculum and enquiries	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
EYFS - Nursery EYFS - Reception	**Computing through continuous provision:** computers and phones in the role play area. **Exploring Hardware:** Tinkering and exploring with different computer hardware and learning to operate a camera (iPads). Interactive whiteboards usage embedded as part of learning. **Programming Bee-Bots:** Learning about directions and experimenting with programming and tinkering. **All about instructions:** Learn to give and receive instructions and understand the importance of precise instructions. **Introduction to data:** Children begin to sort and categorise data. **Online Safety:** Introduction to key Online Safety themes when necessary and appropriate. Explicitly taught as part of Online Safety Day.					
YEAR 1 **Online Safety**: 1 lesson half-termly. *Staying safe, managing feelings and emotions when something has upset us*	**Computing systems and networks** ***Improving mouse skills*** Learning how to login and navigate around a computer; developing mouse skills; learning how to drag, drop, click and control a cursor to create works of art.	**Programming 1** ***Algoritms unplugged*** Algorithms, decomposition and debugging are made relatable to familiar contexts, following directions, learning why instructions need to be specific.	**Skills showcase** ***Rocket to the moon*** Developing keyboard and mouse skills through designing, building and testing. Creating a digital list of materials, using drawing software and recording data.	**Programming 2** ***Programming Bee-Bots*** Introducing programming through the use of a Bee-Bot and exploring its functions.	**Creating media** ***Digital imagery*** Taking and editing photos, searching for and adding images to a project.	**Data Handling** ***Introduction to data*** Learning what data is and the different ways it can be represented. Learning why data is useful and the ways it can be gathered and recorded.
YEAR 2 **Online Safety**: 1 lesson half-termly *Keeping information safe and private online, who we should ask before sharing and how to give or deny permission online*	**Computing systems and networks** ***What is a computer?*** Exploring what a computer is by identifying how inputs and outputs work and how computers are used in the wider world to design their own computerised invention	**Programming 1** ***Algorithms and debugging*** Developing an understanding of; what algorithms are, how to program them and how they can be developed to be more efficient, introduction of loops.	**Computing systems and networks** ***Word processing*** Developing touch typing skills, learning keyboard shortcuts and simple editing tools.	**Programming 2** ***Scratch Junior*** Exploring what 'blocks' do' by carrying out an informative cycle of predict - test - review. Programming a familiar story and make a musical instrument.	**Creating Media** ***Stop Motion*** Learning how to create simple animations from storyboarding creative ideas.	**Data Handling** ***International Space Station*** Learning how data is collected, used and displayed and the scientific learning of the conditions needed for plants and humans, to survive.

Implementation:

Our curriculum and enquiries	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
YEAR 3 **Online Safety**: 1 lesson half-termly *Learning the differencebetween fact, opinion and belief. How to deal with upsetting content. Protect personal information online.*	**Computing systems and networks** ***Networks and the internet*** Learning what a network is and how devices communicate and share information.	**Programming** ***Scratch*** Exploring the programme Scratch, following the predict - test - review cycle. Learning about 'loops' and programming an animation, story and game.	**Computing systems and networks** ***Emailing*** Sending emails with attachments and understanding what cyberbullying is.	**Computing systems and networks** ***Journey inside a computer*** Assuming the role of computer parts and creating paper versions of computers to consolidate understanding of how a computer works.	**Creating media** ***Video trailers*** Developing digital video skills to create trailers, with special effects and transitions.	**Data handling** ***Comparison card databases*** Learning about records, fields and data and sorting and filtering data.
YEAR 4 **Online Safety**: 1 lesson half-termly *Searching information and making a judgement about accuracy. Recognising ads and pop-ups. Understand that tech can be distracting.*	**Computing systems and networks** ***Collaborative learning*** Learning how to work collaboratively and exploring a range of collaborative tools.	**Programming** ***Further coding with scratch*** Revisiting key features and beginning to use 'variables' in code scripts.	**Computing systems and networks** ***Website design*** Learning how web pages and sites are created and how to embed media and links.	**Computing systems and networks** ***HTML*** Learning about the markup languages behind a webpage; become familiar with HTML tags, changing HTML and CSS code to alter images and remix a website.	**Creating media** ***Computational thinking*** Solve problems effectively using four areas of abstraction: algorithm, design, decomposition and pattern recognition.	**Data handling** ***Investigating weather*** Researching and storing data on spreadsheets and design a weather station.
YEAR 5 **Online Safety**: 1 lesson half-termly *App permissions, positive and negative aspects of online communication, how to deal with online bullying and managing our health and wellbeing.*	**Computing systems and networks** ***Search engines*** Learning about how page rank works and how to identify inaccurate information.	**Programming 1** ***Programming music*** Building on programming and music skills to create different sounds, beats and melodies which are put to the test with a battle of the bands performance.	**Data handling** ***Mars Rover 1*** Learning about the Mars Rover, exploring how and why it transfers data including instructions, and how messages can be sent using binary code.	**Programming 2** ***Micro:bit*** Creating algorithms and programs that are used in the real world. Using the 'predict, test and evaluate' cycle to create and debug programs with specific aims.	**Creating media** ***Stop motion animation*** Creating animations, storyboard ideas and decomposing a story into small parts before putting together to create the illusion of a moving image.	**Skills showcase** ***Mars Rover 2*** Exploring how the Mars rover: moves, follows instructions, collects and sends data; understanding how computers work, what data is and how it is transferred.

Implementation:

Our curriculum and enquiries	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
YEAR 6 **Online Safety**: 1 lesson half-termly *Learning to deal with issues online; the impact and consequences of sharing information online; developing a positive online reputation; dealing with online bullying and using protective passwords.*	**Computing systems and networks** ***Bletchley Park*** Discovering the history of Bletchley and learning about code breaking and password hacking. Demonstrating digital literacy skills by creating presentations.	**Programming** ***Intro to python*** Using the programming language 'Python' to create designs and art. Learning how to create loops and nested loops to make their code more efficient.	**Data handling** ***Big data 1*** Identifying how barcodes and QR codes work. Learning how infrared waves are used for the transmission of data while recognising the uses of RFID.	**Creating Media** ***History of computers*** Writing, recording and editing radio plays set during WWII, learning about how computers have evolved.	**Data handlings** ***Big data 2*** Further developing understanding of how networks and the internet are able to share information. Learning how big data can be used to design smart buildings.	**Skills Showcase** ***Inventing a product*** Designing a product, pupils: evaluate, adapt and debug code to make it suitable for their needs and designing products in CAD and creating a website and video.

Impact:

Teachers use formative assessment to measure the impact of the curriculum and adapt or extend learning as appropriate. We use questioning and discussion to gauge and further pupil understanding. Our ambition is for all children to be reflective learners who can demonstrate an interest in asking why, with the skills and knowledge to use technology creatively and solve problems. Children are encouraged to showcase, share, celebrate and publish their work which will best show the impact of our curriculum.

We measure pupils' attainment after each unit through a mix of work outcome, knowledge assessment (quizzing) and teacher judgement. This helps us understand where our pupils are with their learning and, as a result, the strength of our curriculum.