Broadway Junior School

Subject: Computing Topic: Intro PM/Unpacking Hardware and Software Year: 4 Term: Autumn 1

NC Purpose of Study
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.

Intent	Implementation	Impact
Our vision at Broadway Junior School is that all pupils should enjoy Computing and become confident, passionate and responsible users of technology both inside and outside of school. Through interesting, relevant and inclusive lessons, they will be able to leave Year 6 with a good understanding of how computers and the Internet work, along with being able to complete tasks on them creatively, independently and reflectively for a range of purposes and audiences. The Computing curriculum at Broadway is designed to enable pupils to embrace and utilise new technologies through the application of essential knowledge, principles and concepts. Technology is everywhere and will play a pivotal part in students' lives, therefore, we want to model and educate our pupils on how to use technology positively, responsibly and safely. We want our pupils to be creators, not just consumers of content and our broad curriculum encompassing 'Coding & Computational Thinking', 'Information Technology', 'Computing Systems & Networks' and 'Online Safety' reflects this. We recognise that the best prevention for a lot of issues we currently see with technology and social media is through education.	Computing skills are taught explicitly at Broadway with every pupil receiving dedicated Computing lessons throughout each half-term. Each half-term has a focus on either Information Technology, Coding & Computational Thinking or Computing Systems & Networks with Online Safety lessons also included throughout each half-term. The skills acquired are then embedded throughout the curriculum. Learning is sequenced to build knowledge, skills and vocabulary. Throughout units of work teachers encourage children to make links between past learning and new content. We recognise prior learning and build on it with memorable learning experiences and provide targeted support where necessary. The units address the requirements of the National Curriculum and are broken down to cover all elements of the different strands of Computing. The progression of knowledge and skills statements build year on year to deepen and challenge our learners. We use Purple Mash as the core of our curriculum tied with Teach Computing and activities from Project Evolve to create a comprehensive curriculum providing full curriculum coverage and a variety of skills for our children.	The impact of our Computing curriculum is that we provide pupils with a set of skills to embed a lifelong love of learning and that they build on the knowledge and skills from previous learning. We ensure that every child can become a confident user of technology, while being able to use it to accomplish a wide variety of goals, both at home and in school. Children will have a secure and comprehensive knowledge of how technology works in the world around them and will develop their understanding of how to deal with online situations safely. Children will become confident global citizens. The knowledge organisers outline what we want the children to know within each unit. By nature Computing is going to be practical and hands on. We give the children the opportunity to record individually their responses to key questions. Teachers ensure that children understand and apply the correct vocabulary linked to different elements of the curriculum and this is also recorded within the floor books. Prior and future learning links are also included, so that there is a clear sequence in relation to the progression of skills and activities.

Key Vocabulary	
Application (App) Program Component Output Software Computer System Peripheral Storage Hardware Process Using scientific knowledge	
Knowledge	**Skills**
• To understand what technology is, where we see it in everyday life, and how it helps us at school, home and beyond. • To identify and describe different pieces of computer hardware and understand their functions. • To understand what software is and how we use it to complete tasks. • To explore how hardware and software interact to complete everyday tasks.	• I can describe what technology means. • I can identify examples of different technology around me. • I can explain how technology helps us in different ways. • I can name parts of a computer system. • I can explain the difference between internal components and external peripherals. • I can explain what software is. • I can name different types of software. • I can describe how software helps me complete tasks. • I can group hardware as input, output, or storage. • I can describe what each component or peripheral does. • I can describe how hardware and software work together. • I can explain a simple process using both. • I can identify what would happen if one part didn't work.

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Learning Objectives/End Points			
To understand what technology is, where we see it in everyday life, and how it helps us at school, home and beyond. Lesson 1	To identify and describe different pieces of computer hardware and understand their functions. Lesson 2	To understand what software is and how we use it to complete tasks. Lesson 3	To explore how hardware and software interact to complete everyday tasks. Lesson 4

Careers	
Linking Curriculum Learning to Careers Discuss how the skills developed in this unit are used in a range of careers, including: Computer Programmer – Creates computer programs and apps. Game Designer – Designs and develops video games. Web Developer – Builds and maintains websites. Graphic Designer – Uses computers to create images, logos, and designs. Robotics Engineer – Designs and programs robots. Cybersecurity Specialist – Helps protect computers and networks from hackers. App Developer – Creates apps for phones and tablets. Animator – Uses computer software to create animations and visual effects. Data Scientist – Uses computers to study and understand data. IT Support Specialist – Helps people solve computer and technology problems. Transferable skills Digital literacy: Understanding how technology and software are used to complete tasks. Problem-solving: Identifying what might happen when a component or part of a system fails. Logical thinking: Explaining how hardware and software work together. Technical understanding: Identifying hardware, peripherals, storage and software components. Communication: Explaining the purpose of technology and describing processes clearly. Critical thinking: Comparing technologies and considering how they help people in different situations. Adaptability: Recognising how technology supports changing needs at home, school and work. such as Curiosity and enquiry, Observation and attention to detail, Questioning and investigative thinking, Critical thinking and reasoning from evidence, Problem-solving, Communication and discussion, Teamwork and collaboration	**Learning from career and labour market information** Introduce careers involving computer systems and technology, such as IT technicians, software developers, computer engineers, network engineers and technical support specialists. **Addressing the needs of each pupil** Provide inclusive, appropriately supported opportunities for all pupils to identify hardware, explore software and understand computer systems, developing confidence and independence in digital learning. **Linking curriculum learning to careers** Link understanding hardware, software, input, output, storage and computer processes to the work of IT technicians, computer engineers and software developers who design, maintain and troubleshoot digital systems. **Encounters with employers and employees** Where possible, invite a parent, school staff member or visitor who uses or maintains technology at work to explain how computer systems and software support their daily tasks. **Experiences of workplaces** Explore how different workplaces use hardware and software, such as hospitals using computer systems to manage information, schools using digital learning platforms and businesses using technology to communicate and organise work. **Encounters with further and higher education** Introduce pupils to future opportunities to study computing and technology through school, computing clubs, college, university and technical training in IT, software development and engineering.