

NC Purpose of Study

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Intent	Implementation	Impact
At Broadway Junior School, Design and Technology inspires pupils to become creative, innovative and reflective problem-solvers. Through a progressive curriculum, children develop the knowledge, skills and confidence to design, make and evaluate purposeful products while considering the needs of others and the wider world. Pupils learn to take risks, think critically and apply technical knowledge across a range of contexts, including structures, mechanisms, textiles, electrical systems, the digital world and cooking and nutrition. We aim to foster resilience, resourcefulness and curiosity, enabling children to understand the impact of design and technology on everyday life and prepare them for future learning and careers.	Design and Technology is taught through the Kapow Primary scheme, which provides a carefully sequenced and progressive curriculum from Year 3 to Year 6. Learning follows the design process of design, make and evaluate, underpinned by the development of technical knowledge. Pupils revisit key areas throughout Key Stage 2, building on prior learning through a spiral curriculum approach. Lessons are taught over three half-terms each academic year and include practical, hands-on experiences, collaborative learning and opportunities for independent thinking. Knowledge organisers support vocabulary and knowledge retention, while differentiated activities ensure all pupils can access and achieve within the curriculum. Teachers are supported through high-quality planning and subject-specific professional development resources.	The impact of our Design and Technology curriculum is evident in pupils who are confident, creative and capable designers. Children develop a secure understanding of materials, tools, processes and healthy nutrition, applying their knowledge to create purposeful and innovative outcomes. They demonstrate increasing independence when designing, making and evaluating products and can reflect thoughtfully on how their work could be improved. Assessment is ongoing through observation, questioning and review of completed projects, enabling teachers to identify and address gaps in learning. By the end of Key Stage 2, pupils have the skills, knowledge and understanding required to meet National Curriculum expectations and succeed in the next stage of their education.

Key Vocabulary

Assemble battery bulb holder buzzer circuit symbol component conductor copper design criteria fine motor skills fit for purpose function gross motor skills insulator LED

Knowledge	Skills
- To know that 'form' means the shape and appearance of an object. - To know the difference between 'form' and 'function'. - To understand that 'fit for purpose' means that a product works how it should and is easy to use. - To know that 'form over purpose' means that a product looks good but does not work very well. - To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. - To understand the diagram perspectives 'top view', 'side view' and 'back'.	- Designing a steady hand game, identifying and naming the components required. - Drawing a design from three different perspectives. - Generating ideas through sketching and discussion. - Modelling ideas through prototypes. - Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'. - Constructing a stable base for a game. Accurately cutting, folding and assembling a net. - Decorating the base of the game to a high-quality finish. - Making and testing a circuit. Incorporating a circuit into a base. - Testing their own and others' finished games, identifying what went well and making suggestions for improvement. - Gathering images and information about existing children's toys. - Analysing a selection of existing children's toys.

Learning Objectives/End Points

Lesson 1: Developing through play	Lesson 2: Game plan	Lesson 3: Base building	Lesson 4: Electronics and assembly
To research and analyse a range of children's toys.	To design a steady hand game.	To construct a stable base.	To assemble electronics and complete their electronic game.

Materials	Cautions
- Scissors / Rulers / Glue stick - Colouring pens or pencils - Black fine liner or marker - A4 Card - Set squares - Electrical wires - preferably with crocodile clips - Buzzer or bulb and bulb holder / Battery pack / AA batteries - Switch, e.g. 2-pin SPST rocker switches - Wire cutters / Pliers - Modelling dough or sticky tack	- Use the equipment only as instructed by the teacher - Cut away from fingers - Only use scissors at the table while sitting down.

Cross-Curricular Links
Computing - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Science - Electricity - Use recognised symbols when representing a simple circuit in a diagram. - Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. Maths - Geometry - properties of shapes - Recognise, describe and build simple 3-D shapes, including making nets.

Careers	
Linking Curriculum Learning to Careers Discuss how the skills developed in this unit are used in a range of careers, including: • Product Designer • Toy Designer • Electrical Engineer • Electronics Technician • Design Engineer • Games Designer • Prototype Developer • Manufacturing Engineer • Industrial Designer Transferable skills such as Designing for a target user, Creative thinking and innovation, Understanding electrical circuits, Building and assembling products Planning and communicating ideas, Accurate measuring and construction, Problem-solving and resilience, Testing and evaluating products Collaboration and responding to feedback	Learning from Career and Labour Market Information • Explore how product designers, electrical engineers and toy designers create products that are safe, enjoyable and fit for purpose. • Discuss how electronic products are designed, tested and improved before they are sold. Encounters with Employers and Employees • Explore how toy designers and product engineers develop products that are safe, engaging and easy to use. • Discuss how electrical engineers use circuits and components to create interactive products and games. Experiences of Workplaces • Explore how engineers and designers work together to develop products that meet customer needs. • Investigate examples of electronic toys and games to identify how circuits and components are used. • Explore how products are tested for quality, safety and durability before being sold.