Broadway Junior School

Subject: Design Technology | Topic: Structures - Pavilions | Year: 4 | Term: Summer 2

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
3D shapes cladding design criteria innovative natural reinforce structure

Knowledge	Skills
• To understand what a frame structure is. • To know that a 'free-standing' structure is one that can stand on its own. • To know that a pavilion is a decorative building or structure for leisure activities. • To know that cladding can be applied to structures for different effects. • To know that aesthetics are how a product looks.	• Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. • Building frame structures designed to support weight. • Creating a range of different shaped frame structures. • Making a variety of free-standing frame structures of different shapes and sizes. • Selecting appropriate materials to build a strong structure and for the cladding. • Reinforcing corners to strengthen a structure. • Creating a design in accordance with a plan. • Learning to create different textural effects with materials

Learning Objectives/End Points			
Lesson 1: Exploring frame structures	Lesson 2: Designing a pavilion	Lesson 3: Pavilion frame	Lesson 4: Pavilion cladding
To create a range of different shaped frame structures.	To design a structure.	To build a frame structure.	To add cladding to a frame structure.

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Materials	Cautions
• Small sweets, mini marshmallows or plasticine • Toothpicks • Devices with camera capabilities • A4 stiff card • Pencil • Assorted materials for making the frame e.g. matchsticks, lolly sticks, toothpicks, straws, pipe cleaners and card triangles • PVA glue • Tape/ Scissors	• 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

Maths - Geometry - properties of shapes

- Pupils should be taught to:
- Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.
- Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.

Careers

Linking Curriculum Learning to Careers

Discuss how the skills developed in this unit are used in a range of careers, including:

- Architect
- Structural Engineer
- Civil Engineer
- Construction Designer
- Landscape Architect
- Urban Planner
- Interior Designer
- Product Designer
- Sustainable Design Engineer
- Model Maker
- Exhibition Designer

Transferable skills such as Designing for a specific purpose, Understanding structures and materials Creative problem-solving, Planning and developing ideas, Making accurate models and prototypes Selecting appropriate materials, Testing stability and strength, Improving designs through evaluation Considering aesthetics and user needs, Understanding sustainability in design

Learning from Career and Labour Market Information

- Explore how architects, engineers and designers create structures that are both functional and visually appealing.
- Learn that structures are designed for different purposes, including leisure, community spaces, homes and public buildings.
- Understand that architects and engineers use creativity, testing and problem-solving to develop innovative designs.

Encounters with Employers and Employees

- Explore how architects and engineers design structures by considering shape, strength, stability and appearance.
- Discuss how professionals create drawings, models and prototypes before constructing real buildings.

Experiences of Workplaces

- Explore local buildings, pavilions, shelters or public structures and discuss how they have been designed
- Investigate how architects and engineers work in design studios, construction environments and workshops.
- Explore how models and prototypes are used to test ideas before structures are built.