

### 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

Apparatus cladding design criteria equipment landscape features playground

| Knowledge                                                                                                                                                                                                                                                                                                                                                              | Skills                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>To know that structures can be strengthened by manipulating materials and shapes.</li> <li>To understand what a 'footprint plan' is.</li> <li>To understand that in the real world, design can impact users in positive and negative ways.</li> <li>To know that a prototype is a cheap model to test a design idea.</li> </ul> | <ul style="list-style-type: none"> <li>Designing a playground featuring a variety of different structures, giving consideration to how the structures will be used.</li> <li>Considering effective and ineffective designs.</li> <li>Building a range of play apparatus structures drawing upon new and prior knowledge of structures.</li> <li>Measuring, marking and cutting wood to create a range of structures.</li> <li>Using a range of materials to reinforce and add decoration to structures.</li> <li>Improving a design plan based on peer evaluation.</li> <li>Testing and adapting a design to improve it as it is developed.</li> <li>Identifying what makes a successful structure.</li> </ul> |

### Learning Objectives/End Points

| <a href="#">Lesson 1: Design a new playground</a>    | <a href="#">Lesson 2: Building structures</a> | <a href="#">Lesson 3: Perfecting structures</a> | <a href="#">Lesson 4: Playground landscapes</a> |
|------------------------------------------------------|-----------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| To design a playground with a variety of structures. | To build a range of structures.               | To improve and add detail to structures.        | To create a surrounding landscape.              |
| Materials                                            |                                               | Cautions                                        |                                                 |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• A playground with structures such as swings, tunnels, slides and climbing frames</li> <li>• A4 plain paper</li> <li>• A3 card / Ruler / Scissors / Rubber</li> <li>• 10 cm x 10 cm or 5 cm x 5 cm jelutong and/or dowel</li> <li>• Tenon saws and bench hooks or coping saws and vices</li> <li>• Lolly sticks or toothpicks</li> <li>• Straws, string, pipe cleaners and card</li> <li>• Foil, egg boxes, cardboard tubes and other junk modelling materials</li> <li>• PVA glue or glue guns</li> <li>• Range of cladding materials: foil, tracing paper, elastic bands, plastic bags, packaging, newspaper, string/wool, leaves, corrugated card/plastic, etc.</li> <li>• Papier maché</li> </ul> | <p>Saws</p> <ul style="list-style-type: none"> <li>• Use a child-appropriate saw, such as a junior hacksaw. Check blades are secure and replace any damaged blades before the lesson.</li> <li>• Saws must be used under direct adult supervision. Only one child should use each saw at a time. A supervision ratio of 3:1 (children to an adult) is recommended during sawing activities.</li> <li>• An adult should use a vacuum cleaner to remove sawdust when sawing is finished or wipe the surfaces with a damp cloth during the lesson.</li> <li>• Tie back long hair and remove loose clothing to prevent tangling.</li> <li>• Keep fingers well away from the blade.</li> <li>• Secure the wood before cutting to prevent it from moving or wobbling.</li> <li>• Place saws flat on the table when finished to prevent them from falling and potentially injuring feet.</li> <li>• Do not blow sawdust, as fine particles can irritate the lungs or eyes.</li> </ul> <p>Hot glue guns</p> <ul style="list-style-type: none"> <li>• PVA glue or masking tape is the recommended method for joining throughout this unit. Hot glue guns are not required for this lesson and should only be used if permitted under your school's health and safety policy. If used, it should be with extreme care and only under 1:1 adult supervision.</li> <li>• If glue guns are used, they should be cool melt (around 120–150 °C) to reduce the risk of burns. Ensure glue guns have an appropriate stand and a drip tray.</li> <li>• In case of burns, immediately immerse the affected area in cool, running water for at least ten minutes.</li> <li>• Use the equipment only as instructed by the teacher.</li> <li>• Do not touch the hot glue or the hot nozzle of the glue gun.</li> <li>• Do not touch the glue for around 30 seconds after joining materials to allow it to cool.</li> <li>• Watch out for electrical leads as they pose a trip hazard</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Cross-Curricular Links

#### Science - Properties and changes of materials

- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.

#### Art and design

- To improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay].

### Careers

#### Linking Curriculum Learning to Careers

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

#### Learning from Career and Labour Market Information

- Landscape Architect
- Playground Designer
- Architect
- Civil Engineer
- Structural Engineer
- Urban Planner
- Construction Designer
- Product Designer
- Environmental Designer
- Project Manager

Transferable skills such as Designing for different users and purposes, Creative problem-solving Planning and developing ideas, Creating and testing prototypes, Understanding structures and materials, Measuring and accurate construction, Evaluating and improving designs, Considering safety and accessibility, Teamwork and communication, Sustainable design thinking

- Explore how architects, landscape designers and engineers create spaces that are safe, accessible and enjoyable for communities.
- Learn that playgrounds are carefully designed by considering users' needs, safety, materials, accessibility and the environment.

## Encounters with Employers and Employees

- Explore how playground designers, architects and engineers work together to create safe and exciting spaces for children and communities.
- Discuss how professionals use design briefs, models and feedback to improve their ideas.
- Investigate how designers balance creativity with practical considerations such as safety, cost, materials and environmental impact.

## Experiences of Workplaces

- Visit a local playground, park or community space to investigate how it has been designed and how it meets the needs of users.
- Explore how playground equipment is designed, tested and installed safely.
- Investigate the work of architects, landscape designers and engineers through virtual tours or case studies.