

DT Overview – coverage and sequencing summary

Brookburn's rationale behind the DT curriculum design:

Through our Design and Technology curriculum we aim to provide children with the knowledge and skills needed for a rapidly changing world. We want to equip our children with the skills to be able to use their creativity and imagination to solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We aim to provide our pupils with opportunities that inspire them to think and work independently, collaboratively and innovatively whilst developing their technical understanding and skills. Through our Design Technology curriculum, children are given opportunities to carry out research, evaluate the effectiveness of products, develop and present their ideas, make new products and to evaluate and improve their own work. Our curriculum is designed to enable children to become resilient, resourceful, innovative and enterprising citizens. They will be encouraged to think about important issues such as sustainability in order to understand both the positive and negative global impact design has on the world.

How we teach DT

We use Kapow Primary's Design Technology scheme of work and this is aligned with the national curriculum. The scheme of work is organised into key areas and these are revisited across each key stage. Links are also planned across the curriculum.

Key areas:

- ★ Cooking and nutrition
- ★ Textiles
- ★ Structures
- ★ Mechanical systems/ mechanisms
- ★ Electrical systems

Design Process

The Design and technology National Curriculum outlines the three main stages of the design process: design, make and evaluate. Each Kapow Primary unit follows these stages, to form a full project. Each stage of the design process is underpinned by technical knowledge which encompasses the contextual, historical and technical understanding, required for each strand.

A spiral curriculum

The scheme of work has been designed as a spiral curriculum with the following key principles in mind:

- ✓ Cyclical: Pupils return to the key areas again and again during their time in primary school.
- ✓ Increasing depth: Each time a key area is revisited it is covered with greater complexity.
- ✓ Prior knowledge: Upon returning to each key area, prior knowledge is utilised so pupils can build upon previous foundations, rather than starting again.

In the Early Years

Child-led learning is integral to the Early Years curriculum, and rightly so. Supporting children in following and exploring their own interests allows for a greater depth of learning and understanding and much higher levels of wellbeing and engagement. Adults in the

classroom can model how to use Design and technology to aid children in their pursuits and scaffold the learning so that they can reach a deeper level of understanding.

	Autumn		Spring		Summer	
Nursery	Junk modelling To explore and investigate the tools and materials in the junk modelling area.		To develop scissor skills.		To investigate cutting different materials.	
Reception	Junk modelling	Hibernation boxes	Junk modelling- boats	Food- making soup	Textiles- Book marks	Food- Making a rainbow salad
Year 1	Textiles- Puppets <ul style="list-style-type: none"> - Join fabrics together using pins, staples or glue. - Design a puppet and use a template. - Join their two puppets' faces together as one. - Decorate a puppet to match their design. 		Cooking and nutrition- Fruit and Veg <p>Describe fruits and vegetables and explain how to identify fruits. Name a range of places that fruits and vegetables grow. Describe basic characteristics of fruit and vegetables. Prepare fruits and vegetables to make a smoothie.</p>		Mechanisms- Wheels and axles <p>Explain that wheels move because they are attached to an axle. Recognise that wheels and axles are used in everyday life, not just in cars. Identify and explain vehicle design flaws using the correct vocabulary. Design a vehicle that includes functioning wheels, axles and axle holders. Make a moving vehicle with working wheels and axles. Explain what must be changed if there are any operational issues.</p>	
Year 2	Structures- Baby Bear's chair <p>Identify man-made and natural structures. Identify stable and unstable structural shapes. Contribute to discussions. Identify features that make a chair stable. Work independently to make a stable structure, following a demonstration. Explain how their ideas would be suitable for Baby Bear. Produce a model that supports a teddy, using the appropriate materials and construction techniques. Explain how they made their model strong, stiff and stable.</p>		Cooking and nutrition-A balanced diet <p>Name the main food groups and identify foods that belong to each group. Describe the taste, feel and smell of a given food. Think of three different wrap ideas, considering flavour combinations. Construct a wrap that meets the design brief and their plan.</p>		Mechanical systems- Fairground wheel <p>Design and label a wheel. Consider the designs of others and make comments about their practicality or appeal. Consider the materials, shape, construction and mechanisms of their wheel. Label their designs. Build a stable structure with a rotating wheel. Test and adapt their designs as necessary. Follow a design plan to make a completed model of the wheel.</p>	

Year 3	Textiles- Cross-stitch and applique Demonstrate their ability to use cross-stitch as a decorative feature or to join two pieces of fabric together. Develop appliqué designs based on design criteria. Design, cut and shape their template for an usekh/wesekh collar, with increasing accuracy. Decorate their Egyptian collar using a variety of techniques such as appliqué, cross-stitch, beads, buttons and pinking. Measure and attach a ribbon with a running stitch. Recognise different types and qualities of fabrics. Explain the aesthetic and/or functional properties of some of their material choices.	Mechanical systems- Pneumatic toys Draw accurate diagrams with correct labels, arrows and explanations. Correctly identify definitions for key terms. Identify five appropriate design criteria. Communicate two ideas using thumbnail sketches. Communicate and develop one idea using an exploded diagram. Select appropriate equipment and materials to build a working pneumatic system. Assemble their pneumatic system within the housing to create the desired motion. Create a finished pneumatic toy that fulfills the design brief.	Cooking and nutrition- Eating seasonally Explain that fruits and vegetables grow in different countries based on their climates. Understand that seasonal fruits and vegetables grow in a given season. Understand that eating seasonal fruit and vegetables positively affects the environment. Design a tart recipe using seasonal ingredients.
Year 4	Structures- Pavilions Produce a range of free-standing frame structures of different shapes and sizes. Design a pavilion that is strong, stable and aesthetically pleasing. Select appropriate materials and construction techniques to create a stable, free-standing frame structure.	Electrical systems- Torches Identify electrical products and explain why they are useful. Help to make a working switch. Identify the features of a torch and how it works. Describe what makes a torch successful. Create suitable designs that fit the success criteria and their own design criteria. Create a functioning torch with a switch according to their design criteria.	Mechanical systems- Making a slingshot car Work independently to produce an accurate, functioning car chassis. Design a shape that is suitable for the project. Attempt to reduce air resistance through the design of the shape. Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed. Construct car bodies effectively. Conduct a trial accurately and draw conclusions and improvements from the results.

	Select appropriate materials and techniques to add cladding to their pavilion.		
Year 5	Mechanical systems- Pop up book Produce a suitable plan for each page of their book. Produce the structure of the book. Assemble the components necessary for all their structures/mechanisms. Hide the mechanical elements with more layers using spacers where needed. Use a range of mechanisms and structures to illustrate their story and make it interactive for the users. Use appropriate materials and captions to illustrate the story.	Textiles- Stuffed Toys Design a stuffed toy, considering the main component shapes of their toy. Create an appropriate template for their stuffed toy. Join two pieces of fabric using a blanket stitch. Neatly cut out their fabric. Use appliqué or decorative stitching to decorate the front of their stuffed toy. Use blanket stitch to assemble their stuffed toy, repairing when needed. Identify what worked well and areas for improvement.	Cooking and nutrition-What could be healthier? Understand how beef gets from the farm to our plates. Present a subject as a poster with clear information in an easy to read format. Contribute ideas as to what a 'healthy meal' means. Notice the nutritional differences between different products and recipes. Recognise nutritional differences between two similar recipes and give some justification as to why this is. Work as a team to amend a bolognese recipe with healthy adaptations. Follow a recipe to produce a healthy bolognese sauce. Design packaging that promotes the ingredients of the bolognese.
Year 6	Structures- Playgrounds Create five apparatus designs, applying the design criteria to their work. Make suitable changes to their work after peer evaluation. Make roughly three different structures from their plans using the materials available. Complete their structures, improving the quality of their rough versions and applying some cladding to a few areas. Secure their apparatus to a base.	Mechanical systems- Automata toys Mark, saw and cut out the components and supports of their toy with a varying degree of accuracy to the intended measurements. Follow health and safety rules, taking care with the equipment. Attempt a partial assembly of their toys using an exploded-diagram, following a teacher's demonstration. Develop a design idea with some descriptive notes. Explore different cam profiles and choose three for their follower toppers with an explanation of their choices. Create neat, decorated follower toppers with some accuracy.	Electrical systems- Steady hand game Explain simply what is meant by 'form' (the shape of a product) and 'function' (how a product works). State what they like or dislike about an existing children's toy and why. Learn about skills developed through play and apply this knowledge in a survey of one or more children's toys. Identify the components of a steady hand game. Design a steady hand game of their own according to their design criteria, using four different perspective drawings. Create a secure base for their game, with neat edges, that relates to their design. Make and test a functioning circuit and assemble it within a case.

	<p>Make a range of landscape features using a variety of materials which will enhance their apparatus.</p>	<p>Measure and cut panels that fit with some inaccuracies to conceal the inner workings of the automata. Decorate and finish the automata to meet the design criteria and brief. Evaluate their finished product, making descriptive and reflective points on function and form.</p>	
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