Brookside Academy Skills, Knowledge and Vocabulary document

Design and Technology Year 5

Aims

The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

<table>
<tr><th colspan="4">KS1</th></tr>
<tr><td colspan="4">Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. When designing and making, pupils should be taught to:</td></tr>
<tr><th>Design</th><th>Make</th><th>Evaluate</th><th>Technical knowledge</th></tr>
<tr><td>• design purposeful, functional, appealing products for themselves and other users based on design criteria
• generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</td><td>• select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
• select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</td><td>• explore and evaluate a range of existing products
• evaluate their ideas and products against design criteria</td><td>• build structures, exploring how they can be made stronger, stiffer and more stable
• explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</td></tr>
<tr><th colspan="4">KS2</th></tr>
<tr><td colspan="4">Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to:</td></tr>
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Design	Make	Evaluate	Technical knowledge
• use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design	• select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities	• investigate and analyse a range of existing products • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • understand how key events and individuals in design and technology have helped shape the world	• apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] • understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • apply their understanding of computing to program, monitor and control their products.
Cooking and nutrition			
KS1			
• use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from.			
KS2			
• understand and apply the principles of a healthy and varied diet • prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.			

Design and Technology Intention Statement

Children at Brookside Academy often take part in the design, make and evaluate cycle; allowing them to gain practical, technical and logical skills. In a whole school approach, our design and technology curriculum includes a variety of multi-sensory experiences and a progression of skills that can be used throughout their time here. Through subtle guidance from our staff, children are given freedom and autonomy to explore, research and develop their own ideas and creativity putting the Brookside pupil at the forefront of their learning. Additionally, children are encouraged to take part in group projects enhancing their communication and social skills. These skills, that are taught through our engaging and inspiring curriculum, are transferable meaning children can participate successfully in our ever changing world.

Whilst at Brookside Academy, children are always encouraged to be creative. Design and technology is an opportunity for children to apply their creativity and imagination to a range of child-led tasks freely. Communication is another skill that children will use in this subject area, where they are expected to work collaboratively in a group, discuss ideas with their peers and be introduced to new technical vocabulary. Children are also encouraged to reflect on their work and learn from what went well and what did not, persevering when things prove difficult. Learners are expected to value and respect the designs and work of others. They are taught the skills of giving precise feedback and constructive criticism empathetically.

Year 5		
	Skills and Knowledge	**Vocabulary**
Design	Generate ideas through brainstorming and identify a purpose for their product (Planning ideas for Anglo-Saxon/Viking artefacts and the squashed tomato challenge (STC)- pulley systems). Draw up specification/design criteria for their design (sketch design for Anglo-Saxon artefacts and shelters using a range of angles and STC). Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail (discussions on appropriate materials for Viking Shield, shelters and STC). Use results of investigations, information sources, including ICT when developing design ideas (watching tutorials to design and consider appropriate materials for a Viking Shield, Solar System and STC). Use cross-sectional planning and annotated sketches (Viking and AS craft)	Product Purpose Design Sketch Tutorials Pulley system Birds-eye view Side view Cross-section Annotations Planning Materials Equipment Processes Appropriate Suitable Plan Organise Prototype Initial ideas Criteria Diagrams Annotate Application Constraints
Make	Select appropriate materials, tools and techniques (Shelters, Viking weapons, Anglo-Saxon artefacts and STC). Measure and mark out accurately (follow their own plan to construct their product) Use skills in using different tools and equipment safely, with precision and accurately (making artefacts and weapons) Follow a step-by-step plan to create a product (Solar System). Cut and join with accuracy to ensure a good-quality finish to the product (Creating a Viking weapon and Solar System using split pins etc.) Apply a range of finishing techniques (Viking and AS craft)	Precision Tools Accuracy Product Step-by-step plan Materials Hand-made Presentation Dimensions Durable

Evaluate	Evaluate quality of design whilst design and making (Viking and AS craft and STC). Evaluate a product against the original design specification (evaluation of Viking craft days and STC). Evaluate it personally and seek evaluation from others (evaluation of Viking craft days and STC). Test and evaluate a final product (Viking and AS craft, Solar System and STC).	Assess Edit Improve Alter Outcome Develop Test Analyse Effective Fit for purpose Design criteria Alternatives Models Quality Function Functionality
Technical Knowledge	Select materials carefully, considering intended use of product and appearance (Viking and AS craft and STC) Explain how product meets design criteria (Viking and AS craft and STC) Measure accurately enough to ensure precision (Solar System and Viking and AS Craft) Ensure product is strong, fit for purpose and aesthetically pleasing (Viking and AS craft, Bayeux Tapestry) Begin to reinforce and strengthen a 3D frame (Viking and AS craft) Refine product after testing (STC) Begin to use pulleys to create movement (STC) Use own template (Solar System, Viking and AS craft) Think of a range of ways to join things (Anglo-Saxon jewellery and Viking weapons) Begin to understand that a single 3D textiles project can be made from a combination of fabric shapes (Bayeux Tapestry)	Materials Form Shape Adhesive Mass-produce Hand-made Packaging Presentation Machine made Dimensions Durable

Cooking		