Brookside Academy Skills, Knowledge and Vocabulary document

Design and Technology

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>
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KS2			
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:			
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 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 4		
	Skills and Knowledge	**Vocabulary**

Design	• I can gather information to inform design ideas and create own criteria to support design in meeting a range of chosen requirements
	• I have at least one idea about how to create a product considering available resources and suggest improvements.
	• I can produce an annotated plan, explaining
	  ○ its purpose
	  ○ how it will work to others
	  ○ design features that appeal to the intended users
	  ○ how realistic the plan is.
	• I can make a prototype
	• I can begin to use computers to show design.
		• Plan • Organise • Prototype • Initial ideas • Criteria • Diagrams • Labels • Annotate • Brief • Product • Consumer • Customer • Target audience • Purpose • Application • Constraints • Client

Make	• I can select and use suitable tools and equipment accurately and explain choices in relation to required techniques • I can select appropriate materials, fit for purpose and explain choices • I can order the main stages of main and follow plan in order • I can measure, mark out, cut and shape materials/components with some accuracy • I can assemble, join and combine materials and components with some accuracy • I can apply a range of finishing techniques with some accuracy	Materials • Mould • Liquid • Solid • Form • Shape • Adhesive • Lattice • Mass-produce • Hand-made • Packaging • Presentation • Machine made • Dimensions • Durable

Evaluate	• I can refer to design criteria while designing and making
	• I can use criteria to evaluate product and explain how I could improve original design considering:
	  ○ how well they've been made,
	  ○ materials,
	  ○ whether they work,
	  ○ how they have been made,
		Assess • Edit • Improve • Alter • Outcome • Develop • Test • Analyse

	○ fit for purpose • I can discuss by whom, when and where products were designed and if they can be recycled or reused • I know about some inventors/designers/ engineers/chefs/manufacturers of ground-breaking products ○ inventor of microwave (teeth and eating) ○ thermos flask James Dewar (dramatic landscapes/states of matter) ○ plough (Anglo Saxons)	
Technical Knowledge	• I know how simple electrical circuits and components can be used to create functional products (security light using motion sensors/switches Dramatic Landscapes/electricity) • I know how to program a computer to control their products • I know how to make strong stiff shell structures	
Cooking	• I know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chicken and cattle) and caught (such as fish) in the U.K, Europe and wider world. • I know how to prepare and cook a variety of predominately savoury dishes safely and hygienically using a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • I know that a healthy diet is made up from a variety and balance of different food and drink using 'the eatwell plate' to support Sorbet (states of matter) Teeth and eating (make healthy snacks recognising where foods have been sourced and calculate air miles)	• Healthy • Unhealthy • Balanced • Vitamins • Disease • Nutrition • Healthy eating • Hygiene • Diet • Cross contamination • Grams • Storage • Presentation • Taste • Texture • Flavour • Disinfect • Bacteria