

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.

KS1

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:

Design	Make	Evaluate	Technical knowledge
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria 	<ul style="list-style-type: none"> • 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.

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
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 6

	Skills and Knowledge	Vocabulary
Design	<ul style="list-style-type: none"> - I can select suitable materials and components suitable for the task - I can formulate step-by-step plans as a guide to making - I can design a vehicle based on specified criteria. - I can design electrical circuits. - I can use research to design an innovative and appealing shelter that is fit for purpose. - I can communicate my ideas through discussion and annotated diagrams. - I can make a marquette of my shelter. 	Criteria, diagrams, annotate, brief, dimensions axle, motor, circuit, switch, circuit diagram, annotated drawings, electrical system, Marquette
Make	<ul style="list-style-type: none"> - I can use a wide range of construction materials, mechanical components, electrical components, textiles. - I can use a wider range of tools and equipment to accurately assemble, join and combine materials and components. 	frame structure, strengthen, reinforce, triangulation, stability, shape, join.
Evaluate	<ul style="list-style-type: none"> - I can identify strengths and areas for development in their ideas and their product. - I can investigate and analyse how products have been made, why materials have been chosen and how it was constructed, how it works and whether it achieves its purpose. - I can test and evaluate final product explain what would improve it. - I can research and discuss inventors, designers, engineers and manufacturers that have developed ground-breaking products. 	Develop, test, effective, fit for purpose, design criteria, quality, function, durability,
Technical Knowledge	<ul style="list-style-type: none"> - I can use learning from science and mathematics to help design and make a product that works. - I understand that materials can be combined and mixed to make more useful characteristics (Prehistoric Britain) - I understand how electrical circuits and components can be used to create functional products. - I can reinforce and strengthen a 3D framework. 	Materials, function, aerodynamics, air resistance, movement, reinforce, strengthen

Cooking	<ul style="list-style-type: none">- I understand the principles of a healthy and varied diet- ENRICHMENT	fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, dairy,
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