Brackenwood Junior School

Design and Technology

Long Term Plan 2024-25

Yearly Overview

Mechanical Systems	Cooking and Nutrition	Textiles	Electrical Systems	Digital World	Structures

	Autumn	Spring	Summer
Year 3	Cross-Stitch & Appliqué – Egyptian Collars	Pneumatic Toys	Eating Seasonally - Vegetable Tarts
	Constructing a Castle	Wearable Technology	
Year 4	Slingshot Car (wheel and axel)	Adapting a recipe – biscuits	Pavilions
	Fastenings	Torches	
Year 5	Developing a recipe - Bolognese	Monitoring Devices	Bridges
	Electrical Systems	Pop-Up Book	
Year 6	Playgrounds	Automata Toys	Come Dine with Me

	Navigating the World		Steady Hand Game

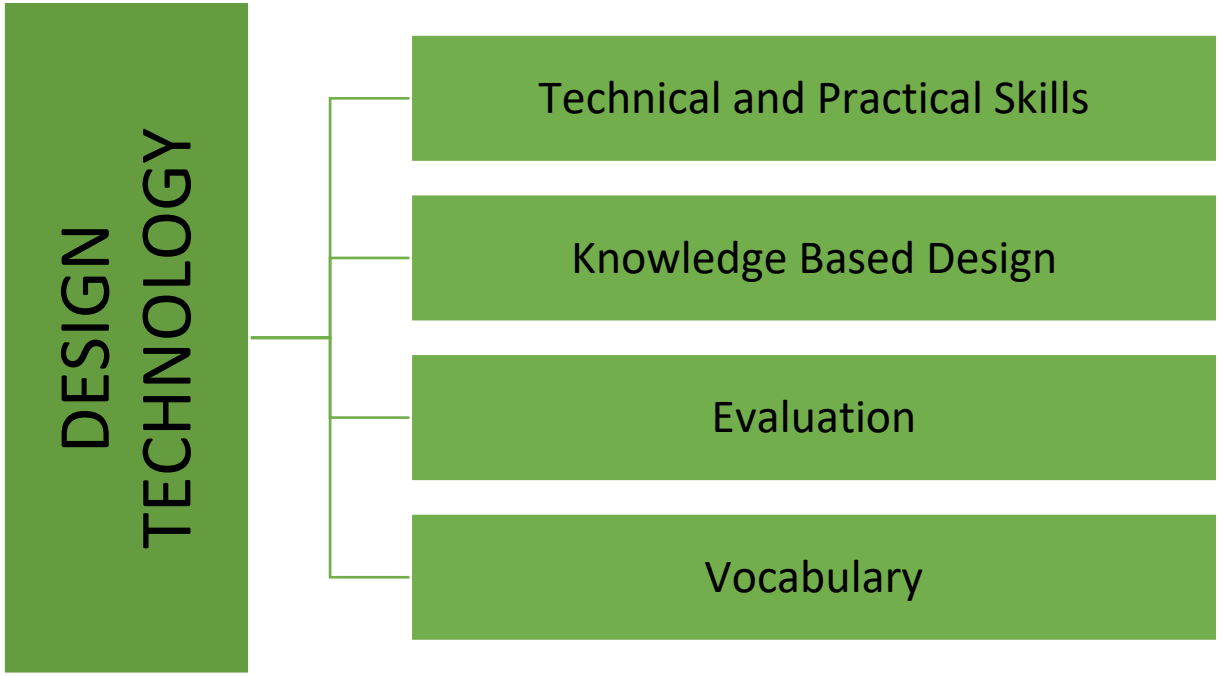
Design and Technology

Design is not just about what something looks or feels likes. Design is about how it works.

Why should children learn this subject?	Design Technology provides children with the opportunity to develop the skills, knowledge and understanding needed to design and make functional products. By engaging in Design Technology tasks, children have opportunities to become creative and innovative. They acquire a better understanding of materials and their components, mechanisms, control systems and structures. They learn how to evaluate products for quality and effectiveness. In addition, engaging in Design Technology will help the children with learning across the curriculum and there are clear links between this subject and others such as Science, ICT, Maths and Art. Participating in Design Technology activities will enable children to become more confident at problem-solving, risk-taking, evaluating and collaborative working
What will children learn to do in this subject?	At Brackenwood Junior School, children will: ● Develop creative, technical and practical knowledge. ● Design and make high-quality products for a wide range of purposes. ● Evaluate and test their work and the work of others. ● Understand the principles of nutrition and learn how to cook. ● Research existing designs to inform their own work. ● Use sketches, diagrams and prototypes to develop and refine their ideas. ● Use a wide variety of tools and materials. ● Learn to strengthen, stiffen and reinforce structures. ● Understand and incorporate mechanical and electrical systems. ● Use computing to program, monitor and control their products.

How will we inspire them?	● Researching, designing and making a range of products with a real purpose. ● Learning how to make relevant, useful recipes and develop cooking skills for life. ● Working with a range of different materials (sewing etc.)

Our key driving themes are:



National Curriculum Programmes of Study

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.

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.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Schools are not required by law to teach the example content in [square brackets].

Subject content

Key stage 1

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

- 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

Make

- 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

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- 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.

Key stage 2

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

- 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

Make

- 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

Evaluate

- 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

Technical knowledge

- 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

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

Key stage 1

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

Key stage 2

- 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.