Design and Technology Policy

Policy Statement

At Wrenthorpe Academy, our Design and Technology curriculum develops skill, knowledge and understanding of designing and making functional products. It is important to encourage creativity and innovation through design. The children achieve their objectives by exploring the everyday products we use and the world we live in. We follow the National Curriculum, which inspires all year groups, from EYFS to Year 6, to make functional products for particular purposes and users.

In Design and Technology, we acquire and apply knowledge and understanding of materials and components, mechanisms and control systems, structures, existing products, quality and health and safety. We have found our D&T skills also support learning across the curriculum. There are strong links to science, maths and the use of computer control and, naturally, in art!

Aims of Design & Technology

Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. They are taught to look for opportunities and to respond to them by developing a range of ideas and making a range of products. The children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness and are encouraged to become innovators.

- to develop children' designing and making skills,
- to teach children the knowledge and understanding, within each child's ability, that will be required to complete the making of their product,
- to teach children the safe and effective use of a range of tools, materials and components,
- to develop children' understanding of the ways in which people have designed products in the past and present to meet their needs,
- to develop children' creativity and innovation through designing and making,
- to develop children' understanding of technological processes, their management and their contribution to society.

Design & Technology in relation to the National Curriculum

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.

We are surrounded by things which are designed and made and our lives are shaped by technology - whether we realise it or not. Design and technology education involves two important elements:

- learning about the designed and made world, and how things work;
- learning to design and make functional products for particular purposes and users.

Through their activities in design and technology children develop skills in designing and in making. They gain knowledge about design, materials, structures, mechanisms and electrical control. They are encouraged to be creative and innovative; and are prompted to think about important issues such as sustainability and enterprise.
There are three types of core activities children engage with in design and technology:

- activities which involve investigating and evaluating existing products
- focused practical tasks in which children develop particular aspects of knowledge and skills
- designing and making activities in which children design and make 'something' for 'somebody' for 'some purpose'.

These are combined in a sequence of activities to create a D&T project.

Learning Objectives

EYFS

During EYFS pupils explore and use a variety of media and materials through a combination of child initiated and adult directed activities. They have the opportunity to learn to:

- Use different media and materials to express their ideas.
- Use what they have learnt about media and materials in original ways, thinking about form, function and purpose.
- Make plans and construct with a purpose in mind using a variety of resources.
- Develop skills to use simple tools and techniques appropriately, effectively and safely.
- Select appropriate resources for a product and adapt their work where necessary.
- Cook and prepare food adhering to good health and hygiene routines.

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

Key Stage 1

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 wide range of tools and equipment to perform practical tasks
- 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 in their products

Cooking and nutrition

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

Key Stage 2

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
- select 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

Technical knowledge

- apply their understanding of hoe to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products
- understand and use electrical systems in their products
- apply their understanding of computing to program, monitor and control their products

Cooking and nutrition

- 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

Equal Opportunities and Special Needs

Teachers at Wrenthorpe Academy ensure that children have access to the range of Design & Technology activities and use opportunities within Design & Technology to challenge stereotypes. Children are encouraged and supported to develop their Design & Technology capability using a range of materials. Teachers differentiate activities within Design & Technology to ensure that the specific needs of individual children are best met.

Resource Management

Our school has a wide range of resources to support the teaching of DT across the school. Classrooms have a range of basic resources, with more specialised equipment being kept in the resources store. Funding for Design and Technology will be within the school budget plan for each financial year. Within the school budget, the purchase of equipment such as specialised tools, construction kits, consumable materials, books and other resource materials will be the responsibility of each class teacher to identify the resource needs in relation to their project. Some equipment and materials have been organised in the central store.

Whilst **Health and Safety** considerations & risk assessment remain the primary responsibility of the teacher in charge, the children should be taught to;

- Reduce risks through responsible behaviour and use good practice to avoid hazardous situations developing
- Abide by simple safety rules when using tools or equipment
- Consider and recognise hazards in their proposed ways of working, and take action to minimise them
- Assess the risk of hurt or damage posed by evaluating their own and other designer's products and suggest remedial action
- Store tools and materials with due regard, and organise their working environment / practices in a safe way.

Areas for special concern include;

- The use of hot-melt glue guns and power saws. These both require pupils to wear adequate eye protection (goggles) and to be aware of what to do in the event of a minor injury.
- Food Technology lessons require that hygiene is given the utmost priority. Activities involving the use of cookers / ovens / microwaves require a high level of supervision with appropriate safety / protective clothing being available.
- Fabric work that involves scissors, sharp cutting tools, pins and needles requires careful resource management. Children should be taught simple storage strategies for dealing with sharp objects that are ‘not in use’.
- Construction kits may pose some small risk (particularly at KS1) and children should be warned of the dangers of placing pieces in their mouths etc.
- Safe practices for handling soft mouldable materials should also be taught to minimise small pieces being inappropriately used!
- Contact with foodstuffs and other materials likely to cause allergic reactions should be avoided.

Links with other subjects

DT can link with most topics and subjects. For example:

- History – Design and Make an Anglo-Saxons purses or Mayan masks. Also cooking recipes linked with the past
- RE – Design and Make a Diwali lamps and Cooking from various cultures and religious festivals
- Music – Design and Make a musical instruments