

DESIGN & TECHNOLOGY

Curriculum Statement



Our Mission Statement: 'Love one another'

Our Learning Values: 'Practice makes perfect'

P – pride

R – resilience

A – aspiration

C – creativity

T - teamwork

I – independence

C – curiosity

E – engagement

Aims and Purposes

Design and Technology offers opportunities for children to:

- Develop their designing and making skills;
- Develop knowledge and understanding;
- Develop their capability to create high quality products through combining their designing and making skills with knowledge and understanding;
- Nurture creativity and innovation through designing and making;
- Explore values about and attitudes to the made world and how we live and work within it;
- Develop an understanding of technological processes, products, and their manufacture, and their contribution to our society.

Content

In our Design and Technology curriculum, children acquire and apply knowledge and understanding of:

- Materials and components;
- Mechanisms and control systems;
- Structures;
- Existing products;
- Quality;
- Health and safety;
- Cooking and nutrition.

Children:	Examples
<ul style="list-style-type: none"> Develop designing skills, including generating and developing ideas, clarifying a task, creating design proposals, communicating ideas, planning and evaluating. 	
<ul style="list-style-type: none"> Acquire and refine the practical skills associated with making, including working with materials and components, tools and processes 	<i>Planning, measuring and marking out, cutting and shaping, joining and combining, finishing, and evaluating.</i>
<ul style="list-style-type: none"> Apply scientific skills 	<i>Predicting and fair testing</i>
<ul style="list-style-type: none"> Apply mathematical skills 	<i>Measuring to an appropriate number of decimal places, drawing and interpreting tables, graphs and bar charts</i>
<ul style="list-style-type: none"> Apply computing skills 	<i>Make things happen by use of a control, handling information through the use of a database or spreadsheet</i>
<ul style="list-style-type: none"> Apply art skills 	<i>Investigating texture and colour or recording visual information</i>

Language and Communication

Children:	Examples
<ul style="list-style-type: none"> Develop language skills through questioning, describing and explaining, presenting their own ideas using different kinds of writing suitable for different audiences and through discussion 	<i>Of their own ideas, of existing products, and of their work and that of others.</i>
<ul style="list-style-type: none"> Use technological, scientific and mathematical language including appropriate technical vocabulary and drawing, to communicate ideas and findings 	<i>Diagrams and charts</i>
<ul style="list-style-type: none"> Develop drawing skills and practice specific skills in relation to symbols and conventions 	<i>Sketching and formal drawings</i>
<ul style="list-style-type: none"> Seek information and data, and determine what is valuable and what can be used in their work 	<i>Nutritional information, research results, trend analysis</i>
<ul style="list-style-type: none"> Read non-fiction texts and extract information 	<i>Reference books, the internet</i>
<ul style="list-style-type: none"> Use correct and precise language. The vocabulary appropriate to describe a concept may change at different stages of a child's development 	<i>Key Stage 1: 'up and down' Key Stage 2: 'linear movement'</i>

Values and Attitudes

Children:

- Work both independently and with others, listening to others' ideas and treating these with respect;
- Can be creative flexible and show perseverance;
- Critically evaluate existing products, their own work and that of others;
- Develop a respect for the environment and for their own health and safety and that of others;
- Recognise the strengths and limitations of a range of technologies and appreciate which are appropriate for particular situations;
- Develop their cultural awareness and understanding and appreciate the value of differences and similarities;
- Develop an understanding that all people are equal regardless of age, race, gender or ability and that there needs to be alternative solutions to meet the needs of individuals and groups of people;
- Find enjoyment, satisfaction and purpose through designing and making;
- Apply value judgements of an aesthetic, economic, environmental, moral, scientific and technical nature.

Links with other areas of the curriculum

English

Ability in reading and writing is essential for collecting information and source material, finding out about products, communicating ideas, making notes and drawings for later reference, and following instructions in design and technology. Discussion, drama and role play are important ways for children to develop their understanding that people have viewpoints and perspectives on design and technology. Evaluating existing products requires children to articulate their ideas and to compare and contrast their views with those of other people. Good oral communication is vital in group work on a task, where children may be developing ideas, giving instructions, justifying their own views or intentions, clarifying their design ideas through discussion, explaining how something will work or pointing out why it will not, and using technical vocabulary to describe what they are intending to do.

Mathematics

Opportunities occur for children to apply their mathematical skills through:

- Choosing and using appropriate ways of calculating measurements and distances;
- Checking the results of calculations for reasonableness;
- Using an appropriate degree of accuracy for the context;
- Suggesting suitable units and measuring equipment for the task in hand;
- Using fractions and percentages to describe or calculate quantities and proportions;
- Reading and interpreting scales;
- Collecting, representing and interpreting data for a given task;
- Identifying and describing position, direction and movement.

Computing

Computing can help children's learning in design and technology:	Examples
<ul style="list-style-type: none"> • By enhancing their skills in designing and making 	<i>Through the use of: CAD (computer-aided design), CAM (computer-aided manufacturing, draw or paint program to model ideas, using repeated patterns</i>
<ul style="list-style-type: none"> • By providing a range of information sources 	<i>Using a database to find out the properties of materials</i>
<ul style="list-style-type: none"> • By supporting the development of their understanding of sequencing and control systems 	<i>Flow charts, controlling simple devices</i>
<ul style="list-style-type: none"> • By collecting and presenting information 	<i>Questionnaire and charts to show people's preferences</i>
<ul style="list-style-type: none"> • By providing access to images and videos of people, places and environments 	<i>Internet research to find out about other cultures</i>
<ul style="list-style-type: none"> • By presenting their design 	<i>Using draw or paint program to present a design</i>
<ul style="list-style-type: none"> • By contributing to children's awareness if the impact of computing on the changing word 	<i>To show how computing us used by manufactures and designers</i>

How Is Design & Technology organised?

	Mechanisms	Structures	Textiles	Cooking and Nutrition	Electrical
KS1	Hinges, sliders, wheels, axles and winding mechanisms	Stability	Using patterns, seam allowances, joining fabrics	Hygiene, food preparation, healthy eating	
LKS2	Pneumatics, lever mechanisms	Strengthening	Modelling, fabric properties, reinforcing, fastenings	Healthy eating, evaluating food products	Simple circuits, switches
UKS2	Cams, followers	Combining, strengthening, reinforcing	Making patterns, finishing, decorative techniques	Functions of ingredients, cultural traditions, evaluating food products	Range of switches, motors, computer control

Expectations

By the end of Key Stage 1, children will be able to:

- Use a range of materials to design and make simple products;
- Select materials, tools and techniques and explain their choices;
- Understand simple mechanisms and structures;
- Measure, assemble, join and combine materials in a variety of ways using basic tools safely;
- Investigate and evaluate products, commenting on the main focus.

By the end of Key Stage 2, children will be able to:

- Use knowledge and understanding of a range of materials, components and techniques to design and make quality products;
- Evaluate work as it develops and, if necessary, suggest alternatives;
- Produce designs and plans which list the stages involved in making a product, and list tools and materials used;
- Accurately measure, mark, cut, join, and combine a variety of materials, working safely and recognising hazards to themselves and others;
- Understand the use of electrical and mechanical systems and more complex structures;
- Evaluate what is or is not working well in a product.

How are tasks designed?

Units of learning are planned in the following sequence:

- Investigate, disassembly and evaluative activity
- Focused practical task
- Design and make assignment
- Extension activities

Provision for SEND and Greater Depth

SEND

When adapting designing and making assignments, some children may find it easier to:

- Work on shorter, more focused assignments rather than longer, open tasks because shorter tasks provide small elements of success, rewarding and motivating the children regularly;
- Use contexts that they are familiar with;
- Adapt or make improvements, or add a new feature to the design of a product rather than 'invent' a whole new product;
- Design a product where they are given alternative solutions;
- Manage a project where certain aspects are restricted (e.g. the size and shape of the package), but there are still real opportunities for designing (e.g. the outside of the package);
- Join in a project part way (e.g. where the researching has been completed already and they can get into the making aspect more quickly).

When adapting focused practical tasks, some children may find it easier to:

- Follow a simplified set of instructions with clear pictures;
- Absorb a small amount of information or a few instructions at a time;
- Plan their own work if they have practised this;
- Spell and recognise the names of important pieces of equipment and the processes if there are key word sheets or posters to help them.

When adapting investigative, disassembly and evaluative activities, some children may find it easier to:

- Look at a limited range of products at any given time;
- Have a mixture of familiar and less familiar products to look at;
- Discuss, examine and taste products as a group rather than focusing on a written record.

Greater Depth

Design and Technology provides opportunities for teachers to set extension tasks that can be completed additionally during lessons. Suitable tasks might include:

- **Product evaluation:** children are given a framework to use to evaluate a product;
- **Investigation of a mechanism:** children are asked to find a particular mechanism, to list where it is found, how it works and to draw and label it;
- **Survey to discover people's preferences:** children are asked to complete a survey to find out favourite information;
- **Design drawings or prototypes:** children are asked to draw some of their design ideas or to make a prototype of one of them;
- **Research:** children carry out further research into a particular product
- **Carrying out practical activities:** children could practise skills under supervision

Curriculum Impact

A child who has acquired the skills, knowledge and understanding within the Design & Technology curriculum will be fully equipped to take advantage of all opportunities open to them throughout their schooling and beyond. They will be confident in their ability to problem solve, create, explore and analyse the world around them and will make creative contributions to communities in which they belong.

