



## Ogbourne CE Primary School

### Design and Technology Curriculum

#### Intent

At Ogbourne Primary School, it is our intent that children enjoy a DT curriculum which allows them to exercise their creativity and imagination through designing and making. The children are taught to combine their designing and making skills with knowledge and understanding in order to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. It is our aim that children learn how to take risks, becoming resourceful and innovative citizens.

Skills and knowledge are taught progressively to ensure that all children are able to learn and practice in order to develop as they move through the school. Evaluation is an integral part of the design process and allows children to adapt and improve their product; this is a key skill they need throughout life. 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.

DT allows children to apply the knowledge and skills learned in other subjects, particularly maths, science, computing and art. Children's interests are captured through theme learning, ensuring that links are made in a cross curricular way, giving children motivation for their learning.

It is our intent that they acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art.

## **Implementation**

*(What do we teach? What does this look like?)*

Our curriculum is shaped by our school vision which aims to enable all children, regardless of gender, background, ability or additional needs to flourish and become the very best version of themselves they can possibly be.

We teach the National Curriculum, supported by clear skills and knowledge progression. This ensures that the skills and knowledge are built on year by year and sequenced appropriately to maximise learning for all children.

All teaching of DT should follow the design, make and evaluate cycle. Each stage should be rooted in technical knowledge. The design process should be rooted in real life, relevant contexts to give meaning to learning. While making, children should be given choice and a range of tools to choose freely from. To evaluate, children should be able to evaluate their own products against a design criteria. Each of these steps should be rooted in technical knowledge and vocabulary. DT should be taught to a high standard where each of the stages should be given equal weight.

The key knowledge and skills we teach the children are:

- Materials and structures
- Mechanical and electrical systems
- Cooking and nutrition
- Sewing and textiles

DT will be taught in short termly blocks.

Children will:

- Develop designing skills, including generating and developing ideas, clarifying a task, creating design proposals, communicating ideas, planning and evaluating;
- Acquire and refine the practical skills associated with making, including working with materials and components, tools and processes, e.g. planning, measuring and marking out, cutting and shaping, joining and combining, finishing, and evaluating;
- Apply scientific skills, e.g. predicting and fair testing;
- Apply mathematical skills, e.g. measuring to an appropriate number of decimal places, drawing and interpreting tables, graphs and bar charts;
- Apply computing skills, e.g. making things happen by the use of control, handling information through the use of a database or spreadsheet;
- Apply art skills, e.g. investigating texture and colour or recording visual information.

Children will have opportunities in Design Technology to:

- Work both independently and with others, listening to others' ideas and treating these with respect;
- 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.

## 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].

At the end of Key Stage 1 most pupils will be able 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].

By the end of key stage 2, most children will be able 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.

#### **Impact**

*What will this look like?*

By the time the children leave Ogbourne Primary School they will:

- Have an excellent attitude to learning and independent working
- The ability to use time efficiently and work constructively and productively with others
- The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users needs.
- The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely.
- A thorough knowledge of which tools, equipment and materials to use to make their products.
- The ability to apply mathematical knowledge and skills accurately.
- The ability to manage risks exceptionally well to manufacture products safely and hygienically.
- A passion for the subject.

## Assessment

The learning outcomes in each unit show how children might demonstrate what they have learnt. Pupils will be assessed against the Key Learning Expectations after each unit. Pupils should be involved in actively evaluating their work and thinking about possible improvements. The work children produce will serve as a record of the achievement.

## Monitoring and Reviewing

The Design and Technology co-ordinator is responsible for monitoring the standards of children's work and the quality and breadth of teaching. The coordinator supports colleagues in the teaching of Design and Technology by informing them of current developments in the subject and by providing a strategic lead and direction for the subject in school.

The co-ordinator is also responsible for evaluating strengths and weaknesses in the subject and identifying areas for improvement and development. Subject Leader release time will enable the coordinator to fulfil the role, reviewing medium term plans, monitoring children's work and observing teaching in the subject.

## Resources

A resource audit and purchase is carried out annually. Before new stock is ordered, teachers fill out request lists based on specific needs for their future lessons. Central resources are kept in the Science and D.T. cupboard.

Children will be encouraged to respect and care for their working environment, selecting and using their own materials and equipment tidily, safely and with regard to economy of use.

### Health and Safety

- The general teaching requirement for health and safety applies in this subject.
- Teachers should note down Health and Safety issues on plans before each activity, considering tools, materials and equipment being used.
- Before undertaking practical tasks, children should be taught to use tools correctly in order to ensure safety.



<b>Year 1</b>	<b>Mechanisms</b> Sliders and levers  (2D – Moving Pictures)	<b>Structures</b> Freestanding structures  (Homes)	<b>Food</b> Preparing fruit and vegetables*  (Fruit Salad)
<b>Year 2</b>	<b>Mechanisms</b> Wheels and axles  (3D – Vehicles)	<b>Textiles</b> Templates and joining techniques (Stitches/Puppets)	<b>Food</b> Preparing fruit and vegetables*  (Smoothies/Salads)
<b>Year 3</b>	<b>Structures</b> Shell structures (including computer-aided design) (Photo frames)	<b>Mechanical Systems</b> Levers and linkages  (Story books/greeting cards)	<b>Food</b> Healthy and varied diet*  (Eat well Plate/Pasta bake)
<b>Year 4</b>	<b>Textiles</b> 2-D shape to 3-D product (Bags/Purses)	<b>Electrical Systems</b> Simple circuits and switches (including programming and control) (Lighting it up-Christmas?)	<b>Food</b> Healthy and varied diet* (Bread – flavours/textures) + Fairtrade

<b>Year 5</b>	<p style="text-align: center;"><b>Mechanical Systems</b> Wood work/Cams  (Moving toys)</p>	<p style="text-align: center;"><b>Textiles</b> Combining different fabric shapes (including computer-aided design) (Slippers/Clothes)</p>	<p style="text-align: center;"><b>Food</b> Celebrating culture and seasonality* (Seasonal veg - Soups and stews)</p>
<b>Year 6</b>	<p style="text-align: center;"><b>Mechanical/Structures/ Electrical Systems/CAD</b> Pulleys or gears/ More complex switches and circuits (including programming, monitoring and control) (Project – Fairground?)</p>		<p style="text-align: center;"><b>Food</b> Celebrating culture and seasonality*  (School Meals/3 ways to cook potatoes)</p>