

# Oakdene Primary School



## Design and Technology at Oakdene

Subject Leader: Mrs. Greenall

### Mission Statement

**Oakdene - Growing and Learning Together**

The above statement is our Mission Statement which is what we are all aiming to achieve at Oakdene.

We will try to achieve this through our aims in everything we do at Oakdene.

The Design and Technology curriculum is underpinned by the whole school Intent, Implementation and Impact statement.

(see separate Curriculum Statement document)

## **Design and Technology at Oakdene**

Our Design and Technology curriculum aims to be inspiring, rigorous and practical. Using creativity and imagination, children 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. Learning how to take risks, children 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 and are encouraged to become creative problem-solvers, both as individuals and as part of a team.

We teach Design and Technology within three main areas of development during each topic:

### 1. Investigative, disassembly and evaluative activities (IDEAs)

These activities provide opportunities for the children to explore existing products and to gain skills, knowledge and understanding which can be applied in a design and make assignment.

### 2. Focused practical tasks (FPTs)

Focused practical tasks provide opportunities to learn and practice particular skills and knowledge.

### 3. Design and make assignments (DMAs)

A design and make assignment provides an opportunity for the children to combine their skills, knowledge and understanding to develop products that meet a real need.

## **Curriculum and Coverage**

The Design and Technology National Curriculum 2014 is followed at Oakdene Primary School. We have also created our Oakdene milestones to show progression through all keys stages. Units of work will be frequently revised and amended to make Curriculum links where possible.

<u>Year group</u>	<u>Autumn</u>		<u>Spring</u>		<u>Summer</u>	
Reception	<b>Structures</b> Junk modelling <b>Seasonal Craft</b> Hibernation box	<b>Seasonal Craft</b> Christmas sliding picture	<b>Cooking and nutrition</b> Soup <b>Seasonal Craft</b> Flower threading	<b>Seasonal Craft</b> Easter hanging decoration	<b>Structures</b> Boats <b>Seasonal Craft</b> Designing a rainbow salad	<b>Seasonal Craft</b> Making a rainbow salad
y1	<b>Structures</b> Making Houses		<b>Mechanisms</b> Wheels and Axels	<b>Mechanisms</b> Making a moving story book	<b>Textiles</b> Puppets	<b>Cooking and nutrition</b> Smoothies
y2	<b>Mechanisms</b> Fairground Wheel	<b>Textiles</b> Making Pouches	<b>Cooking and nutrition</b> Balanced diet	<b>Mechanisms</b> Moving monsters	<b>Structures</b> Baby bear's chair	
y3	<b>Electrical systems</b> Electrical poster	<b>Mechanical systems</b> Pneumatic toys	<b>Cooking and nutrition</b> Eating seasonally	<b>Digital world</b> Wearable technology	<b>Structures</b> Constructing a castle	<b>Textiles</b> Cross-stitch and applique
y4	<b>Digital world</b> Mindful moments timer	<b>Cooking and nutrition</b> Adapting a recipe	<b>Electrical systems</b> Torches	<b>Structures</b> Pavilions	<b>Textiles</b> Fastenings	<b>Mechanical systems</b> Making a slingshot car
y5	<b>Structures</b> Bridges	<b>Mechanical systems</b> Pop Up Book	<b>Digital world</b> Monitoring Devices	<b>Textiles</b> Stuffed Toys	<b>Cooking and nutrition</b> Developing a Recipe	<b>Electrical systems</b> Electrical Doodlers
y6	<b>Digital world</b> Navigating the World	<b>Structures</b> Playgrounds	<b>Textiles</b> Waistcoats	<b>Mechanical systems</b> Automata Toys	<b>Cooking and nutrition</b> Come Dine with Me	<b>Electrical systems</b> Steady Hand Game

## OAKDENE DESIGN AND TECHNOLOGY MILESTONES PROGRESSION DOCUMENT

Key Stage 1 NC	Key Stage 2 NC	EYFS MILESTONES	KS1 MILESTONES	LKS2 MILESTONES	UKS2 MILESTONES
<b>DESIGNING</b>					
<p><i>1.1 design purposeful, functional, appealing products for themselves and other users based on design criteria</i></p> <p><i>1.2 generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</i></p>	<p><i>2.1 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</i></p> <p><i>2.2 generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</i></p>	<p>I can represent my own ideas, thoughts and feelings through design and technology.</p>	<p>I can use a design criteria as well as some ideas of my own to design a product for an intended user.</p> <p>I can use pictures, words and mock-ups to describe my plan.</p>	<p>I can show that my design meets a range of requirements.</p> <p>I can describe my design using an accurately labelled sketch and words.</p> <p>I can put together a plan which shows the order and also what equipment and tools I need.</p>	<p>I can use a range of information to inform my design and refine my plan if necessary.</p> <p>I can use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate my ideas.</p> <p>I can make design decisions, taking account of constraints such as time, resources and cost.</p>

Key Stage 1 NC	Key Stage 2 NC	EYFS MILESTONES	KS1 MILESTONES	LKS2 MILESTONES	UKS2 MILESTONES
<b>MAKING</b>					
<p>1.3 <i>select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</i></p> <p>1.4 <i>select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</i></p>	<p>2.3 <i>select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</i></p> <p>2.4 <i>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</i></p>	<p>I can construct with a purpose in mind, using a variety of resources.</p> <p>I can use simple tools and techniques competently and appropriately.</p> <p>I can select tools and techniques needed to shape, assemble and join materials.</p>	<p>I can select from a range of materials and tools and explain why they are being used depending on their characteristics.</p> <p>I can measure, mark out, cut and shape materials and components to create a finished product.</p> <p>I can assemble, join and combine materials and components to create a finished product.</p>	<p>I can explain my choice of tools and equipment in relation to the skills and techniques they will be using.</p> <p>I can measure, mark out, cut and shape materials and components with some accuracy.</p> <p>I can assemble, join and combine materials and components with some accuracy.</p>	<p>I can produce appropriate lists of tools, equipment and materials that are need and use tools and materials safely and precisely.</p> <p>I can accurately measure, mark out, cut and shape materials and components.</p> <p>I can accurately assemble, join and combine materials and components.</p> <p>I can discuss the functionality as well as the aesthetic qualities of my work.</p>
Key Stage 1 NC	Key Stage 2 NC	EYFS MILESTONES	KS1 MILESTONES	LKS2 MILESTONES	UKS2 MILESTONES
<b>EVALUATING</b>					
<p>1.5 <i>explore and evaluate a range of existing products</i></p> <p>1.6 <i>evaluate their ideas and</i></p>	<p>2.5 <i>investigate and analyse a range of existing products</i></p> <p>2.6 <i>evaluate their ideas and products against their own design</i></p>	<p>I can select appropriate resources</p>	<p>I can describe how existing products work and talk about what is good and not so good about them.</p>	<p>I can evaluate existing products considering why materials have been chosen, what methods of construction have been used and how well products meet user needs and wants.</p> <p>I can evaluate my own ideas and finished product, identifying the</p>	<p>I can practise my evaluation skills by evaluating my own product as well as existing products against criteria which I have set.</p>

<i>products against design criteria</i>	<i>criteria and consider the views of others to improve their work</i> 2.7 <i>understand how key events and individuals in design and technology have helped shape the world</i>	and adapt work where necessary.	I can evaluate my own ideas and finished product and suggest how they could be improved.  I can talk about the work other people have done.	strengths and areas for development in my own ideas and products and consider the views of others, including intended users, to improve my work.  I can identify key events and individuals who have helped shape the world	I can test and evaluate my final product saying if it is fit for purpose.  I can evaluate what impact products have beyond their intended purpose
Key Stage 1 NC	Key Stage 2 NC	EYFS MILESTONES	KS1 MILESTONES	LKS2 MILESTONES	UKS2 MILESTONES
<b>TECHNICAL KNOWLEDGE</b>					
1.7 <i>build structures, exploring how they can be made stronger, stiffer and more stable</i> 1.8 <i>explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</i>	2.8 <i>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</i> 2.9 <i>understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</i> [] <i>understand and use electrical systems in their products [for example, series</i>	I know there are a range of different materials that can be used to make a model and that they are all slightly different.	I understand that the shape of materials can be changed to improve the strength and stiffness of structures  I know that mechanisms are a collection of moving parts that work together as a machine to produce movement.	I understand the importance of strength and stiffness in structures.  I understand that the shape of a moving object will affect how it moves.  I understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit	I understand some different ways to reinforce structures.  I understand how mechanisms control movement.  I know the names of the components in a basic series circuit.

	<p><i>circuits incorporating switches, bulbs, buzzers and motors]</i></p> <p><i>2.10 apply their understanding of computing to program, monitor and control their products</i></p>				
Key Stage 1 NC	Key Stage 2 NC	EYFS MILESTONES	KS1 MILESTONES	LKS2 MILESTONES	UKS2 MILESTONES
<b>COOKING AND NUTRITION</b>					
<p>use the basic principles of a healthy and varied diet to prepare dishes</p> <p>understand where food comes from.</p>	<p>understand and apply the principles of a healthy and varied diet</p> <p>prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</p> <p>understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed</p>	<p>I know where food comes from.</p> <p>I can prepare food safely and hygienically using techniques such as mixing and cutting.</p>	<p>I can explain where food comes from.</p> <p>I can combine food ingredients according to their sensory characteristics.</p> <p>I can prepare food safely and hygienically using techniques such as cutting, peeling squeezing and grating.</p>	<p>I can explain that a recipe can be adapted a by adding or substituting one or more ingredients.</p> <p>I understand that a healthy diet is made up from a variety and balance of different food and drink.</p> <p>I can prepare and cook savoury dishes using a range of cooking techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p>	<p>I understand that recipes can be adapted to change the appearance, taste, texture and aroma.</p> <p>I understand that different food and drink contain different substances - nutrients, water and fibre - that are needed for health</p> <p>I can prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source.</p>

**KS1 Vocabulary**

textiles,  
structures,  
mechanisms,  
food

**LKS2 Vocabulary**

textiles,  
mechanisms,  
structures  
electrical systems,

**UKS2 Vocabulary**

textiles  
mechanisms  
structures  
electrical systems

design, make, evaluate, user, purpose, ideas, design criteria, product, function  
template, pattern pieces, mark out, join, decorate, finish  
structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved  
slider, lever, pivot, slot, bridge/guide, vehicle, wheel, axle, axle holder, chassis, body, cab  
fruit and vegetable names, names of equipment and utensils, sensory vocabulary, flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet

user, purpose, function, prototype, design criteria, innovative, appealing, design brief  
fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance  
mechanism, lever, linkage, pivot, slot, bridge, guide, linear, rotary, oscillating, reciprocating, pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight  
marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics,  
series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device, process, series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip

function, innovative, design specification, design brief, user, purpose  
seam, seam allowance, wadding, reinforce, hem, template, pattern pieces, needles, thread, pinking shears, fastenings, iron transfer paper  
cam, snail cam, off-centre cam, peg cam, pear shaped cam, follower, axle, shaft, crank, handle, housing, framework, rotation, rotary motion, oscillating motion, reciprocating motion, pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent  
series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart, reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch