

Oakdene Primary School



Design and Technology at Oakdene

Subject Leader: Miss Bowes

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.

Cooking and Nutrition will be taught as a standalone unit during food week for KS2.

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			
Y1	Model house <i>Structures free standing structure</i>	Sliding train <i>Mechanisms sliders and levers</i>	Fruit kebabs <i>Food preparing fruit and vegetables</i>
Y2	Glove puppets <i>Textiles templates and joining</i>	Fire vehicles <i>Mechanisms wheels and axles</i>	Fruit salad <i>Food preparing fruit and vegetables</i>
Y3	Sock puppets <i>Textiles 2D shape to 3D product</i>	Easter card <i>Mechanisms levers and linkages</i>	Pizza box <i>Structures shell structures</i>
Y4	Christmas decoration <i>Electrical systems simple circuits and switches</i>	Moving creature <i>Mechanical systems pneumatics</i>	Nightlight <i>Electrical systems programming and control</i>
Y5	Moving boat <i>Mechanical systems cams</i>	Explorer's pouch <i>Textiles combining different fabric shapes</i>	Cycle alarm <i>Electrical systems monitoring and control</i>
Y6	Bridge <i>Structures frame structures</i>	Model car to go over their bridge <i>Mechanisms pulleys and gears</i>	Electronic Game <i>Electrical systems more complex switches</i>

OAKDENE DESIGN AND TECHNOLOGY MILESTONES PROGRESSION DOCUMENT

Key Stage 1 NC	Key Stage 2 NC	EYFS MILESTONES	KS1 MILESTONES	LKS2 MILESTONES	UKS2 MILESTONES
		<p>In the context of: <i>Building houses</i> <i>A model bus</i> <i>Split pin eggs</i> <i>Superhero cape</i> <i>Enclosure for animals</i> <i>Model making through continuous provision</i></p>	<p>Year 1 in the context of: <i>free standing structures,</i> <i>sliders and levers mechanisms,</i> <i>preparing fruit and veg</i></p> <p>Year 2 in the context of: <i>textiles,</i> <i>wheels and axles mechanisms,</i> <i>preparing fruit and veg</i></p>	<p>Year 3 in the context of: <i>textiles,</i> <i>levers and linkages mechanisms,</i> <i>structures from nets,</i></p> <p>Year 4 in the context of: <i>simple electrical systems,</i> <i>pneumatics mechanisms</i> <i>code-control electrical systems,</i></p>	<p>Year 5 in the context of: <i>code-control electrical systems,</i> <i>textiles,</i> <i>cam mechanisms</i></p> <p>Year 6 in the context of: <i>frame structures,</i> <i>pulleys and gears mechanisms</i> <i>complex electrical systems</i></p>
DESIGNING					
<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</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>

	computer-aided design				
Key Stage 1 NC	Key Stage 2 NC	EYFS MILESTONES	KS1 MILESTONES	LKS2 MILESTONES	UKS2 MILESTONES
MAKING					
<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
EVALUATING					
<p>1.5 <i>explore and evaluate a range of existing products</i></p> <p>1.6</p>	<p>2.5 <i>investigate and analyse a range of existing products</i></p> <p>2.6 <i>evaluate their ideas and</i></p>	<p>I can select appropriate resources and adapt work where necessary.</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 test and evaluate my final product saying if it is fit for purpose.</p> <p>I can practise my evaluation skills by evaluating my own product as well as existing</p>

<i>evaluate their ideas and products against design criteria</i>	<i>products against their own design 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>		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.	I can evaluate my own ideas and finished product, identifying the 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	products against criteria which I have set. 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
TECHNICAL KNOWLEDGE					
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</i>	I can explain how I made my product. I can explain how to make my product stronger.	I can talk about the movement of levers and sliders. I can explain how freestanding structures can be made stronger, stiffer and more stable. I can talk about the movement of wheels and axles. I can measure, join and cut textiles.	I can explain how mechanical systems such as levers and linkages and pneumatic systems create movement. I can explain how simple electrical circuits and components can be used to create functional products. I can program a computer to control a product. I can make strong, stiff shell structures. I can shape a single fabric shape to make a 3D textiles product.	I can explain how mechanical systems such as cams or pulleys or gears create movement. I can explain how more complex electrical circuits and components can be used to create functional products. I can program a computer to monitor changes in the environment and control my products. I can reinforce and strengthen a 3D framework. I can explore a range of joining techniques to combine different fabric shapes.

	<p>products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p> <p>2.10 apply their understanding of computing to program, monitor and control their products</p>				
Key Stage 1 NC	Key Stage 2 NC	EYFS MILESTONES	KS1 MILESTONES	LKS2 MILESTONES	UKS2 MILESTONES
COOKING AND NUTRITION					
<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 can explain how food is processed into ingredients that can be eaten or used in cooking.</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> <p>I understand that recipes can be adapted to change the appearance, taste, texture and aroma</p>

<p>KS1 Vocabulary Year 1 in the context of: <i>free standing structures,</i> <i>sliders and levers mechanisms,</i> <i>preparing fruit and veg</i> Year 2 in the context of: <i>textiles,</i> <i>wheels and axles mechanisms,</i> <i>preparing fruit and veg</i></p>	<p>LKS2 Vocabulary Year 3 in the context of: <i>textiles,</i> <i>simple electrical systems,</i> <i>levers and linkages mechanisms,</i> <i>structures from nets,</i> Year 4 in the context of: <i>simple electrical systems,</i> <i>pneumatics mechanisms</i> <i>code-control electrical systems,</i></p>	<p>UKS2 Vocabulary Year 5 in the context of: <i>code-control electrical systems,</i> <i>textiles,</i> <i>cam mechanisms</i> Year 6 in the context of: <i>frame structures,</i> <i>pulleys and gears mechanisms</i> <i>complex electrical systems</i></p>
<p>design, make, evaluate, user, purpose, ideas, design criteria, product, function structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved slider, lever, pivot, slot, bridge/guide fruit and vegetable names, names of equipment and utensils, sensory vocabulary, flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet template, pattern pieces, mark out, join, decorate, finish vehicle, wheel, axle, axle holder, chassis, body, cab</p>	<p>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 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 mechanism, lever, linkage, pivot, slot, bridge, guide, linear, rotary, oscillating, reciprocating 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 pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight control, program, system, input device, output device, process</p>	<p>function, innovative, design specification, design brief, user, purpose reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch 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 frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart</p>

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cooking and Nutrition - Food Week	<p>Preparing fruit and vegetables Break time snack bowl Children will examine a range of fruit and vegetables. The children will be provided with opportunities to handle, smell and taste fruit and vegetables before deciding which would be suitable for a break time snack bowl.</p>	<p>Preparing fruit and vegetables Fruit kebab Children will develop on skills taught in Year 1 in order to create a fruit kebab. The children will be able to consolidate their prior knowledge of fruit by having further opportunities to handle, smell and taste fruit before deciding which would be suitable for a fruit kebab. The children will have the opportunity to use a variety of tools to practise a range of food-processing skills such as cutting.</p>	<p>Healthy and varied diet Pizza Children will build on knowledge learned in KS1 including preparing ingredients safely and hygienically and using equipment and utensils to prepare and combine ingredients. They will plan the main stages of their recipe, listing ingredients, utensils and equipment. Children will select from a range of ingredients and utensils to make their pizzas before evaluating their finished product.</p>	<p>Healthy and varied diet Savoury wraps Children will generate ideas through discussion to develop a design criteria including appearance, taste, texture and aroma or an appealing product. They will plan the main stages of their recipe, listing ingredients, utensils and equipment. Using annotated sketches children will develop and communicate their ideas. Children will select from a range of utensils and ingredients, thinking about sensory characteristics, to make their savoury wraps before evaluating their finished product.</p>	<p>Celebrating culture and seasonality Spanish tortilla Children will build on knowledge and skills learned in LKS2 including their understanding about food hygiene, nutrition, healthy eating and a varied diet. Ideas will be communicated through the use of words and annotated sketches. Children will write a step-by-step recipe, select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients, make, decorate and present the food product appropriately for the intended user and evaluate the final product with reference back to the design brief and design specification.</p>	<p>Celebrating culture and seasonality Paella Ideas will be communicated through the use of words and annotated sketches. Children will: write a step-by-step recipe, including a list of ingredients, equipment and utensils; select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients; make, decorate and present the food product appropriately for the intended user and purpose and evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</p>