D&T Curriculum

OFFORD
PRIMARY SCHOOL

D&T Overview

	Year A	Year B
Year 1/2	Make a plant pot 	Playground equipment 
	Moving Pictures 	Sewing Finger Puppets. 
	Make smoothie 	Make a salad 
Year 3/4	Make a lightbox 	Make a greenhouse 
	Pop up story book 	Money containers 
	Making sandwich 	Make a vegetable soup 
Year 5/6	Make a shelter 	Make a birdbox 
	Moving toys 	Sewing cushion covers 
	British banquet 	Bake bread 

D&T Vision Statement

"Design is a funny word. Some people think design means how it looks. But of course, if you look deeper, it's really how it works." Steve Jobs

At Offord Primary School, our Design and Technology prepares our children to deal with tomorrow's rapidly changing world. It encourages them to become independent, creative problem-solvers and thinkers as individuals and as part of a team working together to achieve and making positive changes to their quality of life. It enables them to identify needs and opportunities and to respond to them by developing a range of ideas and by making products and systems. Through the study of Design and technology, they combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industrial practices. This allows them to reflect on and evaluate present and past design and technology, its uses and its impacts.

Our Design and Technology helps all children to become astute and informed future consumers and potential innovators.

Intention

It is the intent of Offord Primary School for Design and Technology to be taught in all year groups, progressing through the strands of structures, prototypes, mechanisms, sewing and cooking. Within each key stage children will be taught every strand. As a school, we feel that the teaching of Food Technology and healthy eating is of up most importance and therefore children will cover this every year, progressing in skill and knowledge.

Implementation

The teaching of Design Technology across the school follows the National Curriculum through a research, design, plan, make and evaluate approach. Children design products with a purpose in mind and an intended user of the products. Food technology is implemented across the school with children developing an understanding of where food comes from, the importance of a varied and healthy diet and how to prepare this.

In Key Stage 1: Within key stage 1 we also aim to develop design, creativity and problem solving through purposeful design projects which promote the children's skills in developing as individuals and as part of a team. Key stage 1 also aims to promote in children a clear understanding of the importance of healthy eating.

In Key Stage 2: Within key stage 2 we also aim to ensure that key inventions and inventors and the change they have bought on the world are imbedded within our Design Technology units. Our children will investigate and analyse and then support and improve their own projects through evaluation. Impact Assessment of children's learning in Design and Technology is an ongoing monitoring of children's understanding, knowledge and skills by the class teacher throughout lessons. This assessment is then used to inform support and challenge required by the children. Design and Technology is also monitored by the subject leader throughout the year in book monitoring, lesson observations or pupil interviews to discuss their learning and understanding and establish the impact of the teaching taking place.

"Technology makes possibilities. Design makes solutions." John Maeda

	Cycle A Science Foci: Materials & Plants			Cycle B Science Foci: Living things & Animals & Habitats		
	Autumn Term: Structures			**Autumn Term: Prototypes**		
Year 1/2	**Final Outcome:** **To make a plant pot** **What will I do?** (Research, Design, **Make**, Evaluate) **Focus: Make** Children will focus on how to make an open cube that can hold at least one type of plant. They will be focusing on durability, sturdiness and sealed. Ext: A tray for many types of plant	**Which materials will I use?** Sustainably source ply wood x 4. Glue Masking Tape Sheeting Locally Sourced Compost **How will my product make Offord better?** To serve Offord Primary School by providing pots to grow vegetables/herbs or flowers and plants for later in the year.	Key Skills: - Recognising what makes an effective container - Understanding the purpose of a pot - Basic measuring to ensure cube like structure (wood will be pre-cut) - Gluing effectively by understanding consistent joining (which part of the wood overlaps) - Reinforcing/ Strengthening design where necessary Key Vocabulary: Strong Stable Durable Water tight Accurate Level purpose Resources Required: Wood PVA glue Plastic sheeting Compost Masking Tape Seeds- Most likely herbs or peas	**Final Outcome:** **Playground equipment** **What will I do?** Design and make a model of an item of playground equipment. **Focus: Research and Design** The children will be aiming for a two-phase design. First, they will be drawing their design, based on their observations from the current school provision and research on playground equipment. They will then prototype their final design thinking about size, proportion and sturdiness.	**Which materials will I use?** Recycled art straws Recycled lollypop sticks **How will my product make Offord better?** To think critically about the purpose of playground equipment, its use in promoting a healthy lifestyle and how it/the children can use it differently to improve their own wellbeing	Key Skills: -Relate the way things work to their intended purpose -Examine materials involved in the construction of an object -Assemble, join and combine materials -Recognise shapes and application in simple structures -Make models which reflect ideas -Evaluate products noting strengths and possible changes Key Vocabulary: Model join surface framework equipment user aesthetics purpose strength safety sturdiness Resources Required: Pipe cleaners Lolly sticks Glue Art straws

Spring Term: Mechanisms			Spring Term: Sewing		
Final Outcome: **Moving Pictures** **What will I do?** (**Research**, **Design**, Make, Evaluate) **Focus: Research and Design** Based on extensive research into existing picture books, children will create a success criteria to help make their own design	**Which materials will I use?** (Sustainable) Recycled paper and card **How will my product make Offord better?** These moving pictures will be available in the library to be enjoyed as part of the reading for pleasure by the wider Offord community.	Key Skills: - Understanding what makes an effective moving picture - Simplicity can have a more effective outcome - Understand the needs of the audience - Devise success criteria based on research - Diagram of their ideas, labelled if possible - To understand the differences between lever, pivot and slider mechanisms. Key Vocabulary: Aesthetically pleasing Audience Impact Sliders, levers, pivots Mechanism Effective mechanism Resources Required: Paper Card Glue Range of drawing mediums (?) Glue Range of moving picture books.	**Final Outcome:** **Sewing- To make finger puppets** **What will I do?** (Research, Design, **Make**, Evaluate) **Focus: Make** The children will focus on developing basic stitch technique (running and over stitch) to create a simple finger puppet. Time will be taken on safety, setting up and accurate technique to help build confidence for future years.	**Which materials will I use?** (Sustainable) Offcuts of cloth an fabrics already in Offord to be reused **How will my product make Offord better?** (Serve & Enhance the Local Environment) Puppets to be available for either a special story time for EYFS children.	Key Skills: - Describe what puppets are and how they are used. - Use a template to cut out appropriate sizes of fabric - Develop ideas by putting components together - Use a running stitch and/or over stitch to join two pieces of fabric together - Use a needle and thread to attach buttons and other features to materials - Know how to work safely with a variety of sharp tools, such as needles and scissors Key Vocabulary: Needle Thread Stitch- under/ running Felt Aesthetically pleasing Resources Required: Felt Felt glue/fabric glue Items for decoration, e.g. sequins, buttons, ribbon Needles and thread

	Summer Term: Cookery			Summer Term: Cookery		
	Final Outcome: **To make a smoothie** **What will I do?** (Research, Design, Make, **Evaluate**) **Focus: Evaluate** The children will devise a simple system to ask other children, as well as consider themselves if their smoothie met their success criteria- they will design simple questionnaires inform their evaluation	**Which ingredients will I use?** (Sustainable) Locally sources fruit **How will my product be good for the consumer?** (Serve & Enhance the Local Environment) Part of encouraging healthy eating and living throughout Offord Primary school	Key Skills: - Prepare food without a knife - Health and hygiene understanding - Safe blender usage - Understanding the taste and health properties of ingredients. - Devise effective evaluation tools Key Vocabulary: Hygiene Taste Questionnaire Health benefits Aesthetics Customer Resources Required: Locally sourced fruits Blenders Refrigeration Milk Scales	**Final Outcome:** **To make a salad** **What will I do?** (Research, Design, **Make**, **Evaluate**) **Focus: Evaluate** The children will learn knife and peeling skills (based on prior learning from EYFS) to prepare a simple and nutritious salad for Offord for lunch. They will use a range of evaluation tools to learn of the success of their salad.	**Which ingredients will I use?** (Sustainable) Locally sourced vegetables **How will my product be good for the consumer?** (Serve & Enhance the Local Environment) Part of encouraging healthy eating and living throughout Offord Primary School. These salads will be available for lunch	Key Skills: - Prepare food - Health and hygiene understanding - Safe skills with a knife - Proportions within a salad - Understanding the taste and health properties of ingredients. - Devise effective evaluation tools - Key Vocabulary: Hygiene Taste Questionnaire Health benefits Aesthetics Customer Safety Proportions Resources Required: Knife Chopping board Locally sourced vegetables

Year 3/4	Cycle A Science Foci: Forces & Magnets & Electricity, rocks, living things and their habitats			Cycle B Science Foci: States of Matter, skeletons, teeth, eating & digestion, states of matter, functions of plants and life cycles; light and sound		
	Autumn Term: Structures			**Autumn Term: Prototypes**		
	Final Outcome: **Light Box (linking with Electricity topic)** **What will I do?** (Research, Design, **Make**, Evaluate) **Focus: Make** Children will build on their learning from KS1 by utilising skills of joining wood together to create a frame as well as incorporating their understanding of circuits and silhouettes in art to create an attractive light box for exhibition	**Which materials will I use?** (Sustainable) Recycled wood Recycled card and Paper Simple circuitry (subsidised by parents) **How will my product make Offord better?** (Serve & Enhance the Local Environment) To be used as an exhibition in school or in the local community around the time of the festivals.	Key Skills: -Suggest some problems with using traditional, incandescent bulbs in products -Identify potential audiences and purposes for a product design - Practical considerations about how to fit circuitry in a product - Recall how to create a simple series circuit with a light - Recall how to create an effective silhouette for their display - Explain how their lightbox is safe to use utilising terminology from their electronics learning. Key Vocabulary: Series circuit Strong Stable Safe to use Insulator Illuminates LED/incandescent Join Reinforce/Strengthen Silhouette Audience Aesthetic Resources Required: Plywood (pre-cut) Wood glue Masking tape Tracing paper Black card Bulbs, batteries, wires, switches	**Final Outcome:** **To make a greenhouse** **What will I do?** (**Research**, **Design**, Make, Evaluate) **Focus: Design** Building on their learning from KS1 of design through drawing and prototyping using sticks and straws, the children will be researching what a greenhouse is (linking with science) and create a cross-sectional design as well as prototype of their greenhouse. These greenhouses will need to meet a specific specification i.e. at least __cm high to allow growth of the plant	**Which materials will I use?** (Sustainable) - Recycle old plastic wallets from Offord Primary School - Recycle plastic bags - Recycled art straws **How will my product make Offord better?** (Serve & Enhance the Local Environment) They will be used to grow herbs ready for Offord Primary School's cookery units in the summer.	Key Skills: -Know how a greenhouse helps plants to grow. -Analyse and discuss different types of greenhouse -Identify suitable materials for a mini greenhouse -Explain why these materials are suitable -Discuss ways of joining these two materials together -Apply their knowledge of stable structures and suitable materials when - Designing a mini greenhouse follow specific design criteria - Follow a design to create a successful product Key Vocabulary: Photosynthesis Fit for purpose Suitable materials Strong and sturdy Fit Space to grow Resources Required: Pipe cleaners Lolly sticks Glue Art straws Masking tape Plastic bags Plastic folders Clingfilm Dowels

Spring Term: Mechanisms			Spring Term: Sewing		
Final Outcome: **Pop Up Story book** **What will I do?** (Research, Design, Make, Evaluate) **Focus: Design** Building on their learning from moving pictures, the children will now look at pop up books, how they work and how to use a variety of mechanisms in their design. There will be an agreed class story for their pop-up books to follow. Though a focus will be on the making of the product, the greatest focus will be given to how others have designed their pop up books, what makes them effective and the children exploring designs through mood boards etc to think about what can be the most effective.	**Which materials will I use?** (Sustainable) Recycled paper and card **How will my product make Offord better?** (Serve & Enhance the Local Environment) These books will be used to promote a love of reading with the EYFS classes and the best to be displayed in the library.	Key Skills: - Recognise products that contain lever and linkage systems -Explain why a particular mechanism has been used for a particular purpose -Use technical vocabulary to describe lever and linkage systems -Cut and shape materials with some precision to make their mechanisms work -Experiment to create a range of different fonts and graphic techniques -Choose suitable mechanisms to create moving parts in their storybook Key Vocabulary: Levers Pivots Sliders Templates Fonts Graphics Resources Required: Reusable paper and Card Glue Variety of colouring mediums	**Final Outcomes: Money containers** **What will I do?** (Research, Design, **Make**, Evaluate) **Focus: Make** Consolidating their learning from finger puppets, the children will identify ways in which money containers have been joined by sewing, then either practise joining scrap material by hand sewing, or practising decorative hand sewing techniques	**Which materials will I use?** (Sustainable) Offcuts of cloth an fabrics already in Offord Primary School to be reused **How will my product make Offord better?** (Serve & Enhance the Local Environment) These money containers will be used for charity collection days within school.	Key Skills: - Utilise previous sewing skills of running and over stitch -Know that money containers are designed for different purposes and user -Make a template including a seam allowance -Can mark out measurements accurately -Write a simple specification for their design based on the intended user -Use finishing techniques to make their money container aesthetically pleasing Key Vocabulary: Needle Thread Stitch- under/ running Felt Aesthetically pleasing Seams Resources Required: Needles and pins Thread Fabric Fasteners (e.g. buttons, zips, Velcro etc) Items for decorations (e.g. sequins, ribbon etc)

	Summer Term: Cookery			Summer Term: Cookery		
	Final Outcome: **To make a sandwich for a KS2 picnic** **What will I do?** (Research, Design, Make, **Evaluate**) **Focus: Evaluate** Drawing on their experience of using questionnaires, children will now use questionnaires, multiple choice charts and graphs to help give an effective evaluation to their sandwich. As part of this unit the children will also be performing several taste tests to understand flavours and textures and help them evaluate what are effective combinations on ingredients	**Which ingredients will I use?** (Sustainable) Locally sourced bread and salads **How will my product be good for the consumer?** (Serve & Enhance the Local Environment) As part of a picnic the children will be promoting a healthy lifestyle by creating *super sandwiches* full of locally sourced natural products. Graphing will also link in with their maths learning at this point in the year.	Key Skills: - Practice good health and hygiene as well as safety with cutting implements -Taste and describe different foods -Know that different combinations of ingredients affect the taste and texture of the product -Design a healthy sandwich -Design concise and close ended questionnaires -Think carefully about multiple choice sheets -Slice salads and butter bread -Critically evaluate their own sandwich and use a variety of mediums to help inform their evaluation. Key Vocabulary: Healthy Food groups Taste Multiple choice Aesthetics Resources Required: Chopping boards, knives, graters, spreaders Paper plates Table coverings Aprons Sandwich ingredients	**Final Outcome:** **To make a vegetable soup using local resources** **What will I do?** (Research, Design, Make, Evaluate) **Focus: Evaluate** Drawing on their learning from smoothies in KS1 and the basis of taste testing the children will in groups create their own soups but focus on taste testing, understanding about herbs, flavouring and balance of ingredients	**Which ingredients will I use?** (Sustainable) Locally sourced vegetables **How will my product be good for the consumer?** (Serve & Enhance the Local Environment) Governors invited for a soup meal.	Key Skills: - Practice good health and hygiene as well as safety with cutting implements - Taste and describe different foods -Know that different combinations of ingredients affect the taste and texture of the product - Understand the safety implications of blending when a liquid is hot, think critically about smooth and chunky soups - Design a taste test that effectively analyses the flavours of the soup - Critically evaluate other soups Key Vocabulary: Resources Required: Locally sourced vegetables Stock Kettles Blenders Pans Ovens Chopping boards, Knives Scales

Year 5/6	Cycle A Science Foci: Electricity, forces (gravity, friction, air-resistance, levers, pullers & gears) Circulatory systems – heart etc.			Cycle B Science Foci: Solar system, day & night, fossils & adaptation, life cycles and reproduction, changes in humans as they grow; light travels in straight lines – how we see things, properties & changes of materials		
	Autumn Term: Prototyping			**Autumn Term: Structures**		
	Final Outcome: **Shelters** **What will I do?** (Research, **Design**, Make, Evaluate) **Focus: Design** The children will be very familiar in using art straws and other equipment to help make prototypes of their design. They will now build on this by making a final design based on their evaluations of their prototypes. Their design phase will also draw on previous draw techniques and feature exploded diagrams for added complexity	**Which materials will I use?** (Sustainable) Art straws Bamboo Canes Plastic Sheeting **How will my product make Offord better?** (Serve & Enhance the Local Environment) These shelters will be used to help protect the plant pots created by KS1 in adverse weather conditions.	Key Skills: -Understand the principles of what makes an effective shelter and how they are used today -Draw on previous years learning to help inform an effective design -Critically evaluate prototype to help inform final design -Test different materials (cotton plastic, hessian) to consider what will be wind and water resistant -Work collaboratively to share ideas -Utilise previous joining methods to consider effective joining of bamboo to each other. Key Vocabulary: Shelter, Materials, Strength, Wind and rain resistant Made for purpose Structures Durable Resources Required: Art straws Masking tape Bamboo canes Plastic sheeting Cotton and Hessian Cable ties String	**Final Outcome:** **To make a bird box** **What will I do?** (**Research**, Design, **Make**, Evaluate) **Focus: Make** The children will be very familiar in joining pieces of wood together to make a box from previous year's learning. They will now build on this by having to saw the side panels of their bird box to help create a slanting roof. And manually drill a hole into bird box for access. As an extension the children could also oil their finished pieces to help them be protected against weather conditions.	**Which materials will I use?** (Sustainable) Recycle ply wood **How will my product make Offord better?** (Serve & Enhance the Local Environment) Bird boxes to be used in the forest school and surrounding area to help with the encouragement of wildlife into the area and to put in their environments at home.	Key Skills: -Explain what a bird house is and why people construct them -Explain what tools and equipment are needed to make objects with wood -Design a bird house to suit a specific bird -Describe the materials and features bird houses have -Understand what exploded 3-D diagrams are used for and create their own -Use saws and drills safely and correctly. Key Vocabulary: Habitat Species Fit for purpose Accurate Gradient Exploded diagrams Weather resistant Sanding Oiling Resources Required: Plywood Wood Glue Saws Clamps (?) Hand drills Measuring tape

Spring Term: Mechanisms			Spring Term Sewing		
Final Outcome: **Moving Toys** **What will I do?** (Research, Design, Make, Evaluate) **Focus: Make** Extending the learning of pivots and levers from previous years, children will investigate cam mechanisms and toys that contain them. They will discover how different shaped cams can alter the movement of the follower and how to create a sturdy structure using a variety of tools and techniques.	**Which materials will I use?** (Sustainable) Balsa wood and dowels from reusable sources Premade Cams **How will my product make Offord better?** (Serve & Enhance the Local Environment) These toys will be available to play with at EYFS.	Key Skills: -Recognise the movement of a mechanism within a toy or model -Understand that a cam mechanism will change rotary motion into linear motion -Make suggestions for how different cams could be used for different kinds of toys -Make suggestions for how they could make a sturdy structure for a moving toy - Describe how they will create their toy and what materials and tools they will need Key Vocabulary: Mechanism Cams Sturdy structure Rotary and linear motion Resources Required: Dowel Balsa wood Premade Cams Glue Scissors Masking tape	**Final Outcome:** **Cushion Covers** **What will I do? (Research, Design,** Make, Evaluate) **Focus: Research and Design** Children will research, analyse, design and make a cushion cover, using their developing knowledge of and skills in a variety of sewing techniques for joining and decorating fabric. They will research current designs to create an aesthetic cushion for their reading corner	**Which materials will I use?** (Sustainable) Old unused cushions **How will my product make Offord better?** (Serve & Enhance the Local Environment) Cushions to be given to library and 'nurture' areas to create comfortable area to sit.	Key Skills: - Understand the terms 'functional' and 'aesthetic - Join two pieces of fabric together using their sewing skills -Explain which stitch is best for a particular purpose - Use stitching for decorative purposes - Sew a button/bead/ribbon onto fabric accurately -See how to combine these skills to create a design for a product Key Vocabulary: Functional Aesthetic Hidden stitches Seams Adornments Aesthetics Secureness Durability Resources Required: Squares of fabric, approx. 10cm x 10cm Needles, thread, fabric pencil marker Buttons, beads, smaller scraps of fabric Snap fasteners, buttons, VELCRO™. Needles, pins, thread, fabric marker pencil

	Summer Term: Cookery			Summer Term: Cookery		
	Final Outcome: To create a British banquet **What will I do?** (**Research**, Design, **Make**, **Evaluate**) **Focus: Evaluate** Utilising all of their learning of cutting, preparing and cooking food the children will sample and make a meal from Wales, Scotland and England as well as looking at how other cultures have affected our cuisine e.g. coronation chicken. They will then be evaluating their creations against the originals, are they the same why or why not?	**Which ingredients will I use?** (Sustainable) Locally sourced fruit and vegetables **How will my product be good for the consumer?** (Serve & Enhance the Local Environment) Children to hold a celebration of British cuisine (Promoting British Vales of the teaching standards) inviting another class to join them.	<u>Key Skills:</u> - Practice good health and hygiene as well as safety with cutting implements - Taste and describe different foods -Know that different combinations of ingredients affect the taste and texture of the product -Know the origins of some traditional English savoury dishes. -Understand their RDA for sugar and how to identify the sugar content on food packaging -Understand the seasonality of different British fruits - Understand that the cuisine of different countries can influence and be similar to each other <u>Key Vocabulary:</u> Locally sourced Cuisine Seasonality RDA <u>Resources Required:</u> Ingredients for each recipe Scales Measuring beakers Knives Mixing bowls Refrigeration	Final Outcome: **To bake bread** **What will I do?** (Research, Design, Make, **Evaluate**) **Focus: Evaluate** Building on the extensive evaluation techniques the children have used, they will now be employing all of those evaluation tools again with the added tool of surveys to understand what preferences children have to their bread. This is to then inform their recipe	**Which ingredients will I use?** (Sustainable) Locally Sourced Flour **How will my product be good for the consumer?** (Serve & Enhance the Local Environment) Bread will be used as as part of promoting healthy eating.	<u>Key Skills:</u> -Follow detailed instructions -Measure, weigh and organise ingredients accurately -Apply rules of basic hygiene -Examine how varying proportions affect a product -Compare domestic and commercial processes for creation -Understand the contribution bread can make to a healthy diet - Experiment with different ways of altering a basic bread mixture - Use a recording sheet to complete a survey <u>Key Vocabulary:</u> Knead Texture Quantities Hygiene Dough Bacteria <u>Resources Required:</u> Scales Measuring beakers Knives Mixing bowls Sieves Spoons Baking materials