

DESIGN TECHNOLOGY

DESIGN TECHNOLOGY INTENT STATEMENT

At Oldbrook First School, our aim is to offer a coherently planned sequence of lessons to help teachers ensure they have progressively covered the knowledge, understanding and skills required in the National Curriculum for Design Technology. Our Design and Technology curriculum aims to inspire children through a broad range of practical experiences to create innovative designs which solve real and relevant problems within a variety of different contexts. We use an iterative process which encourages children to identify real and relevant problems, critically evaluate existing products and then take risks and innovate when designing and creating solutions to the problems. As part of the iterative process, time is built in to reflect, evaluate and improve on prototypes using design criteria throughout to support this process. Opportunities are provided for children to evaluate key events and individuals who have helped shape the world, showing the real impact of design and technology on the wider environment and helping to inspire children to become the next generation of innovators.

DESIGN TECHNOLOGY IMPLEMENTATION

Design and Technology skills and understanding are built into lessons, following an iterative process. However, this is not to say that this structure should be followed rigidly: it allows for the revision of ideas to become part of good practice and ultimately helps to build a depth to children's understanding. Through revisiting and consolidating skills, our lessons and resources help children build on prior knowledge alongside introducing new skills, knowledge and challenge. The revision and introduction of key vocabulary is built into each lesson. This vocabulary is then included in display materials and additional resources to ensure that children are allowed opportunities to repeat and revise this knowledge. Adult guides and accurate design and technology subject knowledge are always provided within lessons to allow the teacher and adults working in those lessons to feel confident and supported with the skills and knowledge that they are teaching. Through these lessons, we intend to inspire pupils and practitioners to develop a love of Design and Technology and see how it has helped shaped the ever-evolving technological world they live in.

DESIGN TECHNOLOGY IMPACT

The impact of using the full range of resources, including display materials, will be seen across the school with an increase in the profile of Design and Technology. The learning environment across the school will be more consistent with design and technology technical vocabulary displayed, spoken and used by all learners. Whole-school and parental engagement will be improved through the use of design and technology-specific home learning tasks and opportunities suggested in lessons and overviews for wider learning. We want to ensure that Design and Technology is loved by teachers and pupils across school, therefore encouraging them to want to continue building on this wealth of skills and understanding, now and in the future. Impact can also be measured through key questioning skills built into lessons, child-led assessment such as success criteria grids and KWL grids and summative assessments aimed at targeting next steps in learning.

DESIGN TECHNOLOGY OVERVIEW

	Term 1	Term 2 Mechanisms	Term 3	Term 4 Structures	Term 5	Term 6	
						Textiles	Cooking
Nursery We are Explorers		Rolling Ramp Investigation		Build a Bridge for the Animals		Exploring Textures	Healthy Eating: Fruit salad
Reception We are Builders		Paper pinwheel		Build a Home for the Three Little Pigs		Fabric Collage	Healthy Eating: Foods from around the world-veg- Mini Pita Pockets
Year 1 We are Designers		Moving Pictures		Victorian Toy		Decorate Your Own Coaster	Healthy Eating Smoothies
Year 2 We are Engineers		Fire Engine with Wheels and Axles		Balloon Rocket		Snack Bag	Healthy Eating Wraps

DESIGN TECHNOLOGY PROGRESSION OF SKILLS

	Nursery			Early Years Foundation Stage		
	<u>We are Explorers</u>			<u>We are Builders</u>		
Technical Knowledge	Mechanisms	Structures	Textiles	Mechanisms	Structures	Textiles
	Rolling Ramp Investigation	Build a Bridge for the Animals	Exploring Textures	Paper pinwheel	Build a Home for the Three Little Pigs	Fabric Collage
Design	<p>Expressive Arts and Design (Exploring and Using Media and Materials) Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>Expressive Arts and Design (Being Imaginative) Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories</p>					
Make	<p>Explore different materials, using all their senses to investigate them. Manipulate and play with different materials. Use their imagination as they consider what they can do with different materials.</p> <p>Make simple models which express their ideas. Explore different materials freely, in order to develop their ideas about how to use them and what to make. Develop their own ideas and then decide which materials to use to express them. Join different materials and explore different textures</p> <p>Physical Development (Moving and Handling) Develop manipulation and control. Explore different materials and tools. Use one-handed tools and equipment, for example, making snips in paper with scissors. Choose the right resources to carry out their own plan. For example, choosing a spade to enlarge a small hole they dug with a trowel. Children handle equipment and tools effectively, including pencils for writing.</p>					
Evaluate	<p>Repeat actions that have an effect. Explore materials with different properties Explore how things work</p>					
Cooking	<p>Make healthy choices about food, drink, activity and toothbrushing</p>					

Year One					
We are <u>Designers</u>					
		Mechanisms	Structures	Textiles	Cooking
		Moving Pictures	Victorian Toy	Decorate Your Own Coaster	Healthy Eating Smoothies
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	Exploring and Using Media and Materials	To know what a slider is, what it is used for, how it works and to follow instructions to make a slider. Skills: Identifying what a slider is and describing its purpose. Explaining how a slider mechanism works. Following step-by-step instructions to make a slider. Using scissors and glue safely and correctly. Positioning and attaching the slider so it moves smoothly. Testing and adjusting the slider to ensure proper movement.	To explore and evaluate a range of Victorian toys. Skills: Looking closely at toys and talking about how they work Describing what is interesting or fun about each toy Comparing different toys To learn to make a Bird-in-a-Cage Thaumatrope. To learn to make a Ball-in-a-Cup toy Skills: Using simple materials safely (card, paper, string, split pins) Following instructions step by step Practising fine motor skills: cutting, folding, joining	To explore different coasters. Skills: Looking at a variety of coasters to notice the different shapes, colours, patterns, and materials. Thinking about what could inspire their own design.	To name different fruits and identify their parts. Skills: Recognising different fruits by name Identifying parts of the fruit (skin, flesh, seeds, stalk) Observing and describing fruit features (colour, texture, smell, taste)
		To know what a pivot picture is, what it is used for, how it works, and to follow instructions to make a pivot picture. Skills: Identifying what a pivot picture is and describing its purpose. Explaining how a pivot mechanism works (turning around a fixed point). Following step-by-step instructions to make a pivot picture. Using scissors, glue, and a split pin safely and correctly. Positioning and attaching the pivot so it rotates			

		<p>smoothly.</p> <p>Testing and adjusting the pivot to ensure proper movement.</p> <p>To know what a lever mechanism is, what it is used for, how it works, and to follow instructions to make a lever.</p> <p>Skills:</p> <p>Identifying what a lever mechanism is and describing its purpose.</p> <p>Explaining how a lever works (moving around a pivot to create motion).</p> <p>Following step-by-step instructions to make a lever.</p> <p>Using scissors, glue, and split pins safely and correctly.</p> <p>Positioning and attaching the lever so it moves freely.</p> <p>Testing and adjusting the lever to ensure proper movement.</p>			
	<p>Being Imaginative</p>	<p>To choose appropriate materials and mechanisms and to design and plan how to make their own moving picture of an animal.</p> <p>Skills:</p> <p>Picking the right materials (card, paper, split pins, straws)</p> <p>Deciding which movement (slider, pivot, lever) will make the animal move</p> <p>Drawing a simple plan of their picture</p>	<p>To design and plan their own version of a Victorian-style moving toy.</p> <p>Skills:</p> <p>Drawing a simple plan or picture of the toy</p> <p>Choosing materials and deciding how it will move</p> <p>Deciding which toy to build and thinking about how to make its structure strong, stiff, and stable.</p>	<p>To design my own fabric coaster</p> <p>Skills:</p> <p>Deciding on the colours, patterns, and shapes to use,</p> <p>Drawing or sketching the design to show how the coaster will look before starting to make it.</p>	<p>To evaluate data collected and create three different smoothie designs.</p> <p>Skills:</p> <p>Collecting information about fruits (preferences, tastes, colours)</p> <p>Comparing fruits to decide which combinations might taste good</p> <p>Planning three smoothie designs based on their observations</p>
<p>Make Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p>		<p>To follow their own design plan to construct a mechanism that produces a moving picture of an animal.</p> <p>Skills:</p>	<p>To make their own toy using the design they planned.</p> <p>Skills:</p>	<p>To cut and glue fabric pieces to create my coaster design.</p> <p>Skills:</p>	<p>To create a tasty and appealing product safely and hygienically.</p> <p>Washing hands and fruits before</p>

<p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p>	<p>Cutting and joining materials to match the plan</p> <p>Putting the slider, pivot, or lever in the right place</p> <p>Testing and fixing the movement if it doesn't work</p>	<p>Cutting, joining, and assembling materials</p> <p>Testing and adjusting the toy to make it move</p> <p>Testing and adjusting the structure to make sure the toy works as intended</p>	<p>Cutting fabric pieces safely to the correct size and shape for their design.</p> <p>Gluing fabric pieces carefully to follow their design and create their coaster.</p> <p>Using their design plan to guide their making, making sure the pieces fit together.</p>	<p>preparation.</p> <p>Using safe cutting and blending techniques with supervision.</p> <p>Following instructions to combine ingredients correctly.</p> <p>Making the smoothies look nice with colours, layers, and decorating with fruit.</p>
<p>Evaluate Explore and evaluate a range of existing products</p> <p>Evaluate their ideas and products against design criteria</p>	<p>To evaluate our moving picture.</p> <p>Looking carefully at how the picture moves</p> <p>Saying what works well and what could be better</p> <p>Thinking of ways to improve it</p>	<p>To evaluate their finished toy and identify what worked well and what they could improve.</p> <p>Skills:</p> <p>Testing the toy to see if it works</p> <p>Talking about what works well and what could be better</p> <p>Suggesting changes for next time</p>	<p>To finish my coaster and evaluate how well I followed my design.</p> <p>Skills:</p> <p>Finishing the coaster and making sure all parts are complete.</p> <p>Checking how well the finished coaster matches their original design.</p> <p>Reflecting on what worked well and thinking about what could be improved.</p>	<p>To evaluate our designs.</p> <p>Skills:</p> <p>Tasting the smoothies and describing what works well</p> <p>Talking about which designs are most appealing or tasty</p> <p>Suggesting improvements for future smoothie designs</p>
<p>Technical Knowledge</p> <p>Build structures, exploring how they can be made stronger, stiffer and more stable.</p> <p>Explore and use mechanisms [for example, levers, sliders, wheels and axles] in their products.</p>	<p>Slider Movement: slides up/down or side to side. How it works: a strip of card moves through a slot. Used for: characters or objects that move in a straight line.</p> <p>Pivot Movement: rotates around a fixed point. How it works: a piece is attached with a split pin so it can turn. Used for: arms waving, doors opening, wheels turning.</p> <p>Lever Movement: moves up/down or in an arc. How it works: a long piece of card is attached with a split pin and acts as a lever. Used for: lifting, opening, or swinging movements.</p>	<p>Materials: strong, stiff, or flexible Strength: Add supports, folds, or layers to make stronger Stiffness: Use stiff materials or shapes to stop bending Stability: Wider base, balance, or extra supports make it stable Joining: Glue, tape, pins help hold parts together</p>	<p>Materials: Different fabrics have different textures, colours, and patterns Joining: Glue or tape can hold fabric pieces together Cutting: Fabric can be cut safely into different shape.</p>	<p>Fruits: Different fruits have different colours, textures, and flavours Parts: Fruits have skin, flesh, seeds, and stalks Mixing: Combining ingredients creates a smooth drink Safety: Wash hands and fruit; use tools safely</p>
<p>Vocabulary</p>	<p>Design Plan Make Evaluate Slider Pivot Lever</p>	<p>Design Plan Make Evaluate structure Strong Stiff</p>	<p>Design Plan Make Evaluate Fabric Colour Pattern</p>	<p>Design Plan Make Evaluate Fruit Skin Flesh</p>

		Stable Join Toys Victorians	Shape Texture Coaster	Seeds Stalk Colour Texture Taste Smell Cut Blend Mix Wash / Hygiene Healthy
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Year Two					
We are Engineers					
		Mechanisms	Structures	Textiles	Cooking
		Fire Engine with Wheels and Axles	Rocket	Snack Bag	Healthy Eating Wraps
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	Exploring and Using Media and Materials	To explore modern fire engines Skills: Looking closely at fire engines and talking about how they work. Noticing parts like wheels, axles, and moving features. Comparing different fire engines.	To explore rockets and their parts. Skills: Looking closely at rockets and identifying their parts. Talking about what each part does. Comparing different rockets. Talking about how rockets move and what makes them fly	To explore examples of fabric bags. Skills: Looking closely at different fabric bags. Noticing shapes, sizes and materials. Talking about what they like or find useful.	To name different ingredients for a wrap and identify combinations from different food groups: protein, vegetables, and dairy. Skills: Identifying and naming different foods. Sorting ingredients into food groups (protein, vegetables, dairy). Talking about flavours, textures, and combinations.
		To investigate wheels and axles. Skills: Observing how wheels spin on an axle. Testing how axles help wheels move smoothly. Talking about which materials or shapes make wheels work best.			

	<p>Being Imaginative</p>	<p>To design a fire engine</p> <p>Skills:</p> <p>Drawing or sketching a simple plan of the fire engine</p> <p>Deciding where the wheels and axles will go</p> <p>Choosing materials to make the fire engine strong and stable</p>	<p>To design a rocket</p> <p>Skills:</p> <p>Drawing or sketching an initial rocket idea.</p> <p>Deciding which parts to add to make it aerodynamic.</p> <p>Planning how the balloon and other parts will work together.</p> <p>To make a rocket following my design (make a rocket prototype)</p> <p>Skills:</p> <p>Building a simple model using a balloon and chosen parts.</p> <p>Testing the prototype to see how it moves.</p> <p>Observing what works and what could be improved.</p> <p>To adapt a plan</p> <p>Skills:</p> <p>Changing or adding parts to improve aerodynamics.</p> <p>Trying different materials, shapes, or positions.</p> <p>Learning from testing the prototypes before making the final rocket.</p>	<p>To design my own simple snack bag.</p> <p>Skills:</p> <p>Drawing a simple design of the bag.</p> <p>Choosing colours, shapes, and fabric.</p> <p>Thinking about how the bag will be used.</p>	<p>To evaluate data collected and create three different wrap designs.</p> <p>Skills:</p> <p>Collecting information about preferred ingredients.</p> <p>Comparing ingredients to plan good combinations.</p> <p>Designing three wrap ideas based on their findings.</p>
<p>Make</p> <p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and</p>	<p>To be able to make a fire engine based on your design</p> <p>Skills:</p> <p>Cutting, joining, and assembling materials carefully</p>	<p>To make a rocket balloon with adaptations</p> <p>Skills:</p> <p>Following the improved design.</p> <p>Attaching all parts carefully so the</p>	<p>To join two pieces of fabric using a simple running stitch to make my snack bag.</p> <p>Skills:</p>	<p>To create a tasty and appealing wrap safely and hygienically.</p> <p>Skills:</p> <p>Washing hands and preparing ingredients safely.</p>	

<p>ingredients, according to their characteristics</p>	<p>Attaching wheels and axles so they turn properly</p> <p>Following the design plan to make the fire engine</p> <p>To continue to make fire engines if not finished in previous lesson.</p> <p>Skills:</p> <p>Checking the parts already made.</p> <p>Completing any unfinished sections carefully.</p> <p>Making sure wheels and axles are working.</p>	<p>rocket works well.</p> <p>Testing to check the rocket moves as intended.</p>	<p>Using a running stitch safely and carefully.</p> <p>Holding and joining fabric neatly.</p> <p>Following the design while sewing.</p>	<p>Using tools safely (spreading, cutting soft foods).</p> <p>Assembling ingredients to create a neat, appealing wrap.</p> <p>Choosing colours and textures to make the wrap look appetising.</p>
<p>Evaluate Explore and evaluate a range of existing products</p> <p>Evaluate their ideas and products against design criteria</p>	<p>To be able to evaluate a finished product.</p> <p>Skills:</p> <p>Testing the fire engine to see if it moves.</p> <p>Talking about what worked well and what could be improved.</p> <p>Suggesting changes for next time.</p>	<p>To evaluate my rocket.</p> <p>Skills:</p> <p>Watching how the final rocket moves.</p> <p>Talking about what worked well and what could be better.</p> <p>Thinking about how the design could be improved for next time.</p>	<p>To finish my snack bag and evaluate how well it works.</p> <p>Skills:</p> <p>Checking that the bag is strong and can hold a snack.</p> <p>Comparing the finished bag with the design.</p> <p>Saying what worked well and what could be improved.</p>	<p>To evaluate our wrap designs.</p> <p>Skills:</p> <p>Tasting and describing the wrap.</p> <p>Saying what worked well in the design.</p> <p>Suggesting improvements for future wraps.</p>
<p>Technical Knowledge</p> <p>Build structures, exploring how they can be made stronger, stiffer and more stable.</p> <p>Explore and use mechanisms [for example, levers, sliders, wheels and axles] in their products.</p>	<p>Wheel Axle Rotation Joining</p>	<p>Aerodynamics: Smooth, pointed shapes help rockets move faster. Materials: Light materials help the rocket travel further. Prototypes: Trying out ideas first helps see what works.</p>	<p>Fabric: Different fabrics have different textures, strengths, and colours. Joining: A running stitch can be used to join two pieces of fabric. Needle and Thread: These tools are used to sew fabric together.</p>	<p>Ingredients: Foods come from different groups (protein, vegetables, dairy). Combining: Different foods can be mixed to make a tasty wrap. Preparation: Wash hands and ingredients before making food. Tools: Safe tools can be used to cut, spread, or assemble ingredients. Hygiene: Keeping food and surfaces clean prevents germs.</p>
<p>Vocabulary</p>	<p>Design Plan Make Evaluate Fire Engine Wheel Axle Spin Turn</p>	<p>Design Plan Make Evaluate Rocket Balloon Air Fly Aerodynamic</p>	<p>Design Plan Make Evaluate Fabric Thread Needle Stitch Running stitch</p>	<p>Design Plan Make Evaluate Wrap Ingredient Protein vegetable Dairy</p>

	Vehicle Rotate	Prototype		Colour Texture Taste Spread Roll Cut Assemble Mix Wash / Hygiene Healthy Nutrition
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