Design Technology Overview

Autumn

EYFS Projects

Me and My Community: In this project, children use construction kits to create vehicles with wheels and axles.

Once Upon a Time: In this project, children work collaboratively to create structures using various materials, including construction kits and upcycled materials. They share their creations and talk about the resources, tools and techniques they used. Children explore existing products to make puppet characters.

Sparkle and Shine: In this mini seasonal project, children draw and label a design for a celebration light before creating. They are introduced to seasonal food and work with an adult to follow a simple recipe.

Let's Explore: In this project, children create simple structures using various resources and construction kits.

Build It Up: In this project, children build on learning from Let's Explore and work collaboratively and independently to build structures using various resources and construction kits. They look at existing products and structures to inspire their creations and test and adapt their ideas.

Marvellous Machines: In this project, children make vehicles with wheels and axles. They explore products that need electricity to make them work. Children develop their understanding of the design process as they construct models and are supported to adapt and refine their work.

Puppets and Pop Ups: In this project, children explore a variety of joining techniques. They create puppets and explore existing products to inspire their creations. They build on skills in Marvellous Machines to draw designs, select resources and adapt their work as they create.

Year 1

Shade and Shelter: In this design and technology project, children learn the names and functions of different shelters and observe their similarities and differences. Children revisit the names and properties of materials introduced in the Early Years and the Y1 science project Everyday Materials and decide why they have been used to build a variety of shelters.

Children are introduced to design criteria. They design and create a prototype shelter to fulfil given criteria. They then design a play den to a set of design criteria and work with a supervised group to build their play den, constructing, strengthening and fixing materials carefully and safely. They evaluate their construction verbally and make changes and improvements to their design before evaluating their final product.

Funny Faces and Fabulous Features: In this art and design project, children explore methods of joining textiles and adding embellishments using glue and simple stitches.

Year 2

Remarkable Recipes: In this design and technology project, children learn more about the origins of foods first explored in the Y1 project Chop, Slice and Mash. They learn about the parts of the plants we eat and the variety of foods that come from animal sources. They explore tools used for food preparation and decide which tool is best for a specific task. Children discover why some foods are cooked and learn to read a simple recipe. They choose a new, healthy, school lunch recipe that fits a set of criteria. They make, taste and evaluate their chosen recipe and decide if the dish should be included on the school menu.

Year 3

Cook Well, Eatwell: In this design and technology project, children learn about food groups and the Eatwell guide. They build on learning about why foods are cooked from the Y2 project Remarkable Recipes, by learning about cooking methods, such as boiling, steaming, roasting, baking and slow cooking. They practise these methods by cooking potatoes and ratatouille. The children choose and make a taco filling, according to specific design criteria, then evaluate their final product.

Year 4

Fresh Food, Good Food: In this design and technology project, children learn why food deteriorates over time, including the role played by microorganisms. They study inventions and preservation methods, such as drying, canning, pasteurising and cooling, which are used to prolong the shelf life of food. Children learn about the chronology of food packaging inventions and how these inventions changed people's everyday lives.

Children investigate a range of food packaging, looking at how it keeps food fresh, the origins of the food and whether the packaging is recyclable. They learn about the factors involved in packaging design, including the use of nets and recyclable materials.

Children use their knowledge of healthy eating from previous projects, such as the Y3 project Cook Well, Eatwell and follow recipes to make various healthy snacks before designing and creating a packaged healthy snack that keeps fresh for several hours. They evaluate their snack and packaging, highlighting their successes and suggesting improvements.

Warp and Weft: In this art and design project, children learn about significant technological advancements in weaving. They learn about ancient Egyptian horizontal looms, Iron Age vertical looms, Anglo-Saxon and Viking tablet looms, Victorian power-driven looms and modern looms with digital technology. Children also investigate the characteristics of natural (animal and plant-based) and synthetic yarns for appearance, shape, texture, elasticity and type.

Year 5

Moving Mechanisms: In this design and technology project, children learn about pneumatic systems. They use the skills they have learned in this and other projects to plan, design and make a machine prototype featuring a pneumatic system and a sturdy structure using appropriate materials and joining techniques.

They learn about the iterative design process and evaluate and improve their product as it progresses. Children also use focus groups to evaluate their finished products, using the design criteria to determine their success.

Year 6

Food for Life: In this design and technology project, children learn about processed foods, including minimally processed and ultra-processed foods. They also learn about food labelling. They compare processed and homemade bread for their number of ingredients, nutritional value, taste, texture and longevity. The children learn about whole and organic foods and their advantages and disadvantages. They make pasta sauces using whole food ingredients and a range of preparation techniques practised in previous projects.

The children design a healthy daily menu for an 11-year-old child that meets a set of design criteria. They justify their choices before preparing one of the meals. At the end of the project, the children taste and evaluate their dishes, modifying them if needed.

Spring

Starry Night: In this project, children develop their design and technology skills to create cuddly pets using textiles.

Puddles and Rainbows: In this mini seasonal project, children build on their designing and making skills to create rain makers.

Long Ago: In this project, children are introduced to recipes and follow a pictorial recipe to bake a cake.

Stories and Rhymes: In this project, children follow recipes, building on experiences from the project Long Ago.

Ready Steady Grow: In this project, children begin to explore sources of food. They develop their understanding of recipes and create recipes to make healthy food.

Bright Lights, Big City: This geography project is taught alongside the design and technology project Taxi! and connects with children's understanding of transport.

Taxi!: In this design and technology project, children revisit parts of a vehicle, including wheels, axles and chassis, building on construction activities in the Early Years. They explore different methods of making axles and fixing wheels to a chassis, comparing products and using what they learn to design and create a moving model of a taxi, according to given design criteria.

Coastline: This geography project is taught alongside the design and technology project Beach Hut and connects with children's understanding of human features at the coast.

Uses of Materials: This science project is taught alongside the design and technology project Beach Hut and connects with children's understanding of properties and uses of materials.

Beach Hut: In this design and technology project, children learn about methods of strengthening and joining materials and develop their woodworking skills to make box frames. They use this learning to design and build a sturdy and attractive beach hut structure according to given design criteria.

Forces and Magnets: This science project is taught alongside the design and technology project Making It Move and connects with children's understanding of contact and non-contact forces.

Making It Move: In this design and technology project, children revisit knowledge of machines. They recap learning about levers, linkages, sliders, wheels and axles from the Y2 project Push and Pull. Children are introduced to the cam mechanism and its parts. They understand that cams can be different shapes and carry out an investigation to describe their movements.

Children discover that automata are machines that operate mainly by themselves. They use their knowledge of cam mechanisms and their cutting, joining and finishing skills to design and make a child's automaton toy, following design criteria and evaluating their product.

Functional and Fancy Fabrics: In this design and technology project, children revisit the idea of using fabric to create products previously studied in the Y2 project Cut, Stitch and Join. They explore how fabric products are used in the home and examine the relationship between functionality and decoration. Children study British textile designer William Morris and are inspired to create printed fabrics, finishing them with a sewn hem, embroidery and embellishments.

Sow, Grow and Farm: This geography project is taught alongside the design and technology project Eat the Seasons and connects with children's understanding of the seasons and seasonal foods.

Eat the Seasons: In this design and technology project, children explore seasonal foods and why they are beneficial for producers, sellers and consumers. They use a seasonal calendar to identify soup recipes that can be created using seasonal produce and use various techniques to prepare and cook a selection of the recipes, using skills gained in previous projects, such as the Y3 project Cook Well, Eatwell. They use what they have learned to plan and make a nutritious seasonal soup, evaluating their product for taste, appearance and nutritional value.

Engineer: In this design and technology project, children learn about the role of an engineer and discover some remarkable structures in history. They study the form and function of significant bridges, learning to identify features, such as beams, arches and trusses, and why triangles are strong shapes. Children complete a bridge-building engineering challenge to create a bridge prototype.

Summer

Sunshine and Sunflowers: In this project, children explore existing products to inspire their designs for sun hats and crop protectors.

Shadows and Reflections: In this mini seasonal project, children test, adapt and refine their designs when making suncatchers.

Big Wide World: In this project, children create vehicles using a range of resources and construction kits. They develop their experiences of following recipes from Sparkle and Shine by making tortilla pizzas.

Plant Parts: This science project is taught alongside the design and technology project Chop, Slice and Mash and connects with children's understanding of plant-based food sources.

Chop, Slice and Mash: In this design and technology project, children learn about foods and their sources. They learn about preparing food and discover that peeling, tearing, slicing, chopping, mashing and grating are forms of food preparation. They also learn about the importance of good hygiene.

Cut, Stitch and Join: In this design and technology project, children build on their knowledge of stitching from the Y1 project Funny Faces and Fabulous Features and materials studied in the Y2 project Uses of Materials. They are introduced to the contemporary product designer Cath Kidston and observe the function and characteristics of the brand. They explore the purpose of a sewing pattern and investigate ways in which fabrics are joined and fastened.

Children practise joining fabrics using glue and running stitches. They observe and explore ways to embellish fabrics using simple printing and adding sewn embellishments, such as buttons, sequins and appliqué. Children follow a simple pattern to make a sewn bag tag.

Greenhouse: In this design and technology project, children study greenhouses' purpose, structures, materials and design features. They build on their knowledge of frame structures introduced in the Y1 project Shade and Shelter and woodwork from the Y2 project Beach Hut by investigating the use of diagonal struts, butt joints and triangular corners to strengthen a frame structure.

Children also research and compare the work of two famous greenhouse designers from different periods – Sir Joseph Paxton and Sir Nicholas Grimshaw. They choose a suitable material for a greenhouse covering based on its properties. Children design and make mini greenhouses using strengthening, finishing and joining techniques. They evaluate their work overtime to see if their designs fit their purpose.

Tomb Builders: In this design and technology project, children revisit learning about mechanisms from the Y2 project Push and Pull and the Y3 project Making It Move by exploring simple machines, including pulleys, levers, wheels and axles, wedges, inclined planes and screws.

They also learn how simple machines are used in combination to create compound machines. They use this learning to understand how ancient builders created significant structures then plan and build a machine prototype that may have been useful in the past.

Architecture: In this design and technology project, children lea about architectural styles and technology, from prehistoric to ancient Egyptian, Classical, Gothic, Renaissance, Baroque, industrial, Modernist, Postmodernist and modern-day sustainat architecture. They explore Greek architecture in more detail, identifying typical materials and features, such as columns, pediments and friezes. Children use computer-aided design to develop their ideas.

Children revisit and build on techniques from previous projects, such as the Y3 project Greenhouse, for adding strength, stability and support to structures. They use these skills and knowledge to design and build an impressive and functional model of a building.

Splash!: In Lhis. mirii seasonal project. children consolidate Lheir e:,qx!rience and understanding of following recipes independently to make lee lollies. **Animal Safari:** In *Ihi5* project children develop their learning from tho Build It Up proje<l and work oollaooratively 10 make aoimal shelu,rs. **Tt-.,y** devclop joining t.e<hoiqu.,s introduceo in Puppets and Pop Ups and explore foldiog ar<l curling paper to creau, animal masks. **On the Beach:** In this seasonal project. children develop Lheir kno1Medge of 'VChicles from Marvellous Machines and design and make seafaring vehides.	The children use preparatory techniques Lo make a healthy salad before tasting and evaluating their dish. They also design a supermarket s.andwic.h. choosing and preparing the ingredierits to make them heallhy. tasty and easy to eat on the go. At Lhe end of the project. the children taste and evaluate their products.. **Animal Parts: This** science project is taught alongside the design and technology project Chop. Slice and Mash and coonects. 'MLh children's understanding of animal-basOO foocl sources.	**Pul.h** and **Pull:** In this design and tecl1nology project children learn l!'lat machines make work easier and define Lhe terms machine.. component .and mechanism. They explore sliders. levers. and linkages. and make moving model5 of a!l three LJtSing joining and finishing techniques.. Children apply theJr learni:ng to desig_n and make greetings cards with moving parts that us.e Lhes.e mechanisms.				