



# Design & Technology

## Essential Knowledge

Creativity							
Generation of ideas							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.	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		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  Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design			
Skills	Develops their own ideas through experimentation with diverse materials	Create a design to meet simple design criteria.	Generate and communicate their ideas through a range of methods.	Develop design criteria to inform a design.	Use annotated sketches and exploded diagrams to test and communicate their ideas.	Use pattern pieces and computer aided design packages to design a product.	Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways.
Knowledge	Uses their increasing knowledge and understanding of tools and materials to explore their interests and enquiries and develop their thinking	Design criteria are the explicit goals that a project must achieve.	Ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology	Design criteria are the exact goals a project must achieve to be successful. These criteria might include the product's use, appearance, cost and target user.	Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way.	A pattern piece is a drawing or shape used to guide how to make something. There are many different computer aided design packages for designing products.	Design criteria should cover the intended use of the product, age range targeted and final appearance. Ideas can be communicated in a range of ways, including through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
Topic / Coverage		Autumn Two: What do I need to make the best moon buggy?	Autumn Two: What makes a healthy lunch?	Summer Two: What local ingredients make the best savoury dish?	Autumn Two: How did the design of the Roman shield help the Roman Army become so powerful?	Summer Two: What makes the best rocket launcher?	Spring Two: How can effective design contribute to survival in the Arctic?
Use of ICT							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6



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## Essential Knowledge

National Curriculum	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function	Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology		Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design			
Skills	Develops their own ideas through experimentation with diverse materials	Use design software to create a simple plan for a design.	Use design software to create a simple labelled design or plan.			Link a physical device to a computer or tablet so that it can be controlled (such as changing motor speed or turning an LED on and off) by a program.	Use a sensor to monitor an environmental variable, such as temperature, sound or light
Knowledge	Ideas can be developed through diverse materials, e.g. light, projected image, loose parts, watercolours, powder paint	Computer-aided design is when computers are used to help design products. It has advantages over paper design in that it will show how finished products will look. Different colours and textures can also be trialled.	Computer software can be used to help design or plan a product. Advantages include identifying and solving problems before the product is made and experimenting with different materials and colours. Labels can be added to designs for clarity.			Equipment and devices can be controlled by pressing buttons on a control panel, such as on a washing machine or microwave.	Computer monitoring uses sensors as a scientific tool to record information about environmental changes over time. Computer monitoring can also log data from sensors and record the resulting information in a table or graph.
Topic / Coverage		Autumn Two: What do I need to make the best moon buggy?	Autumn Two: How can we make the best toy castle?			Summer Two: What makes the best rocket launcher?	Spring Two: How can effective design contribute to survival in the Arctic?
<b>Structures</b>							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function	Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]  Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.		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.  Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.			



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## Essential Knowledge

		build structures, exploring how they can be made stronger, stiffer and more stable					
Skills		Construct simple structures, models or other products using a range of materials.	Explore how a structure can be made stronger, stiffer and more stable.	Create shell or frame structures using diagonal struts to strengthen them.	Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them.	Build a framework using a range of materials to support mechanisms.	
Knowledge		Different materials can be used for different purposes, depending on their properties. For example, cardboard is a stronger building material than paper. Plastic is light and can float. Clay is heavy and will sink.	Structures can be made stronger, stiffer and more stable by using cardboard rather than paper and triangular shapes rather than squares. A broader base will also make a structure more stable.	Shell structures are hollow, 3-D structures with a thin outer covering, such as a box. Frame structures are made from thin, rigid components, such as a tent frame. The rigid frame gives the structure shape and support. Diagonal struts can strengthen the structure.	A prototype is a mock-up of a design that will look like the finished product but may not be full size or made of the same materials. Shell and frame structures can be strengthened by gluing several layers of card together, using triangular shapes rather than squares, adding diagonal support struts and using 'Jinks' corners (small, thin pieces of card cut into a right-angled triangle and glued over each joint to straighten and strengthen them).	Various methods can be used to support a framework. These include cross braces, guy ropes and diagonal struts. Frameworks can be built using lolly sticks, skewers and bamboo canes.	
Topic / Coverage		Autumn Two: What do I need to make the best moon buggy?	Autumn Two: How can we make the best toy castle?	Summer Two: How can we transport food effectively?	Autumn Two: How did the design of the Roman shield help the Roman Army become so powerful?	Summer Two: What makes the best rocket launcher?	

		Investigation						
		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Use a range of small tools, including scissors, paint brushes and cutlery	Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing).		Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.				



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Skills	Use a range of small tools, including scissors, paint brushes and cutlery	Select the appropriate tool for a simple practical task.	Select the appropriate tool for a task and explain their choice.	Use tools safely for cutting and joining materials and components.	Select, name and use tools with adult supervision.	Name and select increasingly appropriate tools for a task and use them safely.	Select appropriate tools for a task and use them safely and precisely.
Knowledge	Know which tools to use which for which purpose.	Specific tools are used for particular purposes. For example, scissors are used for cutting and glue is used for sticking.	Different tools have characteristics that make them suitable for specific purposes. For example, scissors are used for cutting paper because they have sharp, metal blades that can cut through thin materials..	Specific tools can be used for cutting, such as saws. Wood can be joined using glue, nails, staples, or a combination of these. Safety rules must be followed to prevent injury from sharp blades. These rules include using a bench hook to keep the wood still, using a junior hacksaw with a pistol grip and working under adult supervision.	Useful tools for cutting include scissors, craft knives, junior hacksaws with pistol grip and bench hooks. Useful tools for joining include glue guns. Tools should only be used with adult supervision and safety rules must be followed.	There are many rules for using tools safely and these may vary depending on the tools being used. For example, someone using a chisel should chip or cut with the cutting edge pointing away from their body. All tools should be cleaned and put away after use, and should not be used if they are loose or cracked.	Precision is important in producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fit together correctly.
Topic/ coverage		Autumn Two: What do I need to make the best moon buggy?	Autumn Two: What makes a healthy lunch?	Summer Two: How can we transport food effectively?	Autumn Two: How did the design of the Roma shield help the Roman Army become so powerful?	Summer Two: What makes the best rocket launcher?	Spring Two: How can effective design contribute to survival in the Arctic?
<b>Evaluation</b>							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Share their creations, explaining the process they have used	Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria.		Investigate and analyse a range of existing products. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. Understand how key events and individuals in design and technology have helped shape the world.			
Skills	Expresses and communicates working theories, feelings and understandings using a range of art forms	Talk about their own and each other's work, identifying strengths or weaknesses and offering support.	Explain how closely their finished products meet their design criteria and say what they could do better in the future.	Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.	Identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements.	Test and evaluate products against a detailed design specification and make adaptations as they develop the product.	Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others.



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knowledge	Explanation of processes used to create	A strength is a good quality of a piece of work. A weakness is an area that could be improved.	Finished products can be compared with design criteria to see how closely they match. Improvements can then be planned.	Asking questions can help others to evaluate their products, such as asking them whether the selected materials achieved the purpose of the model.	Evaluation can be done by considering whether the product does what it was designed to do, whether it has an attractive appearance, what changes were made during the making process and why the changes were made. Evaluation also includes suggesting improvements and explaining why they should be made.	Testing a product against the design criteria will highlight anything that needs improvement or redesign. Changes are often made to a design during manufacture.	Design is an iterative process, meaning alterations and improvements are made continually throughout the manufacturing process. Evaluating a product while it's being manufactured, and explaining these evaluations to others, can help to refine it.
Topic coverage		Autumn Two: What do I need to make the best moon buggy?	Autumn Two: What makes a healthy lunch?	Summer Two: What local ingredients make the best savoury dish?	Autumn Two: How did the design of the Roman shield help the Roman Army become so powerful?	Summer Two: What makes the best rocket launcher?	Spring Two: How can effective design contribute to survival in the Arctic?

Food preparation and cooking							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	<p>Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.</p> <p>Use a range of small tools, including scissors, paint brushes and cutlery</p>	Use the basic principles of a healthy and varied diet to prepare dishes		<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>			



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Skills	Begin to make healthy food choices. Use cutlery correctly.	Measure and weigh food items using non-standard measures, such as spoons and cups	Prepare ingredients by peeling, grating, chopping and slicing.	Prepare and cook a simple savoury dish.	Identify and use a range of cooking techniques to prepare a simple meal.	Use an increasing range of preparation and cooking techniques to cook a sweet or savoury dish.		
Knowledge	Name some healthy food choices.	Using non-standard measures is a way of measuring that does not involve reading scales. For example, weight may be measured using a balance scale and lumps of plasticine. Length may be measured in the number of handspans or pencils laid end to end.	Some ingredients need to be prepared before they can be cooked or eaten. There are many ways to prepare ingredients: peeling skins using a vegetable peeler, such as potato skins; grating hard ingredients, such as cheese or chocolate; chopping vegetables, such as onions and peppers and slicing foods, such as bread and apples.	Preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning.	Cooking techniques include baking, boiling, frying, grilling and roasting.	Sweet dishes are usually desserts, such as cakes, fruit pies and trifles. Savoury dishes usually have a salty or spicy flavour rather than a sweet one.		
Topic coverage		Autumn Two: How can I make a salad?	Autumn Two: What makes a healthy lunch?	Summer Two: What local ingredients make the best savoury dish?	Autumn Two: What makes a great Christmas snack?	Summer Two: How does seasonality effect the taste of food?		
<b>Nutrition</b>								
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
National Curriculum	Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.	use the basic principles of a healthy and varied diet to prepare dishes □ understand where food comes from			Understand and apply the principles of a healthy and varied diet.			



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## Essential Knowledge

Skills	Begin to make healthy food choices.	Select healthy ingredients for a fruit or vegetable salad.	Describe the types of food needed for a healthy and varied diet and apply the principles to make a simple, healthy meal.	Identify the main food groups (carbohydrates, protein, dairy, fruits and vegetables, fats and sugars).	Design a healthy snack or packed lunch and explain why it is healthy.	Evaluate meals and consider if they contribute towards a balanced diet	Plan a healthy weekly diet, justifying why each meal contributes towards a balanced diet.
Knowledge	Name some healthy food choices.	Fruit and vegetables are an important part of a healthy diet. It is recommended that people eat at least five portions of fruit and vegetables every day.	A healthy diet should include meat or fish, starchy foods (such as potatoes or rice), some dairy foods, a small amount of fat and plenty of fruit and vegetables.	There are five main food groups that should be eaten regularly as part of a balanced diet: fruit and vegetables; carbohydrates (potatoes, bread, rice and pasta); proteins (beans, pulses, fish, eggs and meat); dairy and alternatives (milk, cheese and yoghurt) and fats (oils and spreads). Foods high in fat, salt and sugar should only be eaten occasionally as part of a healthy, balanced diet.	Healthy snacks include fresh or dried fruit and vegetables, nuts and seeds, rice cakes with low-fat cream cheese, homemade popcorn or chopped vegetables with hummus. A healthy packed lunch might include a brown or wholemeal bread sandwich containing eggs, meat, fish or cheese, a piece of fresh fruit, a low-sugar yoghurt, rice cake or popcorn and a drink, such as water or semi-skimmed milk.	A balanced diet gives your body all the nutrients it needs to function correctly. This means eating a wide variety of foods in the correct proportions.	Eating a balanced diet is a positive lifestyle choice that should be sustained over time. Food that is high in fat, salt or sugar can still be eaten occasionally as part of a balanced diet.
Topic coverage		Autumn Two: How can I make a healthy salad?	Autumn Two: What makes a healthy lunch?	Summer Two: What local ingredients make the best savoury dish?		Summer Two: How does seasonality effect the taste of food?	Spring Two: How can effective design contribute to survival in the Arctic?

Origins of food							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.	Understand where food comes from		Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.			



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Skills	Begin to make healthy food choices.	Sort foods into groups by whether they are from an animal or plant source.	Identify the origin of some common foods (milk, eggs, some meats, common fruit and vegetables)	Identify and name foods that are produced in different places.	Identify and name foods that are produced in different places in the UK and beyond.	Describe what seasonality means and explain some of the reasons why it is beneficial	Explain how organic produce is grown.
Knowledge	Name some healthy food choices.	Some foods come from animals, such as meat, fish and dairy products. Other foods come from plants, such as fruit, vegetables, grains, beans and nuts.	Food comes from two main sources: animals and plants. Cows provide beef, sheep provide lamb and mutton and pigs provide pork, ham and bacon. Examples of poultry include chickens, geese and turkeys. Examples of fish include cod, salmon and shellfish. Milk comes mainly from cows but also from goats and sheep. Most eggs come from chickens. Honey is made by bees. Fruit and vegetables come from plants. Oils are made from parts of plants. Sugar is made from plants called sugar cane and sugar beet. Plants also give us nuts, such as almonds, walnuts and hazelnuts.	The types of food that will grow in a particular area depend on a range of factors, such as the rainfall, climate and soil type. For example, many crops, such as potatoes and sugar beet, are grown in the south-east of England. Wheat, barley and vegetables grow well in the east of England.	Particular areas of the world have conditions suited to growing certain crops, such as coffee in Peru, citrus fruits in California in the United States of America and apples in the United Kingdom.	Seasonality is the time of year when the harvest or flavour of a type of food is at its best. Buying seasonal food is beneficial for many reasons: the food tastes better; it is fresher because it hasn't been transported thousands of miles; the nutritional value is higher; the carbon footprint is lower, due to reduced transport; it supports local growers and is usually cheaper.	Organic produce is food that has been grown without the use of man-made fertilisers, pesticides, growth regulators or animal feed additives. Organic farmers use crop rotation, animal and plant manures, hand-weeding and biological pest control.
Topic coverage		Summer Two: How can I make a healthy salad?	Autumn Two: What makes a healthy lunch?	Summer Two: What local ingredients make the best savoury dish?	Autumn Two: What makes a great Christmas snack?	Summer Two: How does seasonality effect the taste of food?	Spring Two: How can effective design contribute to survival in the Arctic?

## Materials

### Materials for Purpose

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Use and explore a variety of materials, experimenting with colour, design, texture, form and function	Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics		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.			





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Skills	Develops their own ideas through experimentation with malleable materials	Select and use a range of materials, beginning to explain their choices.	Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.	Plan which materials will be needed for a task and explain why.	Choose from a range of materials, showing an understanding of their different characteristics.	Select and combine materials with precision	Choose the best materials for a task, showing an understanding of their working characteristics.
Knowledge	Uses their increasing knowledge and understanding materials to explore their interests and enquiries through malleable materials	Different materials are suitable for different purposes, depending on their specific properties. For example, glass is transparent, so it is suitable to be used for windows.	Properties of components and materials determine how they can and cannot be used. For example, plastic is shiny and strong but it can be difficult to paint.	Materials for a specific task must be selected on the basis of their properties. These include physical properties as well as availability and cost.	Different materials and components have a range of properties, making them suitable for different tasks. It is important to select the correct material or component for the specific purpose, depending on the design criteria. Recipe ingredients have different tastes and appearances. They look and taste better and are cheaper when in season.	Materials should be cut and combined with precision. For example, pieces of fabric could be cut with sharp scissors and sewn together using a variety of stitching techniques.	It is important to understand the characteristics of different materials to select the most appropriate material for a purpose. This might include flexibility, waterproofing, texture, colour, cost and availability.
Topic coverage		Autumn Two: What do I need to make the best moon buggy?	Autumn Two: How can we make the best toy castle?	Summer Two: What local ingredients make the best savoury dish?	Autumn Two: How did the design of the Roman shield help the Roman Army become so powerful?	Summer Two: What makes the best rocket launcher?	Spring Two: How can effective design contribute to survival in the Arctic?
<b>Processes</b>							
<b>Electricity</b>							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum				Understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors).			
Skills				Incorporate a simple series circuit into a model.		Incorporate circuits that use a variety of components into models or products.	



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## Essential Knowledge

Knowledge				An electric circuit can be used in a model, such as a lighthouse. It can be controlled using a switch.		Components can be added to circuits to achieve a particular goal. These include bulbs for lighthouses and torches, buzzers for burglar alarms and electronic games, motors for fairground rides and motorised vehicles and switches for lights and televisions.	
Topic coverage				Summer Two: How can we transport food effectively?		Summer Two: What makes the best rocket launcher?	

Movements and mechanisms							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function	Design purposeful, functional, appealing products for themselves and other users based on design criteria Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]		Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages).			
Skills	Develops their own ideas through experimentation with diverse materials	Use wheels and axles to make a simple moving model.	Use a range of mechanisms (levers, sliders, wheels and axles) in models or products.	Explore and use a range of mechanisms (levers, sliders, axles, wheels and cams) in models or products.		Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products.	Explain and use mechanical systems in their products to meet a design brief.



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Knowledge	Ideas can be developed through diverse materials, e.g. light, projected image, loose parts, watercolours, powder paint	An axle is a rod or spindle that passes through the centre of a wheel to connect two wheels.	A mechanism is a device that takes one type of motion or force and produces a different one. A mechanism makes a job easier to do. Mechanisms include sliders, levers, linkages, gears, pulleys and cams.	Levers consist of a rigid bar that rotates around a fixed point, called a fulcrum. They reduce the amount of work needed to lift a heavy object. Sliders move from side to side or up and down, and are often used to make moving parts in books. Axles are shafts on which wheels can rotate to make a moving vehicle. Cams are devices that can convert circular motion into up-and-down motion.		Mechanisms can be used to add functionality to a model. For example, sliders or levers can be used in moving pictures, storybooks or simple puppets; linkages in moving vehicles or puppets; gears in motorised vehicles or spinning toys; pulleys in cable cars or transport systems and cams in 3-D moving toys or pictures.	Mechanical systems can include sliders, levers, linkages, gears, pulleys and cams.
Topic coverage		Autumn Two: What do I need to make the best moon buggy?	Autumn Two: How can we make the best toy castle?	Summer Two: How can we transport food effectively?		Summer Two: What makes the best rocket launcher?	Spring Two: How can effective design contribute to survival in the Arctic?
<b>Comparison</b>							
<b>Compare and Contrast</b>							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Share their creations, explaining the process they have used	Explore and evaluate a range of existing products evaluate their ideas and products against design criteria		Critique, evaluate and test their ideas and products and the work of others. Investigate and analyse a range of existing products.			
Skills	Expresses and communicates working theories, feelings and understandings using a range of art forms	Describe the similarities and differences between two products.	Compare different brands of the same product and explain their similarities and differences.	Explain the similarities and difference between the work of two designers.	Create and complete a comparison table to compare two or more products.	Survey users in a range of focus groups and compare results.	Create a detailed comparative report about two or more products or inventions



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Knowledge	Explanation of processes used to create	Two products can be compared by looking at a set of criteria and scoring both products against each one.	Products can be compared by looking at particular characteristics of each and deciding which is better suited to the purpose.	Work from different designers can be compared by assessing specific criteria, such as their visual impact, fitness for purpose and target market.  Richard C. Laramy invented the first coolbox. It was made of heavy duty metal and used ice to keep food cold. In the 1970s, Coleman began designing coolers that were made of soft plastics. These are less durable but much easier to clean.	A comparison table can be used to compare products by listing specific criteria on which each product can be judged or scored.	A focus group is a small group of people whose reactions and opinions about a product are taken and studied. Evaluations can be made by asking product users a selection of questions to obtain data on how the product has met its design criteria.	Products and inventions can be compared using a range of criteria, such as the impact on society, ease of use, appearance and value for money.
Topic coverage		Autumn Two: How can I make a healthy salad?	Autumn Two: How can we make the best toy castle?	Summer Two: How can we transport food effectively?	Autumn Two: How did the design of the Roman shield help the Roman Army become so powerful?	Summer Two: How does seasonality effect the taste of food?	Spring Two: How can effective design contribute to survival in the Arctic?

Humankind							
Everyday products							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Share their creations, explaining the process they have used	Explore and evaluate a range of existing products. evaluate their ideas and products against design criteria		Investigate and analyse a range of existing products. 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.			
Skills	Expresses and communicates working theories, feelings and understandings using a range of art forms	Name and explore a range of everyday products and describe how they are used.	Explain how an everyday product could be improved.	Explain how an existing product benefits the user.	Investigate and identify the design features of a familiar product.		Analyse how an invention or product has significantly changed or improved people's lives.



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Knowledge	Explanation of processes used to create		Products can be improved in different ways, such as making them easier to use, more hardwearing or more attractive.	Particular products have been designed for specific tasks, such as nail clippers, the spinning top and the cool box.  The coolbox is an insulated box used to keep food or drink cool. Its invention shaped the world because it allowed people to transport food to different places without it going off.	Design features are the aspects of a product's design that the designer would like to emphasise, such as the use of a particular material or feature that makes the product easier to use or more durable.		People's lives have been improved in countless ways due to new inventions and designs. For example, the aeroplane, invented by the Wright Brothers in 1903, has made international travel far quicker than using the boat and therefore made it easier for ordinary people to explore the world.
Topic coverage			Autumn Two: How can we make the best toy castle?	Summer Two: How can we transport food effectively?	Autumn Two: How did the design of the Roman shield help the Roman Army become so powerful?		Spring Two: How can effective design contribute to survival in the Arctic?
<b>Staying Safe</b>							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function						
Skills		Follow the rules to keep safe during a practical task.	Work safely and hygienically in construction and cooking activities.	Use appliances safely with adult supervision	Work safely with everyday chemical products under supervision, such as disinfectant hand wash and surface cleaning spray.		



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knowledge		<p>Rules are made to keep people safe from danger. Safety rules include always listening carefully and following instructions, using equipment only as and when directed, wearing protective clothing if appropriate and washing hands before touching food.</p>	<p>Hygiene rules include washing hands before handling food, cleaning surfaces, tying long hair back, storing food appropriately and wiping up spills.</p>	<p>Electrical appliances must only be used under the supervision of an adult. Safety rules must also be followed when using electricity: fingers and other objects must not be put into electrical outlets, anything with a cord or plug should never be used around water and a plug should never be pulled out by its cord.</p>	<p>Chemicals are used in the home every day. They include cleaning products, such as bleach and disinfectant, but also paints, glues, oils, pesticides and medicines. Most chemical products carry a hazard symbol showing in what way the chemical could be harmful. Chemicals should only be used under adult supervision. Appropriate safety precautions, such as wearing goggles and gloves, working in a well-ventilated room, wiping up spills and tying back long hair, should be taken.</p>		
Topic coverage		Autumn Two: What do I need to make the best moon buggy?	Autumn Two: What makes a healthy lunch?	Summer Two: How can we transport food effectively?	Autumn Two: What makes a great Christmas snack?		
<b>Significance</b>							
<b>Significant people</b>							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum		Explore and evaluate a range of existing products		Understand how key events and individuals in design and technology have helped shape the world			
Skills		Describe why a product is important.	Explain why a designer of inventor is important.	Describe how key inventions in design and technology have shaped the world.	Explain how and why a significant designer or inventor shaped the world.	Describe the social influence of a significant designer or inventor.	Present a detailed account of the significance of a favourite designer or inventor.



# Design & Technology

## Essential Knowledge

Knowledge		<p>The importance of a product may be that it fulfils its goals and performs a useful purpose.</p>	<p>Many key individuals have helped to shape the world. These include engineers, scientists, designers, inventors and many other people in important roles.</p> <p>Lillian Miller Gilbreth is an important inventor because she invented things to make kitchens more hygienic and easier to work in, including the pedal bin and putting shelves in the fridge.</p>	<p>Key inventions in design and technology have changed the way people live.</p> <p>The coolbox is an insulated box used to keep food or drink cool. Its invention shaped the world because it allowed people to transport food to different places without it going off.</p>	<p>Significant designers and inventors can shape the world.</p> <p>The designer of the Roman shield helped to shape the world because their design helped the Roman Army become the most powerful in the world. The curved shape of their design meant soldiers could overlap their shields so there were no gaps and meant it was easier to deflect missiles. They also added extra strips of wood for strength.</p>	<p>Many new designs and inventions influenced society. For example, Gladys West helped to invent Global Positioning System (GPS). This invention has influenced society as people now use mapping technology on their phones to find routes and places.</p>	<p>The significance of a designer or inventor can be measured in various ways. Their work may benefit society in health, transport, communication, education, the built environment or technology.</p> <p>The Wright brothers invented and built the world's first-ever successful heavier-than-air aeroplane. They are significant inventors because their work has benefited society through the improvement in transport.</p>
Topic coverage		Autumn Two: How can I make a healthy salad?	Autumn Two: How can we make the best toy castle?	Summer Two: How can we transport food effectively?	Autumn Two: How did the design of the Roman shield help the Roman Army become so powerful?	Summer Two: What makes the best rocket launcher?	Spring Two: How can effective design contribute to survival in the Arctic?