

# Design and Technology – Progression of Knowledge and Skills

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Aspect:	Everyday Products						
Knowledge	Objects that are used at home and school and the purpose of the objects.	Everyday products are objects that are used routinely at home and school, such as a toothbrush, cup or pencil. All products are designed for a specific purpose.	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.	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.	Culture is the language, ideas, inventions and art of a group of people. A society is all the people in a community or group. Culture affects the design of some products. For example, knives and forks are used in the western world, whereas chopsticks are used mainly in China and Japan.  The design of products must take into account the culture of the target audience. For example, colours may mean different things in different cultures.	People's lives have been improved in countless ways due to new inventions and designs. For example, the Morrison shelter, designed by John Baker in 1941, was an indoor air-raid shelter used in over half a million homes during the Second World War. It saved the lives of many people caught in bombing raids.
Skills	Name a range of everyday products and describe their purpose with adult support.	Name and explore a range of everyday products and describe how these 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.	Explain how the design of a product has been influenced by the culture or society in which it	Analyse how an invention or product has significantly changed or

						was designed or made.	improved people's lives.
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Aspect:	Mechanisms						
<b>Knowledge</b>	<p>Some vehicles have wheels to enable them to move.</p> <p>Materials can be joined in different ways.</p>	<p>A wheel is a circular object that is connected to an axle that makes vehicles and machines move. An axle is a rod that is connected to the centre of a wheel, which allows it to turn. A chassis is the frame of a vehicle.</p> <p>An axle is a rod or spindle that passes through the centre of a wheel to connect two wheels.</p> <p>Most vehicles that move on land have axles and wheels that are fixed to a chassis.</p>	<p>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.</p>	<p>Lever consists 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.</p>	<p>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.</p>	<p>Pneumatic systems use energy that is stored in compressed air to do work, such as inflating a balloon to open a model monster's mouth. These effects can be achieved using syringes and plastic tubing. Hydraulic mechanisms work in a similar way, but instead of air, the system is filled with a liquid, usually water. It is important that the system is air or watertight.</p>	<p>Mechanical systems can include sliders, levers, linkages, gears, pulleys and cams. Other mechanisms include pneumatics and hydraulics.</p>
<b>Skills</b>	Join different materials and explore different textures.	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)	Use mechanical systems in their products, such as pneumatics and hydraulics.	Explain and use mechanical systems in their products to meet a design brief.

					in models or products.		
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Aspect:	Electricity						
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.
Skills					Incorporate a simple series circuit into a model.		Incorporate circuits that use a variety of components into models or products.
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Aspect:	Generation of Ideas						
Knowledge	Ideas can be communicated verbally.	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	Design criteria are the exact goals a project must achieve to be successful. These criteria might include the product's use,	Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas	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,

			communication technology.	appearance, cost and target user.	in a visual, detailed way.		including through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
<b>Skills</b>	Develop ideas and then decide which materials to use to express them.	Create a design to meet simple design criteria.	Generate and communicate their ideas through a range of different 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.
	<b>EYFS</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Aspect:</b>	<b>Structures</b>						
<b>Knowledge</b>	Different materials can be used for different purposes – boxes can be used for 3d models.	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	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	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.	Strength can be added to a framework by using multiple layers. For example, corrugated cardboard can be placed with corrugations running alternately vertically and horizontally. Triangular shapes can be used instead of square shapes

				strengthen the structure.	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).		because they are more rigid. Frameworks can be further strengthened by adding an outer cover.
<b>Skills</b>	Join different materials and explore different textures.	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.	Select the most appropriate materials and frameworks for different structures, explaining what makes them strong.
	<b>EYFS</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Aspect:</b>	<b>Investigation</b>						
<b>Knowledge</b>	Scissors are used for cutting paper and certain materials	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	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	Precision is important in producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fit together correctly.

				and working under adult supervision.		be used if they are loose or cracked.	
<b>Skills</b>	With support, select the appropriate tool for a simple practical task.	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.
	<b>EYFS</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Aspect:</b>	<b>Evaluation</b>						
<b>Knowledge</b>	There are good things and things that can be improved in a piece of work.	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.
<b>Skills</b>	Share their creations, explaining the process they have used and say what is good and what could be improved in their own work.	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	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.

					when making improvements.		
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Aspect:</b>	<b>Cutting and joining textiles</b>						
<b>Knowledge</b>	Scissors are used to cut materials. Glue can be used to join materials.	Scissors are used to cut fabrics. Glue and simple stitches, such as running stitch, can be used to join fabrics. Running stitch is made by passing a needle in and out of fabric at an even distance.	A running stitch is a basic stitch that is used to join fabric. It is made by passing a needle in and out of fabric at an even distance.		A hem runs along the edge of a piece of cloth or clothing. It is made by turning under a raw edge and sewing to give a neat and quality finish.		Pinning with dressmaker pins and tacking with quick, temporary stitches holds fabric together in preparation for and during sewing.
<b>Skills</b>	Cut and join textures using glue Develop a safe and correct method of using scissors.	Cut and join textiles using glue and simple stitches.	Use different methods of joining fabrics, including glue and running stitch.		Hand sew a hem or seam using a running stitch.		Pin and tack fabrics in preparation for sewing and more complex pattern work.
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Aspect:</b>	<b>Materials for purpose</b>						
<b>Knowledge</b>	Different materials are suitable for different purposes, wool can be used to keep us warm e.g. hats, scarf.	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	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,

					on the design criteria. Recipe ingredients have different tastes and appearances. They look and taste better and are cheaper when in season.		texture, colour, cost and availability.
<b>Skills</b>	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	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.
	<b>EYFS</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Aspect:</b>	<b>Decorating and embellishing textiles</b>						
<b>Knowledge</b>	Embellishment can be added to make something more attractive.		Embellishment is a decorative detail or feature added to something to make it more attractive.		Block printing techniques and fabric paint are used to create decorative, repeated patterns on fabrics.		Fastenings hold a piece of clothing together. Types of fastenings include zips, press studs, Velcro and buttons.
<b>Skills</b>	Add simple decorative embellishments with support such as pom poms, sequins and feathers.		add simple decorative embellishments, such as buttons, prints, sequins and appliqué.		Create detailed decorative patterns on fabric using printing techniques.		Use different methods of fastening for function and decoration, including press studs, Velcro and buttons.



	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Aspect:</b>	<b>Food prep and cooking</b>						
<b>Knowledge</b>	Using non-standard measures is a way of measuring that does not involve reading scales e.g. cups, spoons.	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.		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.	Ingredients can usually be bought at supermarkets, but specialist shops may stock different items. Greengrocers sell fruit and vegetables, butchers sell meat, fishmongers sell fresh fish and delicatessens usually sell some unusual prepared foods, as well as cold meats and cheeses.
<b>Skills</b>	With support, measure and weigh food items using non-standard measures, such as spoons and cups.	Measure and weigh food items using non-standard measures, such as spoons and cups.		Prepare and cook a simple savoury dish.	Identify and use a range of cooking techniques to prepare a simple meal or snack.	Use an increasing range of preparation and cooking techniques to cook a sweet or savoury dish.	Follow a recipe that requires a variety of techniques and source the necessary ingredients independently.
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Aspect:</b>	<b>Nutrition</b>						
<b>Knowledge</b>	Some foods are healthy, and some are unhealthy. Healthy foods help to make a balanced diet.	Fruit and vegetables are an important part of a healthy diet. It is recommended that people eat at least	A healthy diet should include meat or fish, starchy foods (such as potatoes or rice), some dairy foods, a	There are five main food groups that should be eaten regularly as part of a balanced diet: fruit and	Healthy snacks include fresh or dried fruit and vegetables, nuts and seeds, rice cakes with low-fat	A balanced diet gives your body all the nutrients it needs to function correctly. This means eating a	Eating a balanced diet is a positive lifestyle choice that should be sustained over time. Food that is high in fat,

		five portions of fruit and vegetables every day.	small amount of fat and plenty of fruit and vegetables.	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.	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.	wide variety of foods in the correct proportions.	salt or sugar can still be eaten occasionally as part of a balanced diet.
<b>Skills</b>	Identify healthy and unhealthy foods as part of teacher led activities eg healthy lunchbox.	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 daily diet, justifying why each meal contributes towards a balanced diet.
	<b>EYFS</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Aspect:</b>	<b>Origins of food</b>						
<b>Knowledge</b>	We have a range of different foods that we can eat	Some foods come from animals, such as meat, fish and dairy products. Other foods come from plants, such as fruit, vegetables,	Food comes from two main sources: animals and plants. Cows provide beef, sheep provide lamb and mutton and pigs provide pork, ham and bacon.	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	Particular areas of the world have conditions suited to growing certain crops, such as coffee in Peru and citrus fruits in California in the	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:	Organic produce is food that has been grown without the use of man-made fertilisers, pesticides, growth regulators or animal feed additives.

		grains, beans and nuts.	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.	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.	United States of America.	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 farmers use crop rotation, animal and plant manures, hand-weeding and biological pest control.
<b>Skills</b>	With support sort foods by whether they grow on a plant or if they are made/provided BY an alternative source.	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.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Aspect:</b>	<b>Compare and contrast</b>						
<b>Knowledge</b>	Sorting and grouping products. Some products look, smell, feel, sound different.	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.	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.
<b>Skills</b>	With support describe the similarities and differences between two products.	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 differences 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.
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Aspect:</b>	<b>Significant people</b>						
<b>Knowledge</b>		The importance of a product may be that it fulfils its goals and performs a useful purpose.	Many key individuals have helped to shape the world. These include engineers, scientists, designers, inventors and many other	Key inventions in design and technology have changed the way people live.	Significant designers and inventors can shape the world.	Many new designs and inventions influenced society. For example, labour-saving devices in the home reduced the amount of	The significance of a designer or inventor can be measured in various ways. Their work may benefit society in health, transport, communication,

			people in important roles.			housework, which was traditionally done by women. This enabled them to have jobs.	education, the built environment or technology. It may enhance culture in different areas, such as fashion, ceramics or computer games.
<b>Skills</b>		Describe why a product is important.	Explain why a designer or inventor is important.	Describe how key events 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.

♣ *apply their understanding of computing to program, monitor and control their products. – taught in computing*