	Whole School Progression Map of Knowledge and Skills DESIGN TECHNOLOGY										
Key threads	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6			
Human Kind Everyday products Knowledge <i>Skills</i>	AOL: Exp A&D Everyday products, such as cups, plates and spoons are designed to help us. Name and explore a range of everyday products and explore how things work.	AOL: Exp A&D Everyday products are objects that we use every day. These objects have a specific use. Name and explore a range of everyday products and begin to talk about how they are used.	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. Name and explore a range of everyday products and describe how they are used.	Products can be improved in different ways, such as making them easier to use, more hardwearing or more attractive. <i>Explain how an</i> <i>everyday product</i> <i>could be improved.</i>	specific tasks, such as nail clippers, the spinning top and the cool box.	to emphasise, such as the use of a particular material or feature that makes the product easier to use or more durable. Investigate and identify the design features of a familiar product.	Culture is the language, inventions, ideas 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 needs to take into account the culture of the target audience. For example, colours might mean very different things in different cultures. <i>Explain how the design of a product</i> <i>has been influenced by the culture</i> <i>or society in which it was designed</i> <i>or made.</i>	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. <i>Analyse how an invention or</i> <i>product has significantly changed</i>			
Staying safe	AOL: PSEDAOL: PD It is important to listen to adults and follow simple rules and procedures when using equipment and tools. Show an understanding that tools and equipment need to be used safely and collaborate with others when moving large equipment.	PD Rules keep us safe when using equipment. Safety rules include always listening carefully and following simple instructions, using equipment only for the tasks they are designed for and washing hands before touching	rules include always listening carefully and following	Hygiene rules include washing hands before handling food, cleaning surfaces, tying long hair back, storing food appropriately and wiping up spills. Work safely and hygienically in construction and cooking activities.	Visual el 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. Use appliances safely with adult supervision.	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	Safety features are often incorporated into products that might cause harm. Some examples include the child-safety caps on medicine bottles, seatbelts in cars, covers for electrical sockets and finger guards on doors. Explain the functionality and purpose of safety features on a range of products.	The safety of the user has to be taken into account when designing a new product. Methods to help keep users safe include providing clear instructions for use; clear indication of the age range for which it is designed; safety features (such as child-resistant packaging); warning symbols and electrical safety checks. Demonstrate how their products take into account the safety of the user.			

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Key threads	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
movement	move. Explore, build and play with a range of resources and construction kits with wheels.	construction kits with wheels and axles.			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. Explore and use a range of mechanisms (levers, sliders, axles, wheels and cams) in models or products.	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. <i>Explore and use a</i> range of mechanisms (levers, axles, cams, gears and pulleys) in models or products.		mechanical systems in their products to meet a design brief.
Electricity	AOL: Exp A&D Batteries power some objects. A switch turns them off and on. Explore battery-powered objects using switches to turn them off and on. <i>Identify products</i> <i>that use electricity to</i> <i>make them work and</i> <i>describe how to</i> <i>switch them on and</i> <i>off</i>	electricity to work. Appliances need to be attached to electricity through a plug and socket, or use batteries. Identify products that use electricity to make them work. <i>Create an</i>	of energy. Many household appliances use electricity, such as kettles, televisions and washing machines. They can be switched on by	as a battery or cell,	•	circuits to achieve a particular goal. These include bulbs for lighthouses and torches, buzzers for burglar alarms	Electrical circuits can be controlled by a simple on/off switch, or by a variable resistor that can adjust the size of the current in the circuit. Real-life examples are a dimmer switch for lights or volume control on a stereo. Use electrical circuits of increasing complexity in their models or products, showing an understanding of control.	switches, lamps, buzzers and motors. <i>Understand and use</i> <i>electrical circuits that incorporate</i>

			Whole	e School Progre	ession Map of K	nowledge and Skills		
				DES	IGN TECHNOLO	<u>GY</u>		
Key threads	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Creativity Generation of ideas	AOL: Exp A&D Develop their own ideas and explore a variety of resources, including blocks and construction kits to create 'small worlds' and objects linked to their interests.	Exp A&D Create collaboratively, share ideas and use a variety of resources to make products inspired by existing products, stories or their own ideas, interests or experiences.		Ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology. <i>Generate and</i> <i>communicate their</i> <i>ideas through a</i>	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. <i>Develop</i> <i>design criteria to</i> <i>inform a design</i> .	specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed	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. Use pattern pieces and computer- aided design packages to design a product.	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. <i>Develop</i> <i>design criteria for a functional and</i> <i>appealing product that is fit for</i> <i>purpose, communicating ideas</i>
Structures	AOL: Exp A&D Different materials can be used for construction. They have different properties. Make simple structures using a range of materials.	AOL: Exp A&D Different materials have different properties and can be used for different purposes. <i>Construct simple</i> <i>structures and</i> <i>models using a range</i> <i>of materials.</i>	depending on their properties. For example, cardboard is a stronger building material than paper.	rather than squares.	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	design that will look like the finished product but may not be full size or made of the	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. <i>Build a framework</i> <i>using a range of materials to</i> <i>support mechanisms</i> .	

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Key threads	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6			
			Construct simple structures, models or other products using a range of materials.	structure can be made stronger, stiffer and more	the structure. Create shell or frame structures using diagonal struts to strengthen them.	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). Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them.		frameworks for different structures, explaining what makes them strong.			
Use ICT	AOL: Exp A&D Seek support from adults to use digital devices to create a digital record of their creations.	to share information	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.	product. Advantages include identifying and solving problems before the product is	Write a program to make something move	Remote control is controlling a machine or activity from a distance. Computers can be used to remotely control a device, such as a light, speaker or buzzer. Write a program to control a physical device, such as a light, speaker or buzzer.	control panel, such as on a washing machine or microwave. <i>Link a</i> <i>physical device to a computer or</i> <i>tablet so that it can be controlled</i>	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. Use a sensor to monitor an environmental variable, such as temperature, sound or light.			
Investigation	AOL: PD Tools have different purposes. For example, scissors are used for cutting and glue is used for sticking. <i>Explore</i> <i>simple tools within</i> <i>practical tasks and</i> <i>experiment with</i> <i>joining materials.</i>	example, pencils and paper are needed for drawing pictures.		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. Select the appropriate tool for a task and explain	Specific tools can be used for cutting, eg saws. Wood can be joined using glue, nails, staples. Safety rules 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. Use tools		There are many rules for using tools safely and these may vary depending on the tools being used. For example, someone using a chise 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. Name and select increasingly appropriate tools for a task and use them safely.	producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fit together			

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Key threads	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6			
					safely for cutting and joining materials and components.						
Evaluation	AOL: Exp A&D Different aspects of designing and making can be discussed with others. Share their creations with others and respond to questions and suggestions about how it was made.	AOL: Exp A&D Recognise that it is possible to change and alter their designs and ideas as they are making them. Adapt and refine their work as they are constructing and making.	an area that could be improved. <i>Talk</i> about their own and each other's work,	they match. Improvements can then be planned. Explain how closely their finished products meet their design criteria and		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. <i>Identify what has worked well</i> <i>and what aspects of their</i> <i>products could be improved,</i> <i>acting on their own</i> <i>suggestions and those of</i> <i>others when making</i> <i>improvements.</i>	Testing a product against the design criteria will highlight anything that needs improvement or redesign. Changes are often made to a design during manufacture. <i>Test and</i> <i>evaluate products against a detailed</i> <i>design specification and make</i> <i>adaptations as they develop the</i> <i>product.</i>	meaning alterations and improvements are made continually throughout the manufacturing process.			
Materials Cutting and joining textiles			cut fabrics. Glue and simple stitches, such as running stitch, can be used to join fabrics. Running stitch is made by	basic stitch that is used to join fabric. It is made by passing a needle in and out of fabric at an even distance. <i>Use</i>	for making fabric by	is made by turning under a	A collage is artwork made by sticking materials, such as scraps of paper or fabric, onto a background. A mixed media collage is made using various materials and media, such as ink and paint. <i>Combine</i> stitches and fabrics with imagination to create a mixed media collage.	Pinning with dressmaker pins and tacking with quick, temporary stitches holds fabric together in preparation for and during sewing. Pin and tack fabrics in preparation for sewing and more complex pattern work.			
Materials for a purpose	AOL: Exp A&D Explore and choose freely from a variety of materials	AOL: Exp A&D Different materials are suitable for different purposes, such as	Different materials are suitable for different purposes,	how they can and	Materials for a specific task must be selected on the basis of their properties. These include physical	Different materials and components have a range of properties, making them suitable for different tasks. It is important to select the	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	It is important to understand the characteristics of different materials to select the most appropriate material for a purpose. This might include			

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	when making.	construction kits for modelling and ingredients for baking. Select appropriate materials when constructing and making.	suitable to be used	shiny and strong but it can be difficult to paint. <i>Choose</i> appropriate	properties as well as availability and cost. Plan which materials will be needed for a task and explain why.	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. Choose from a range of materials, showing an understanding of their different characteristics.	techniques. Select and combine materials with precision.	flexibility, waterproofing, texture, colour, cost and availability. <i>Choose the best materials for a</i> <i>task, showing an understanding of</i> <i>their working characteristics.</i>
Decorating and embellishing textiles			objects, such as	more attractive. Add simple decorative embellishments, such as buttons, prints, sequins and appliqué.	A loom weaving is a piece of fabric that has been woven on a loom by interlacing threads. An embellishment is a decorative detail or feature, such as a silk flower, tassel or bow, added to something to make it more attractive. <i>Decorate a</i> <i>loom weaving using</i> <i>embellishments, such</i> <i>as natural or silk</i> <i>flowers, tassels and</i> <i>bows.</i>	Block printing techniques and fabric paint are used to create decorative, repeated patterns on fabrics. <i>Create</i> <i>detailed decorative patterns</i> <i>on fabric using printing</i> <i>techniques</i> .	Applique is a technique where pieces of material are attached to another material by stitching or gluing. Use applique to add decoration to a product or artwork.	Fastenings hold a piece of clothing together. Types of fastenings include zips, press studs, Velcro and buttons. Use different methods of fastening for function and decoration, including press studs, Velcro and buttons.
Food preparation and cooking		AOL: Maths A recipe is set of instructions for preparing a dish and includes a list of the ingredients required. Follow instructions, including simple recipes, that include measures and ingredients.	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	need to be prepared before they can be cooked or eaten.	for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning. <i>Prepare and cook a</i> <i>simple savoury dish</i> .	and roasting. Identify and use	or spicy flavour rather than a sweet one. Use an increasing range of	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. <i>Follow</i> <i>a recipe that requires a variety of</i> <i>techniques and source the</i>

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			handspans or pencils laid end to end. Measure and weigh food items using non-standard measures, such as spoons and cups.	cheese or chocolate; chopping vegetables, such as onions and peppers and slicing foods, such as bread and apples. <i>Prepare</i> <i>ingredients by</i> <i>peeling, grating,</i> <i>chopping and slicing.</i>				necessary ingredients independently.			
Nutrition	seeds. Help to prepare a range of healthy snacks.	healthy and unhealthy foods. Fruit and vegetables are an important part of a healthy	are an important part of a healthy	as potatoes or rice), some dairy foods, a small amount of fat and plenty of fruit and vegetables. Describe the types of food needed for a healthy and varied diet and apply the	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)	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. <i>Design a</i> <i>healthy snack or packed lunch</i> <i>and explain why it is healthy.</i>	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. <i>Evaluate meals and</i> <i>consider if they contribute towards a</i> <i>balanced diet</i> .	high in fat, salt or sugar can still be eaten occasionally as part of a			
Origins of food	AOL: World Food can come from plants or animals. <i>Explore and</i> <i>try a range of foods</i> <i>and suggest where</i>	AOL: World Food comes from different sources, including from animals, such as meat, fish, eggs	Some foods come from animals, such as meat, fish and dairy products. Other foods come	Food comes from two main sources: animals and plants. Cows provide beef, sheep provide lamb	The types of food that will grow in a particular area depend on a range of factors, such as the rainfall, climate	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: the food tastes better; it is fresher	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			
		and dairy, or from	from plants, such as	and mutton and pigs	and soil type. For	United States of America.	because it hasn't been transported	crop rotation, animal and plant			

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	they come from.	plants, such as fruit and vegetables. Begin to identify the origins of some foods.	fruit, vegetables, grains, beans and nuts. Sort foods into groups by whether they are from an animal or plant source.	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. <i>Identify the origin of</i> <i>some common foods</i> ( <i>milk, eggs, some</i> <i>meats, common fruit</i> <i>and vegetables</i> ).	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. 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.	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. <i>Describe what</i> <i>seasonality means and explain some</i> of the reasons why it is beneficial.	manures, hand-weeding and biological pest control. <i>Explain how organic produce is grown</i> .			
Comparison Compare and contrast	AOL: Exp A&D Share their creations with others and begin to notice how the work of others is the same or different to their own.	A&D Aspects of designing and	at a set of criteria and scoring both products against each one. <i>Describe</i> the similarities and	compared by looking at particular characteristics of each and deciding which is better suited to the purpose. <i>Compare</i>	compared by assessing specific criteria, such as their visual impact,	A comparison table can be used to compare products by listing specific criteria on which each product can be judged or scored. <i>Create and</i> <i>complete a comparison table</i> <i>to compare two or more</i> <i>products.</i>	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. Survey users in a range of focus groups and compare results.	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. <i>Create a</i> <i>detailed comparative report about</i> <i>two or more products or</i> <i>inventions.</i>			

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		and how something was made and compare with others.		brands.							
Significant people	AOL: Exp A&D Important products are those that help people. Begin to talk about important products.	products are significant because they have changed the way people live their lives. <i>Explore</i>	product may be that it fulfils its goals and performs a useful purpose. <i>Describe</i> why a product is important.	shape the world. These include engineers, scientists, designers, inventors	design and technology have changed the way people live. <i>Describe</i>	inventors can shape the world. Explain how and why a significant designer or inventor shaped the world.	which was traditionally done by women. This enabled them to have jobs. <i>Describe the social influence of</i> <i>a significant designer or inventor</i> .	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. It may enhance culture in different areas, such as fashion, ceramics or computer games. Present a detailed account of the significance of a favourite designer or inventor.			