



Cornerstones

Big Idea	Concept / Aspect	EYFS – Eagle Owls	EYFS – Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Human Kind	Everyday products	Skill: Name and explore a range of everyday products and explore how things work.	Skill: Name and explore a range of everyday products and begin to talk about how they are used.	Skill: Name and explore a range of everyday products and describe how they are used.	Skill: Explain how an everyday product could be improved.	Skill: Explain how an existing product benefits the user.	Skill: Investigate and identify the design features of an existing product.	Skill: Explain how the design of a product has been influenced by the culture in which it was designed or made.	Skill: Analyse how an invention or product has significantly changed or improved people's lives.

		<p>Knowledge: Some books have moving parts.</p>	<p>Knowledge: Everyday products are objects that we use every day. These objects have a specific use.</p>	<p>Knowledge: An axle is a rod that is connected to the centre of a wheel, which allows it to turn.</p> <p>A chassis is the frame of a vehicle.</p> <p>A shelter is a structure designed to give protection from weather or danger.</p>	<p>Knowledge: There are many home products made from fabric.</p> <p>Examples of fabric based products in the home include cushions, curtains, blinds and carpets.</p>	<p>Knowledge: Particular products are designed for specific tasks. For example designing a product to help grow plants will require certain materials.</p>	<p>Knowledge: A switch makes or breaks a circuit</p> <p>When a switch is closed or 'on', the circuit is complete.</p> <p>When a switch is open or 'off', the circuit is incomplete.</p> <p>A programmable device is a machine that is provided with coded instructions for the automatic performance of a task.</p> <p>Design features are the aspects of a product's design that the designer would like to emphasise. For example, the use of a particular material or a feature that makes the product durable.</p>	<p>Knowledge: The design of products needs to take into account the culture of the target audience.</p> <p>The ancient Greeks developed the Classical form of architecture that has been copied for thousands of years.</p>	<p>Knowledge: Make Do and Mend was a campaign run by the Ministry of Information during the Second World War to encourage people to recycle and repurpose their old clothes rather than buy new.</p> <p>The Make Do and Mend campaigns aimed to limit the amount of labour and materials used in clothes production, so that it could be used to support the greater war effort.</p> <p>A processed food is changed during preparation and includes processes, such as cooking, freezing, pasteurising, or the addition of ingredients.</p>
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									<p>Processed foods can be convenient and increase availability, but often lack of nutrients and contain unhealthy ingredients when compared to whole foods.</p> <p>Sliced bread is processed. It can contain many more ingredients than homemade bread, including preservatives and artificial ingredients. Bridge structures have changed over time. This is due to factors such as technology, design innovation and new and better access to materials.</p>
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	Staying safe		Skill: Follow rules and instructions to keep safe	Skill: Follow the rules to keep safe during a practical task.	Skill: Work safely and hygienically in cooking and construction activities.	Skill: Use appliances safely with adult supervision.	Skill: Work safely with everyday chemical products under supervision such as disinfectant hand wash and surface cleaning spray.	Skill: Explain the functionality and purpose of safety features on a range of products	Skill: Demonstrate how their products take into account the safety of the user.
			Knowledge: Rules keep us safe when using equipment.	Knowledge: Rules are made to keep people safe from danger. Safety rules include always listening carefully, following instructions and using equipment only when told to.	Knowledge: Hygiene rules include washing hands before handling food, cleaning surfaces, tying long hair back, storing food appropriately and wiping up spills.	Knowledge: Safety rules must 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.	Knowledge: 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. Chemicals should only be used under adult supervision.	Knowledge: 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.	Knowledge: The safety of the user has to be taken into account when designing a new product.
Processes	Mechanisms and movement	Skill: Explore, build and play with a range of resources and construction kits with wheels.	Skill: Explore, build and play with a range of resources and construction kits with wheels and axles.	Skill: Use wheels and axles to make a simple moving model.		Skill: Explore and use a range of mechanisms (levers, sliders, axles, wheels and cams) in models or products.	Skill: Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products.	Skill: Use mechanical systems in their products, such as pneumatics.	Skill: Explain and use mechanical systems in their products to meet a design brief.

		<p>Knowledge: Lots of vehicles have wheels to help them move.</p>	<p>Knowledge: Wheels help vehicles move.</p> <p>An axle is a rod that goes through the middle of the wheel to help it stay in place.</p> <p>Vehicles have wheels and axles to help them move.</p>	<p>Knowledge: Most vehicles that move on land have axles and wheels that are fixed to a chassis.</p> <p>An axle fixed to a chassis has freely moving wheels.</p> <p>A freely moving axle has fixed wheels.</p>		<p>Knowledge: Cams are devices that can convert circular motion into up-and-down motion.</p> <p>The cam is fixed to the axle and the follower sits on the cam. When the axle is rotated, the follower moves up and down, following the shape of the cam.</p> <p>Different shaped cams produce different patterns of movement in the follower.</p>	<p>Knowledge: Simple machines make physical jobs easier by changing the strength or direction of a force.</p> <p>There are six simple machines: pulley, lever, wheel and axle, wedge, inclined plane and screw.</p> <p>Simple machines can be combined to make complex, compound machines. For example, a wheelbarrow combines a lever with a wheel and axle.</p>	<p>Knowledge: A pneumatic system uses compressed air to exert a force.</p> <p>Pneumatic systems can be used to lift heavy loads, raise and lower platforms or soften a force by acting as a shock absorber.</p>	<p>Knowledge: ???</p>
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Creativity	Generation of ideas	Skill: 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.	Skill: 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.	Skill: Create a design to meet simple design criteria.	Skill: Generate and communicate their ideas through a range of different methods.	Skill: Develop design criteria to inform a design.	Skill: Use annotated sketches and exploded diagrams to test and communicate their ideas.	Skill: Use pattern pieces and computer-aided design packages to design a product.	Skill: Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways.
				Knowledge: A product or project is usually guided by a set of design criteria. The project or product must meet the design criteria to be successful.	Knowledge: Ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology.	Knowledge: 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.	Knowledge: Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way.	Knowledge: Computer-aided design (CAD) is the use of specialised computer software to design objects. CAD designs can also be made into objects using 3-D printers.	Knowledge: 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.
	Structures	Skill: Make simple structures using a range of materials.	Skill: Construct simple structures and models using a range of materials.	Skill: Construct simple structures, models or other products using a range of materials.	Skill: Explore how a structure can be made stronger, stiffer and more stable.	Skill: Create shell or frame structures using diagonal struts to strengthen them.	Skill: Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them.	Skill: Build a framework using a range of materials to support mechanisms.	Skill: Select the most appropriate materials and frameworks for different structures, explaining what makes them strong.

		<p>Knowledge: A bridge is a structure that crosses a space.</p>	<p>Knowledge: A bridge is a structure that allows people and vehicles to cross over an open space.</p> <p>There are lots of different types of puppets. Some puppets have moving parts.</p> <p>There are lots of different types of puppets including finger puppets.</p>	<p>Knowledge: Different materials can be used for different purposes, depending on their properties.</p>	<p>Knowledge: Structures can be made stronger, stiffer and more stable by using cardboard rather than paper and triangular shapes rather than squares.</p>	<p>Knowledge: Diagonal struts create triangular shapes within a frame structure.</p> <p>Adding diagonal struts to a frame structure adds strength and stability.</p>	<p>Knowledge: 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.</p>	<p>Knowledge: Support, stiffness and stability can be created by using triangular shapes to create strong frameworks, columns to support roofs and overlapping brickwork patterns. Mechanisms and systems can work together to perform a function.</p> <p>A strong and stable structure is necessary to support mechanisms in a machine.</p>	<p>Knowledge: Strength can be added to a framework by using multiple layers or changing its shape. Triangles do not collapse or distort easily and so are used in architecture to provide support and stability.</p>
Investigation	Investigation		<p>Skill: Choose and explore appropriate tools for simple practical tasks.</p>		<p>Skill: Select the appropriate tool for a task and explain their choice.</p>	<p>Skill: Use tools safely for cutting and joining materials and components.</p>	<p>Skill: Select, name and use tools with adult supervision.</p>	<p>Skill: Name and select increasingly appropriate tools for a task and use them safely.</p>	<p>Skill: Select appropriate tools for a task and use them safely and precisely.</p>
			<p>Knowledge: There are different ways to join</p>		<p>Knowledge: Tools have characteristics that make them suitable for</p>	<p>Knowledge: Specific tools can be used for cutting, such as saws. Wood</p>	<p>Knowledge: Useful tools for cutting include scissors, craft knives, junior</p>	<p>Knowledge: There are many rules for using tools safely and</p>	<p>Knowledge: Deconstructing garments identifies how they were</p>

			<p>materials together.</p> <p>Sewing is stitching things using a needle and thread.</p>		<p>specific purposes. For example, a knife is good for cutting food because it has a sharp metal edge.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>made, the materials used and their properties.</p> <p>Hand stitches include running stitch, blanket stitch and whip stitch.</p>
	Evaluation	<p>Skill: Share their creations with others and respond to questions and suggestions about how it was made.</p>	<p>Skill: Adapt and refine their work as they are constructing and making.</p>	<p>Skill: Talk about their own and each other's work, identifying strengths or weaknesses and offering support.</p>	<p>Skill: Explain how closely their finished products meet their design criteria and say what they could do better in the future.</p>	<p>Skill: Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.</p>	<p>Skill: 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.</p>	<p>Skill: Test and evaluate products against a detailed design specification and make adaptations as they develop the product.</p>	<p>Skill: Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others.</p>
		<p>Knowledge: Different aspects of designing and making can be discussed with others.</p>	<p>Knowledge: Recognise that it is possible to change and alter their designs and ideas as they</p>	<p>Knowledge: A strength is something that is good about a piece of work.</p>	<p>Knowledge: A finished product can be checked against design criteria to see how successfully it has been made</p>	<p>Knowledge: Asking questions can help others to evaluate their products. For example, asking someone</p>	<p>Knowledge: Evaluation can be done by considering whether the product does what it was designed to do,</p>	<p>Knowledge: Testing a product against the design criteria will highlight anything that needs</p>	<p>Knowledge: An iterative process starts with requirements and continues by creating a product, testing</p>

			are making them.	A weakness is an area that could be improved.	or to evaluate how well it works. Improvements can then be planned.	whether the materials selected helped achieve the purpose of the model.	whether it has an attractive appearance, what changes were made during the making process and why the changes were made. The evaluation process can include suggesting improvements and explaining why they should be made.	improvement or redesign.	it, and revising it before creating a better version. The iterative process is a series of steps that are repeated, improving the product with each cycle.
Materials	Cutting and joining textiles				Skill: Use different methods of joining fabrics, including glue and running stitch.	Skill: Cut and join wools, threads and other materials to a loom.	Skill: Hand sew a hem or seam using a running stitch.		Skill: Pin and tack fabrics in preparation for sewing and more complex pattern work.
					Knowledge: A running stitch is a basic stitch used to join two pieces of fabric.	Knowledge: Weaving involves interlacing pieces of thread or yarn or other materials.	Knowledge: 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.		Knowledge: Pinning with dressmaker pins and tacking with quick, temporary stitches holds fabric together in preparation for and during sewing.
	Materials for purpose		Skill: Select appropriate	Skill: Select and use a range of	Skill: Choose appropriate	Skill: Plan which materials will	Skill: Choose from a range of	Skill: Select and combine	Skill: Choose the best materials

			materials when constructing and making.	materials, beginning to explain their choices.	components and materials and suggest ways of manipulating them to achieve the desired effect.	be needed for a task and explain why.	materials, showing an understanding of their different characteristics.	materials with precision.	for a task, showing an understanding of their working characteristics.
			Knowledge: Different materials are suitable for different purposes, such as construction kits for modelling and ingredients for baking.	Knowledge: 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.	Knowledge: Properties of components and materials determine how they can and cannot be used.	Knowledge: Materials for a specific task must be selected on the basis of their properties. For example greenhouses need transparent or translucent materials. Availability and cost have also got to be considered.	Knowledge: Characteristics of materials, such as rigidity, strength and smoothness will affect the success of a working model. Visual qualities of a yarn can include its colour, elasticity, pattern and texture. Fabrics can be natural or synthetic. Natural fabrics include cotton, silk and wool. Synthetic fabrics include Lycra, polyester and nylon.	Knowledge: 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.	Knowledge: 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.
	Decorating and embellishing textiles						Skill: Create detailed decorative patterns on fabric using		Skill: Use different methods of fastening for function and decoration,

							printing techniques.		including press studs, Velcro and buttons.
							Knowledge: Block printing and fabric paint are used to create decorative, repeated patterns on fabrics.		Knowledge: Fastenings hold a piece of clothing together. Types of fastenings include zips, press studs, Velcro and buttons.
Nature	Food preparation and cooking		Skill: Follow instructions, including simple recipes, that include measures and ingredients.		Skill: Prepare ingredients by peeling, grating, chopping and slicing.	Skill: Prepare and cook a simple savoury dish.	Skill: Identify and use a range of cooking techniques to prepare a simple meal or snack.	Skill: Use an increasing range of preparation and cooking techniques to cook a sweet or savoury dish.	Skill: Follow a recipe that requires a variety of techniques and source the necessary ingredients independently.
			Knowledge: When people celebrate they sometimes eat special food. A recipe is a set of instructions that tells us how to make food.		Knowledge: 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	Knowledge: Preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning.	Knowledge: Cooking techniques include baking, boiling, frying, grilling and roasting.	Knowledge: 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.	Knowledge: Ingredients can usually be bought at supermarkets, but specialist shops may stock different items such as specialist vegetables or coffees. Greengrocers sell fruit and vegetables, butchers sell meat, fishmongers

					or chocolate; chopping vegetables, such as onions and peppers and slicing foods, such as bread and apples.				sell fresh fish and delicatessens usually sell some unusual prepared foods, as well as cold meats and cheeses.
	Nutrition		Skill: Suggest healthy ingredients that can be used to make simple snacks.		Skill: Describe the types of food needed for a healthy and varied diet and apply the principles to make a simple, healthy meal.	Skill: Identify the main food groups (carbohydrates, protein, dairy, fruits and vegetables, fats and sugars).	Skill: Design a healthy snack or packed lunch and explain why it is healthy.	Skill: Evaluate meals and consider if they contribute towards a balanced diet.	Skill: Plan a healthy daily diet, justifying why each meal contributes towards a balanced diet.
			<p>Knowledge: Fruit and vegetables are healthy foods.</p> <p>We need to eat at least five portions of fruit and vegetables a day.</p> <p>Heating food can change its appearance, taste, texture and colour. Fruit and vegetables are healthy food.</p>		<p>Knowledge: 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.</p>	<p>Knowledge: There are five main food groups: 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).</p> <p>Foods high in fat, salt and sugar should only be eaten</p>	<p>Knowledge: Foods need packaging to keep them fresh, safe to eat and free from damage.</p> <p>Food packaging also provides nutritional information about the food inside.</p>	<p>Knowledge: 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.</p>	<p>Knowledge: Eating a balanced diet is a positive lifestyle choice that should be sustained over time.</p> <p>Food packaging provides important nutritional information about the food inside.</p>

						occasionally as part of a healthy, balanced diet.			
	Origins of food	Skill: Explore and try a range of foods.	Skill: Begin to identify the origins of some foods.		Skill: Identify the origin of some common foods (milk, eggs, some meats, common fruit and vegetables).	Skill: Identify and name foods that are produced in different places.	Skill: Identify and name foods that are produced in different places in the UK and beyond.	Skill: Describe what seasonality means and explain some of the reasons why it is beneficial.	Skill: Explain how organic produce is grown.
		Knowledge: A recipe is a set of instructions that tells us how to make food.	Knowledge: Food can be from plants such as fruit, vegetables, nuts and seeds. Animals provide meat and also produce food such as milk, eggs and honey.		Knowledge: Food comes from two main sources: animals and plants. Milk comes mainly from cows but also from goats and sheep. Eggs belong to the animal product category. They are laid by female animals. The most common types eaten by humans include chicken and duck eggs.	Knowledge: 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.	Knowledge: Particular areas of the world have conditions suited to growing certain crops, such as coffee in Peru and citrus fruits in California in the United States of America.	Knowledge: Buying seasonal food is beneficial for many reasons. These include the food having higher nutritional value, reducing transportation and supporting local growers. Seasonality is the time of year when the harvest or flavour of a type of food is at its best.	Knowledge: Whole foods have not been changed from their natural form. Organic whole foods are grown without the use of man-made fertilisers, pesticides, growth regulators or animal feed additives.

					<p>Honey is made by bees.</p> <p>Most edible oils are made from plant parts.</p> <p>Olive oil, vegetable oil and coconut oil are all made from plant sources.</p> <p>Sugar is made from plants called sugar cane and sugar beet.</p> <p>Plants also give us nuts, such as almonds, walnuts and hazelnuts.</p>				
Comparison	Compare and contrast		Skill: Describe what, why and how something was made and compare with others.	Skill: Describe the similarities and differences between two products.		Skill: Explain the similarities and difference between the work of two designers.	Skill: Create and complete a comparison table to compare two or more products.	Skill: Survey users in a range of focus groups and compare results.	Skill: Create a detailed comparative report about two or more products or inventions.
			Knowledge: Aspects of designing and making can be compared with others, including inspiration for	Knowledge: Two products can be compared by looking at a set of criteria and scoring both products		Knowledge: Work from different designers can be compared by assessing specific criteria, such as their	Knowledge: A comparison table is an organised way to compare products.	Knowledge: Evaluations can be made by asking product users a selection of questions to obtain data on	Knowledge: Products and inventions can be compared using a range of criteria, such as the impact on society, ease of

			making a product and the tools and techniques used.	against each one.		visual impact, fitness for purpose and target market.		how the product has met its design criteria.	use, appearance and value for money.
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