

DT Curriculum Threads

	Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Design criteria are the explicit goals that a project must achieve. PCW DT1/2/3 Sup.DT2 Create a design to meet simple design criteria. 	<ul style="list-style-type: none"> Ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology. SD DT3 Generate and communicate their ideas through a range of different methods. 	<ul style="list-style-type: none"> 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. IT DT1 Develop design criteria to inform a design. 	<ul style="list-style-type: none"> Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way. T&R DT2 Use annotated sketches and exploded diagrams to test and communicate their ideas. 	<ul style="list-style-type: none"> 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. SM DT1 Use pattern pieces and computer-aided design packages to design a product. 	<ul style="list-style-type: none"> 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. BH DT1 TW DT Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways.

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Make		<ul style="list-style-type: none"> 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. MB DT2 EW DT1/2 Select and use a range of materials, beginning to explain their choices. MB DT2 Specific tools are used for particular purposes. For example, scissors are used for cutting and glue is used for sticking. 	<ul style="list-style-type: none"> 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. Bea DT1 Select the appropriate tool for a task and explain their choice. 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. Bea DT1 TTT DT1 Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect. 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 grating hard ingredients, chopping vegetables, and slicing foods. SD DT2 W&C DT1 Prepare ingredients by peeling, grating, chopping and slicing. 	<ul style="list-style-type: none"> 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. G&M DT1/2/3 Use tools safely for cutting and joining materials and components. Materials for a specific task must be selected on the basis of their properties. These include physical properties as well as availability and cost. G&M DT1/2/3 Plan which materials will be needed for a task and explain why. 	<ul style="list-style-type: none"> 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. War DT 1 Pl DT3.1 Choose from a range of materials, showing an understanding of their different characteristics. 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. War DT1 Select, name and use tools with adult supervision. 	<ul style="list-style-type: none"> 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. Ph DT2 St DT1 Select and combine materials with precision. 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. Ph DT2 St DT1 Name and select increasingly appropriate tools for a task and use them safely. 	<ul style="list-style-type: none"> 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. CW DT3 HM DT5 Choose the best materials for a task, showing an understanding of their working characteristics. Precision is important in producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fit together correctly. CW DT3 Select appropriate tools for a task and use them safely and precisely.

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Evaluate	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> A strength is a good quality of a piece of work. A weakness is an area that could be improved. PCW DT1/2/3 Talk about their own and each other's work, identifying strengths or weaknesses and offering support. 	<ul style="list-style-type: none"> Finished products can be compared with design criteria to see how closely they match. Improvements can then be planned. TTT DT1/2 Explain how closely their finished products meet their design criteria and say what they could do better in the future. 	<ul style="list-style-type: none"> Asking questions can help others to evaluate their products, such as asking them whether the selected materials achieved the purpose of the model. TT DT1 Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account. 	<ul style="list-style-type: none"> Particular products have been designed for specific tasks, such as nail clippers, the spinning top and the cool box. PI DT1/2 Explain how an existing product benefits the user. A comparison table can be used to compare products by listing specific criteria on which each product can be judged or scored. BBB DT2 Create and complete a comparison table to compare two or more products. 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. PI DT1/2 Investigate and identify the design features of a familiar product. 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. PI DT3 2 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. 	<ul style="list-style-type: none"> Testing a product against the design criteria will highlight anything that needs improvement or redesign. Changes are often made to a design during manufacture. St DT1 Test and evaluate products against a detailed design specification and make adaptations as they develop the product. 	<ul style="list-style-type: none"> 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. TW DT2/4 Analyse how an invention or product has significantly changed or improved people's lives. 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. TW DT5 Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others. 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. TW DT1 Present a detailed account of the significance of a favourite designer or inventor.

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Technical Knowledge	<ul style="list-style-type: none"> • 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. MB DT2 EW DT1/2 • Construct simple structures, models or other products using a range of materials. 	<ul style="list-style-type: none"> • 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. MB DT2 EW DT1/2 • Construct simple structures, models or other products using a range of materials. 	<ul style="list-style-type: none"> • An axle is a rod or spindle that passes through the centre of a wheel to connect two wheels. LA DT1 • Use wheels and axles to make a simple moving model. • 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. LA DT1 • Use a range of mechanisms (levers, sliders, wheels and axles) in models or products. • 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. TTT DT3/4 • Explore how a structure can be made stronger, stiffer and more stable. 	<ul style="list-style-type: none"> • 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. FI DT1 • Explore and use a range of mechanisms (levers, sliders, axles, wheels and cams) in models or products. 	<ul style="list-style-type: none"> • 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). T&R DT2 • Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them. 	<ul style="list-style-type: none"> • 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. SM DT3 • Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products. • 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. SM DT3 • Use mechanical systems in their products, such as pneumatics. • 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. AI DT1 • Use electrical circuits of increasing complexity in their models or products, showing an understanding of control. • Equipment and devices can be controlled by pressing buttons on a control panel, such as on a washing machine or microwave. SM DT2 • 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. 	<ul style="list-style-type: none"> • 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 because they are more rigid. Frameworks can be further strengthened by adding an outer cover. CW DT2 • Select the most appropriate materials and frameworks for different structures, explaining what makes them strong. • 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. TW DT3 • Use a sensor to monitor an environmental variable, such as temperature, sound or light.

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Cooking and Nutrition	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 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. BLBC DT2 Measure and weigh food items using non-standard measures, such as spoons and cups. 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. MB DT1 DT1 Sup Select healthy ingredients for a fruit or vegetable salad. 	<ul style="list-style-type: none"> 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. W&C DT2 Prepare ingredients by peeling, grating, chopping and slicing. 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. MMM DT3 Describe the types of food needed for a healthy and varied diet and apply the principles to make a simple, healthy meal. 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. MMM DT2 Identify the origin of some common foods (milk, eggs, some meats, common fruit and vegetables). 		<ul style="list-style-type: none"> Cooking techniques include baking, boiling, frying, grilling and roasting. USA DT1 Identify and use a range of cooking techniques to prepare a simple meal or snack. 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. BBB DT1 Identify the main food groups (carbohydrates, protein, dairy, fruits and vegetables, fats and sugars). 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. BBB DT1 Design a healthy snack or packed lunch and explain why it is healthy. 	<ul style="list-style-type: none"> 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. AI DT5 Evaluate meals and consider if they contribute towards a balanced diet. 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. AI DT1 Use an increasing range of preparation and cooking techniques to cook a sweet or savoury dish. 	<ul style="list-style-type: none"> 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. CW DT1 BH DT2 Follow a recipe that requires a variety of techniques and source the necessary ingredients independently. 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. HM DT4 Plan a healthy daily diet, justifying why each meal contributes towards a balanced diet.

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Seasonality				<ul style="list-style-type: none"> 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. UP DT1 Identify and name foods that are produced in different places. 	<ul style="list-style-type: none"> 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. USA G4/DT1 Identify and name foods that are produced in different places in the UK and beyond. 	<ul style="list-style-type: none"> 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. A1DT3 Describe what seasonality means and explain some of the reasons why it is beneficial. 	