	Year 1 D&T
Theme	Structures
Project	Shade and Shelter
Main D&T	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.
Knowledge and Skills	Construct simple structures, models or other products using a range of materials.
Materials	Junk modelling, fabrics, Examples of real materials, including glass, wood, plastic, stone, clay, metal and fabrics (including oilcloth and nylon)
Theme	Mechanisms
Project	Taxi
Main D&T	An axle is a rod or spindle that passes through the centre of a wheel to connect two wheels. 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.
Knowledge and Skills	Use wheels and axles to make a simple moving model. Create a design to meet simple design criteria.
Materials	Small cardboard boxes Wooden clothes pegs Wheels Thin dowel rods Small elastic bands Masking tape, Cardboard tabs, Metal or plastic washer, Craft materials
Theme	Cooking and Nutrition
Project	Chop, Slice, Mash
Main D&T	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 Some foods need to be prepared before eating. Peeling, slicing, chopping, grating, tearing or mashing are different methods of preparing foods Good hygiene, hand washing prevents the spread of germs
Knowledge and Skills	Measure and weigh food items using non-standard measures such as spoons and cups. Select healthy ingredients for a fruit/vegetable salad. Sort foods into groups by whether they are an animal or a plant. Create a design to meet simple design criteria Talk about their own and each other's work, identifying strengths or weaknesses and offering support
Materials	• Variety of fruits and vegetables • Pre packed sandwiches

	Year 2 D&T
Theme	Textiles
Project	Cut, Stitch Join
Main D&T	A running stitch is a basic stitch used to join two pieces of fabric. It is made by passing a needle in and out of fabric at an even distance. Embellishment is a decorative detail or feature added to something to make it more attractive Finished products can be compared with design criteria to see how closely they match. Improvements can then be planned.
Knowledge and Skills	Select the appropriate tool for a task and explain their choice. Use different methods of joining fabrics, including glue and running stitch. Add simple decorative embellishments, such as buttons, prints or sequins to a functional product. Generate and communicate their ideas through a range of different methods. Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect Explain how closely their finished products meet their design criteria and say what they could do better in the future
Materials	Ribbon/string, Binca or aida fabric, Sewing thread, Cotton squares, Sequins, Buttons with large holes, Pattern pieces, Felt
Theme	Structures
Project	Beach Hut
Main D&T	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
Knowledge and Skills	Explore how a structure can be made stronger, stiffer and more stable. Explore/practise strengthening, scoring and joining techniques
Materials	Wooden dowel / strip wood Cardboard
Theme	Year 2
Project	Cooking and Nutrition
Main D&T	Remarkable Recipes
Knowledge and Skills	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. Honey is made by bees. Most edible oils are made from plant parts. Olive oil, vegetable oil and coconut oil are all made from plant sources. Sugar is made from plants called sugar cane and sugar beet. Plants also give us nuts, such as almonds, walnuts and hazelnuts Tools have characteristics that make them suitable for specific purposes. For example, a knife is good for cutting food because it has a sharp metal edge Hygiene rules include washing hands before handling food, cleaning surfaces, tying long hair back, storing food appropriately and wiping up spills 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
Materials	Identify the origin of some common foods (milk, eggs, some meats, common fruit and vegetables Select the appropriate tool for a task and explain their choice. Prepare ingredients by peeling, grating, chopping and slicing Work safely and hygienically in cooking activities Describe the types of food needed for a healthy and varied diet and apply the principles to make a simple, healthy meal.

	Year 3 D&T
Theme	Structures
Project	Green House
Main D&T	Diagonal struts create triangular shapes within a frame structure. Adding diagonal struts to a frame structure adds strength and stability. Materials for a specific task must be selected on the basis of their properties. For example greenhouses need transparent or translucent materials. Design criteria are the exact goals a project must achieve to be successful.Asking questions can help others to evaluate their products. For example, asking someone whether the materials selected helped achieve the purpose of the model.
Knowledge and Skills	Create shell or frame structures using diagonal struts to strengthen them. Use tools safely for cutting and joining materials and components (Hot Glue Gun) Plan which materials will be needed for a task and explain why. Develop design criteria to inform a design.Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.
Materials	Strip wood / Card / Plastics
Theme	Mechanisms
Project	Making it Move (Cams)
Main D&T	Cams are devices that can convert circular motion into up-and-down motion 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. Different shaped cams produce different patterns of movement in the follower 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 use
Knowledge and Skills	Explore and use a range of mechanisms (wheels and cams) in models or products Develop design criteria to inform a design. Plan which materials will be needed for a task and explain why. Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account. Use tools safely for cutting and joining materials and components. Make working models with simple mechanisms. Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.
Materials	Wooden dowel, wooden skewers, cardboard boxes, corrugated card, pipe cleaners, small cardboard boxes
Theme	Cooking and Nutrition
Project	Cook well, eat well
Main D&T	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). Foods high in fat, salt and sugar should only be eaten occasionally as part of a healthy, balanced diet. Humans get nutrition from what they eat. It is important to have a balanced diet made up of the main food groups, including: proteins, carbohydrates, fruit and vegetables, dairy products and alternatives, and fats and spreads. Humans stay hydrated by drinking water 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. Preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning 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 and Skills	Identify the main food groups (carbohydrates, protein, dairy, fruits and vegetables, fats and sugars). Explain the importance and characteristics of a healthy, balanced diet Identify and name foods that are produced in different places Develop design criteria to inform a design Use appliances safely with adult supervision. Prepare and cook a simple savoury dish Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account
Materials	Food items, including fruit and vegetables

	Year 4 D&T
Theme	Textiles
Project	Functional and Fancy Fabrics
Main D&T	A comparison table is an organised way to compare products. Fabrics can be natural or synthetic. Natural fabrics include cotton, silk and wool. Synthetic fabrics include Lycra, polyester and nylon 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. William Morris was a British textile designer, artist and socialist activist associated with the British Arts and Crafts Movement. William Morris was a significant contributor to the revival of traditional British textile arts and methods of production. William Morris' motifs consisted mainly of leaves, flowers, fruits and birds. A motif is a recurring shape in a design or pattern. Motifs can be figurative, vegetal, abstract or geometric. Block printing and fabric paint are used to create decorative, repeated patterns on fabrics. Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way 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.
Knowledge and Skills	Create and complete a comparison table to compare two or more products. Choose from a range of materials, showing an understanding of their different characteristics. Investigate and identify the design features of a familiar product. Explain how and why a significant designer or inventor shaped the world. Combine a variety of printmaking techniques and materials to create a print on a theme. Create detailed decorative patterns on fabric using printing techniques. Use annotated sketches and exploded diagrams to test and communicate their ideas. Select, name and use tools with adult supervision. 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.
Materials	Swatches of fabrics, natural and man made Cushion covers, oven gloves, lamp shades.
Theme	Mechanisms
Project	Tomb builders
Main D&T	Simple machines make physical jobs easier by changing the strength or direction of a force. There are six simple machines: pulley, lever, wheel and axle, wedge, inclined plane and screw. Simple machines can be combined to make complex, compound machines. For example, a wheelbarrow combines a lever with a wheel and axle. Characteristics of materials, such as rigidity, strength and smoothness will affect the success of a working 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.
Knowledge and Skills	Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products. Choose from a range of materials, showing an understanding of their different characteristics. 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.
Materials	Range of junk modelling materials Cardboard Dowel rods Wheels Bottle tops String
Through Science:	Making a torch/ night light Knowledge and Skills Incorporate circuits that use a variety of components into model or product
Theme	Cooking and Nutrition
Project	Fresh Food, Good Food
Main D&T	Food deteriorates due to the growth of microorganisms. Significant scientists such as Louis Pasteur and inventors such as Nicolas Appert have ensured decay can be prevented or delayed by preservation methods, such as drying, salting, pickling, canning, pasteurising, refrigerating or freezing the food. The 'use by' date shows when the food is no longer safe to eat. The 'best before' date shows the date after which the food will lose some flavour or texture. 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. 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. Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way. A 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. Cooking techniques include baking, boiling, frying, grilling and roasting. Foods need packaging to keep them fresh, safe to eat and free from damage. Food packaging also provides nutritional information about the food inside. The evaluation process can include suggesting improvements and explaining why they should be made.
Knowledge and Skills	Explain how and why a significant designer or inventor shaped the world Investigate and identify the design features of a familiar product. Identify and name foods that are produced in different places in the UK and beyond. Use annotated sketches and exploded diagrams to test and communicate their ideas. Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them. Identify and use a range of cooking techniques to prepare a simple meal or snack. (peel,tear,,slice,chop,mash,grate) Design a healthy snack or packed lunch and explain why it is healthy. Work safely with everyday chemical products under supervision, such as disinfectant hand wash and surface cleaning spray 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.
Materials	Cardboard packaging Fresh foods

	Year 5 D&T
Theme	Structures
Project	Architecture
Main D&T	Architecture is defined by different styles often linked to particular periods of time. Each period uses visual elements to create its own style. The ancient Greeks developed the Classical form of architecture that has been copied for thousands of years. Support, stiffness and stability can be created by using triangular shapes to create strong frameworks, columns to support roofs and overlapping brickwork patterns. 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 Testing a product against the design criteria will highlight anything that needs improvement or redesign
Knowledge and Skills	Explain how the design of a product has been influenced by the culture or society in which it was designed or made Build a framework using a range of materials to support mechanisms. Use pattern pieces and computer-aided design packages to design a product Select and combine materials with precision. Test and evaluate products against a detailed design specification and make adaptations as they develop the product
Materials	Range of construction materials, including drinking straws, string, sticky tack, A4 paper, sticky tape and stiff Perspex
Theme	Mechanisms
Project	Moving Mechanisms
Main D&T	A pneumatic system uses compressed air to exert a force. Testing a product against the design criteria will highlight anything that needs improvement or redesign Mechanisms and systems can work together to perform a function. A strong and stable structure is necessary to support mechanisms in a machine. Pneumatic systems can be used to lift heavy loads, raise and lower platforms or soften a force by acting as a shock absorber. Evaluations can be made by asking product users a selection of questions to obtain data on how the product has met its design criteria.
Knowledge and Skills	Use mechanical systems in their products, such as pneumatics. Build a framework using a range of materials to support mechanisms. Name and select increasingly appropriate tools for a task and use them safely Test and evaluate products against a detailed design specification and make adaptations as they develop the product Survey users in a range of focus groups and compare results
Materials	Lollipop sticks Pipe cleaners Junk modelling materials Balloons
Theme	Cooking and Nutrition
Project	Eat the seasons
Main D&T	Seasonality is the time of year when the harvest or flavour of a type of food is at its best 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 Savoury dishes usually have a salty or spicy flavour rather than a sweet one.
Knowledge and Skills	Describe what seasonality means and explain some of the reasons why it is beneficial. Evaluate meals and consider if they contribute towards a balanced diet. Use an increasing range of preparation and cooking techniques to cook a savoury dish.(Dice, peel, grate)
Materials	Ingredients and equipment for making soup, including UK grown, seasonal produce

	Year 6 D&T
Theme	Textiles
Project	Make do and Mend
Main D&T	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. Hand stitches include running stitch, blanket stitch and whip stitch. 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
Knowledge and Skills	Analyse how an invention or product has significantly changed or improved people's lives. Select appropriate tools for a task and use them safely and precisely. Choose the best materials for a task, showing an understanding of their working characteristics. Pin and tack fabrics in preparation for sewing and more complex pattern work. Use different methods of fastening for function and decoration, including press studs, Velcro and buttons Combine stitches and fabric with imagination Create a detailed comparative report about two or more products or inventions
Materials	Thread / Needle / Fabric squares / Recycled and repurposed fabric, such as felt, canvas, denim or cotton
Theme	Structures
Project	Engineer (Bridges)
Main D&T	Bridge structures have changed over time. This is due to factors such as technology, design innovation and new and better access to materials. Significant engineers have improved, safety, people's lives and trade through their constructions. Significant bridges include: the Menai Bridge, Clifton Suspension Bridge and Forth Bridge. Strength can be added to a framework by using multiple layers or changing its shape. 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. Triangles do not collapse or distort easily and so are used in architecture to provide support and stability. 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. An iterative process starts with requirements and continues by creating a product, testing it, and revising it before creating a better version.
Knowledge and Skills	Analyse how an invention or product has significantly changed or improved people's lives. Present a detailed account of the significance of a favourite designer or inventor. Create a detailed comparative report about two or more products or inventions. Select the most appropriate materials and frameworks for different structures, explaining what makes them strong. Choose the best materials for a task, showing an understanding of their working characteristics. Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways. Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others
Materials	Masking tape / Corrugated cardboard / Paper / Straws
Theme	Cooking and Nutrition
Project	Food for life
Main D&T	A processed food is changed during preparation and includes processes, such as cooking, freezing, pasteurising, or the addition of ingredients. Processed foods can be convenient and increase availability, but often lack of nutrients and contain unhealthy ingredients when compared to whole foods. Sliced bread is processed. It can contain many more ingredients than homemade bread, including preservatives and artificial ingredients. Eating a balanced diet is a positive lifestyle choice that should be sustained over time. Food packaging provides important nutritional information about the food inside. An iterative process starts with requirements and continues by creating a product, testing 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.
Knowledge and Skills	Create a detailed comparative report about two or more products or inventions. Analyse how an invention or product has significantly changed or improved people's lives Follow a recipe that requires a variety of techniques and source the necessary ingredients independently (kneading, fry, blend, chop, crush, tear, sieve) Explain how organic produce is grown. Plan a healthy daily diet, justifying why each meal contributes towards a balanced diet. Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others.
Materials	Ingredients for bread making Ingredients for making pasta sauces