Sky Primary and Eden Project Nursery DT Curriculum

Level Expected at the End of EYFS

- Safely use and explore a variety of materials, tools and techniques, experimenting with design and function.
- Share their creations, explaining the process they have used.

Key Stage 1 National Curriculum Expectations

Pupils should be taught:

Design ♣ design purposeful, functional, appealing products for themselves and other users based on design criteria ♣ generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology Make ♣ select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] ♣ select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics Evaluate ♣ explore and evaluate a range of existing products ♣ evaluate their ideas and products against design criteria Technical knowledge ♣ build structures, exploring how they can be made stronger, stiffer and more stable ♣ explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Cooking and nutrition - use the basic principles of a healthy and varied diet to prepare dishes ♣ understand where food comes from.

Key Stage 2 National Curriculum Expectations

Pupils should be taught:

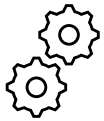
- Design ♣ use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups ♣ generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Make ♣ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately ♣ select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities Evaluate ♣ investigate and analyse a range of existing products ♣ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work ♣ understand how key events and individuals in design and technology have helped shape the world Technical knowledge ♣ apply their understanding of how to strengthen, stiffen and reinforce more complex structures ♣ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] ♣ understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] ♣ apply their understanding of computing to program, monitor and control their products

Cooking and Nutrition - understand and apply the principles of a healthy and varied diet ♣ prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques ♣ understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

DT Substantive Concepts:

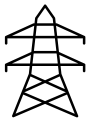
Food and Nutrition

Mechanisms



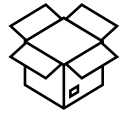
Structures

Electrical Systems



Textiles

Understanding Materials



Sky Disciplinary Concepts:

Investigate

Researching and finding out about a product.

Design

The process of designing how something will look or work.

Make

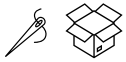
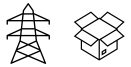
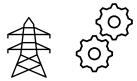
Create something by combining materials or putting parts together,

Evaluate

Form an opinion on the value or quality of something.

Apply

Use something or make something work in a particular situation.

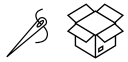
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Textiles and understanding materials  Templates and joining techniques. Selecting materials Link: Sky hero capes.		Mechanisms  Levers and sliders Link: Secret voyage picture		Structure  Freestanding garden structure Link: Garden designers.	
Year 2	Food and nutrition  Nutrients and body. Link: Healthy body, spices and curry.		Understanding materials and Mechanisms. Computing and programming.  Selecting and manipulating materials. CAD Wheels and axels. Link: Sustainable chocolate packaging. Create a small vehicle to transport our chocolate.		Structure & Mechanisms  Freestanding structure with moving parts. Link: Bee hotels.	
Year 3		Textiles and Materials  Sewing, fixings and fastenings. Link: Stone Age hunter gatherer bags.		Mechanisms and structure  Pivots and pulleys, shaduf structure. Link: Egyptian shaduf		Food and nutrition  Celebrating culture Link: Cornish pasties.
Year 4		Food and nutrition  Understanding dietary requirements. Link: Healthy Greek food.	Textiles and materials. Structure  Durability of fabric. Embroidery. Link: Roman draw string purses.		Mechanisms and structure  Levers, pulleys and gears. Link: Create a device to pick up coal out of a mine.	
Year 5		Mechanisms  Cams and followers Link: Farming and transport.  Electrical systems Switches and circuits Link: light up Christmas decoration.	Structure and materials  Woodwork. Developing stability in structures. Link: Sundial.			Computing and programming. Structure and Textiles.  CAD 3D Design. Ship structure and joins. Textiles – durability for sails. Link: Modern day ship with sails.
Year 6		Electrical systems and materials  Complex switches and systems. Link: Motorised boat.	Electrical systems & Mechanisms. Computing and programming.  Complex switches and systems. 3D CAD design Link: Wind turbine.			Food and nutrition  Cultural influences on food. Link: Creating food from different UK regions.

DT in the EYFS

DT forms part of the learning within Understanding the World as well as Expressive Arts & Design ELG: Creating with Materials. Design and technology in EYFS enables learners to make sense of the 'made world' in which they live (UTW). By making, changing and modifying (or designing) things for themselves, learners come not simply to a greater understanding of their world, but to a sense of agency - of being able to change and modify their environment (UTW/PSED). DT enables learners to gain knowledge and understanding of their world (UTW/PSED). Design is not just about drawing, but about thinking, involving some experience, some imagination and a willingness to change and modify ideas (C&L/EAD). Technology, on the other hand, is about doing - making something for a purpose, involving putting ideas into practice and having an awareness of the possibilities and limitations of different materials, including making mistakes (PD/PSED).

Development Matters	Early Learning Goals	How this is achieved in the EYFS…	By the end of the EYFS, learners will know…	Key vocabulary
Expressive Arts & Design ● Explore and refine a variety of artistic effects to express their ideas and feelings. ● Return to and build on their previous learning, refining ideas and developing their ability to represent them. ● Create collaboratively, sharing ideas and resources.	**Expressive Arts & Design: Creating with Materials** ● Safely use & explore a variety of materials, tools & techniques, experimenting with colour, design, texture, form & function. ● Share their creations, explaining the process they used. **Communication & Language: Speaking** ● Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. ● Offer explanations for why things might happen. **PSED: Managing Self** ● Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. **Physical Development: Fine Motor** ● Use a range of small tools, including scissors, paint brushes and cutlery. ● Begin to show accuracy and care when drawing. **UW: The Natural World** ● Understand some important processes and changes in the natural world around them.	• A range of resources are available within the classroom & outside for learners to access both independently & with an adult. This includes large scale construction equipment and smaller model building resources. • Children can self-select a range of tools & materials within continuous provision such as scissors, tweezers, sellotape, string, glue, split pins, staplers, hole punches. • Children are encouraged to talk about what they like about their work & others' designs & how they would improve • Opportunities to prepare and cook food.	• I know how to use scissors safely. • I can cut along a straight line. • I can cut along a wavy line. • I can cut around corners. • I can join two items using tape. • I can use glue to fix items together. • I can use a split pin. • With support, I can draw a plan • I know I can adapt & change something I have made. • I can work with a friend and share ideas. • I know that some materials are better for building than others. • I can talk about what I have made & say why. • I can use a knife to cut fruits and vegetables safely. • I will try new foods and discuss what I like or dislike about them.	Cut, join, create, straight, curved, corner, plan, design, fix, repair, glue, shape, safety, colour, make, change, explain, features, parts, pieces

Year 1 DT Curriculum

Year 1	Autumn 1 **How can we be Sky heroes?** **DT: Can we make our hero capes?**	Spring 1 **What is it like to go on a mystery voyage?** **DT: Can I create a moving picture with a lever or a slider?**	Summer 1 **How can we be garden designers?** **DT: Can I design and create a garden space?**
Substantive Concepts:	Textiles and understanding materials  Templates and joining techniques. Selecting materials Link: Sky hero capes.	Mechanisms  Levers and sliders Link: Secret voyage picture	Structure  Freestanding garden structure Link: Garden designers.
Components:	➢ C1: Can I explore different joins? ➢ C2: Can I test joins for strength? ➢ C3: Can I use tools safely? ➢ C4: Can I design a mock cape? ➢ C5: Can I create a card template for my cape? ➢ C6: Can I create a hero cape? ➢ C7: Can I evaluate my cape?	➢ C1: Can I explain how a lever and slider works and how we can use them? ➢ C2: How can a lever and slider be used in a storybook? ➢ C3: Can I explore how animals and vehicles move? ➢ C4: Can I design a landscape with a slider and a lever? ➢ C5: Can I create a working slider and/or lever? ➢ Can I evaluate my product?	➢ C1: Can I talk about what a garden needs? ➢ C2: Can I research which plants and flowers would work in a garden? ➢ C3: Can I design a garden? ➢ C4: Can I explore tools and equipment safely? ➢ C5: Can I make a mock garden design? ➢ C6: Can I create a garden? ➢ C7: Can I evaluate my garden?
Assessment Checkpoints:	✓ Join fabric with glue and a simple running stitch. ✓ Design a superhero cape and create a template for the cape. ✓ Cut carefully and join fabric together as one. ✓ Evaluate my own product.	✓ Identify whether a mechanism is a slider or a lever and explain how it moves. ✓ Explore where we can find sliders and levers in storybooks and talk about what they do. ✓ Clearly label drawings to show which parts of their design will move and in which direction. ✓ Make a picture which meets the design criteria, with parts that move purposely as planned. ✓ Evaluate the main strengths' and weaknesses of my design.	✓ Understand what plants need to grow. ✓ Identify which plants grow well in the UK. ✓ Explore which plants look good together. ✓ Design a garden considering and labelling plants and decorations. ✓ Use tools safely to make my garden. ✓ Evaluate my garden design's strengths and weaknesses, considering how I would make it even better next time.
Substantive Knowledge:	Everyday products: 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. Creativity: Design criteria are the explicit goals that a project must achieve. Create a design to meet simple criteria. Investigation: Specific tools are used for particular purposes. For example, scissors are used for cutting and glue is used for sticking. Select the appropriate tool for a simple practical task.	Mechanisms: Use sliders and levers in models or products. Staying Safe: Rules are made to keep people safe from danger. Safety rules include always listening carefully and following instructions, using equipment only as and when directed, wearing protective clothing if appropriate and washing hands before touching food. Follow the rules to keep safe during a practical task. ICT: Computer-aided 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.	Structures: 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. Construct simple structures, models or other products using a range of materials. Evaluation: A strength is a good quality of a piece of work. A weakness is an area that could be improved. Talk about their own and each other's work, identifying strengths or weaknesses and offering support.

	Materials: Glue and simple stitches, such as running stitch, can be used to join fabrics. Running stitch is made by passing a needle in and out of fabric at an even distance. Cut and join textiles using glue and simple stitches. Textiles: Fabric can be decorated using materials and small objects, such as buttons and sequins. Decorations can be attached to the fabric by gluing, stapling or tying. Use gluing, stapling or tying to decorate fabric, including buttons and sequins.	Materials: 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. Select and use a range of materials, beginning to explain their choices Compare and contrast: Two products can be compared by looking at a set of criteria and comparing both products against each one. Describe the similarities and differences between two products	

Year 2 DT Curriculum

Year 2	Autumn 1 **What do I need to be healthy?** **DT: Can I design and prepare a healthy curry?**	Spring 1 **Where does chocolate come from?** **DT: Can I make a sustainable package for a chocolate bar?**	Summer 1 **Why are bees brilliant?** **DT: Can I design and create a bee hotel?**
Substantive Concepts:	Food and nutrition  Nutrients and body. Link: Healthy body, spices and curry.	Understanding materials and Mechanisms.  Selecting and manipulating materials. Wheels and axels. Link: Sustainable chocolate packaging. Create a small vehicle to transport our chocolate.	Structure & Mechanisms  Freestanding structure with moving parts. Link: Bee hotels.
Components:	➢ C1: How can we have a healthy diet? ➢ C2: Where does curry come from and is it healthy? ➢ C3: What spices can we find in the rainforest? ➢ C4: Can we explore different ingredients that we may select for our curry? ➢ C5: Can we design a healthy curry? ➢ C6: Can we create a healthy curry? ➢ C7: Can I evaluate my curry considering strengths and weaknesses?	➢ C1: Can we explore packaging materials, designs and labelling? ➢ C2: Can we design the colour and text for our chocolate packaging? ➢ C3: Can we use CAD to design our chocolate package? ➢ C4: Can we make our sustainable package? ➢ C5: Can we evaluate our package? ➢ C6: Can we explain that wheels move because they are attached to an axel? ➢ C7: Can we make a peg car with wheels and axels to transfer our chocolate packages?	➢ C1: Can we explore different types of beehives? ➢ C2: Can we identify how we can join materials using glue and hinges? ➢ C3: Can we design our own bee hotel? ➢ C4: Can we make our bee hotel using wood and saws? ➢ C5: Can we evaluate our bee hotel?
Assessment Checkpoints:	✓ Name the main food groups and identify foods that belong to each group. ✓ Describe the taste, feel and smell of food given. ✓ Talk about how a curry can be healthy or unhealthy. ✓ Identify good flavour combinations for a curry and design a healthy curry. ✓ Create a healthy curry over the fire pit. ✓ Evaluate our product.	✓ Identify and name sustainable and unsustainable materials. ✓ Use labelled drawings and CAD to design sustainable our chocolate package. ✓ Select and use a template to help us to create our sustainable packages. ✓ Explain that wheels move because they are attached to axels. ✓ Make a moving vehicle with wheels and axels. ✓ Evaluate our products.	✓ Cut and join materials in different ways. ✓ Explain why different materials are chosen for different aspects of their habitat. ✓ Use techniques to join materials to make a bee hotel. ✓ Evaluate the bee hotel considering strengths and weaknesses.
Substantive Knowledge:	Food preparation and cooking: some ingredients need to be prepared before they can be cooked or eaten. Prepare ingredients by peeling, grating, chopping and slicing. Nutrition: 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.	Everyday products: products can be improved in different ways, such as making them easier to use, more hardwearing or more attractive. Explain how an everyday product could be improved. **Creativity:** ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology. Generate and communicate their ideas through a range of	Investigation: 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 their choice. Structure: 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

	Describe the types of food needed for a healthy and varied diet and apply the principles to make a simple, healthy meal. Origins of food: 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. Identify the origin of some common foods (milk, eggs, some meats, common fruit and vegetables). Staying Safe: 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.	different methods. ICT: Computer software can be used to help design or plan a product. Advantages include identifying and solving problems before the product is made and experimenting with different materials and colours. Labels can be added to designs for clarity. Use design software to create a simple labelled design or plan Compare and contrast: products can be compared by looking at particular characteristics of each and deciding which is better suited to the purpose. Compare different or the same products from the same or different brands Evaluation: finished products can be compared with design criteria to see how closely they match. Improvements can then be planned. Explain how closely their finished products meet their design criteria and say what they could do better in the future.	Materials for Purpose: 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. Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect. Mechanisms: Use a lever as a hinge to open the top of the beehive. Pupils may use wheels to move their structures. Evaluation: finished products can be compared with design criteria to see how closely they match. Improvements can then be planned. Explain how closely their finished products meet their design criteria and say what they could do better in the future. Levers and Linkages: Make a split Pin plant and bee to show how it gets pollen from a flower.

Year 3 DT Curriculum

Year 3	Autumn 2 **Who were the ancient inhabitants of Cornwall?** **DT: Can I design and make a Stone Age bag to gather food?**	Spring 2 **How did the Ancient Egyptians live in harmony with nature?** **DT: Can I make an Egyptian shaduf?**	Summer 2 **What makes Cornwall unique?** **DT: Can I make a Cornish pasty?**
Substantive Concepts:	Textiles and Materials  Sewing, fixings and fastenings. Link: Stone Age hunter gatherer bags.	Mechanisms and structure  Pivots and pulleys, shaduf structure. Link: Egyptian shaduf	Food and nutrition  Celebrating culture Link: Cornish pasties.
Components:	➢ C1: Can I explore a range of purses and pouches and their materials? ➢ C2: Can I compare the work of different designers? ➢ C3: Can I explore different ways of fastenings for a bag. ➢ C4: Can I practice different stitches that I could use for my stone age bag. ➢ C5: Can I design my stone age bag with labelled images exploring stitch, material and fastening. ➢ C6: Can I make my stone age bag. ➢ C7: Can I use my stone age bag to gather items? ➢ C8: Can I evaluate my stone age bag?	➢ C1: Can I research what a shaduf was and the techniques used in order for it to function. ➢ C2: Can I explore different ways of joining wood? ➢ C3: Can I design a shaduf using techniques that I have learnt about? ➢ C4: Can I select tools and equipment suitable to construct a shaduf according to my design? ➢ C5: Can I evaluate my design and identify areas of strengths and weaknesses?	➢ C1: What foods are well-known in Cornwall? ➢ C2: What food grows in the UK and where does it grow? ➢ C3: What is a balanced diet? ➢ C4: Why were pasties invented? ➢ C5: Can I design my Cornish pasty? ➢ C6: How can we prepare food using cutting and peeling? ➢ C7: Can I make my Cornish pasty? ➢ C8: Can I evaluate the ingredients that I chose for my Cornish pasty?
Assessment Checkpoints:	✓ Understand that different fabrics have different properties and some fabrics are more useful to bags and pouches. ✓ Use a running stitch and over sew stitch when sewing material together. ✓ Add a fastening to keep our bag closed. ✓ Evaluate the strength, durability and usability of the bag.	✓ Identify what Egyptian shaduf's were created for and why they were useful in the past. ✓ Explain different materials and techniques for joining them that would work well for a shaduf. ✓ Create an Egyptian shaduf by selecting the appropriate materials and tools. ✓ Test the shaduf. ✓ Evaluate the effectiveness of the shaduf.	✓ Explain foods linked to the Cornish culture and where pasties came from. ✓ Design a suitable pasty with a recipe. ✓ Use cutting and peeling skills to prepare and cook vegetables. ✓ Use crimping skills to complete our pasties. ✓ Evaluate the taste and texture of our pasties.
Substantive Knowledge:	Creativity: 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. Develop design criteria to inform a design Materials: A loom is a piece of equipment that is used for making fabric by weaving wool or thread. Weaving involves interlacing pieces of thread or yarn. Cut and join wools, threads and other materials to a loom.	Everyday products: particular products have been designed for specific tasks, such as nail clippers, the spinning top and the cool box. Explain Investigation: 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. Use tools	Food preparation and cooking: Preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning. Prepare and cook a simple savoury dish. Nutrition: 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

	Materials for purpose: materials for a specific task must be selected on the basis of their properties. These include physical properties as well as availability and cost. Plan which materials will be needed for a task and explain why. Decorating materials: embellishment is a decorative detail or feature added to something to make it more attractive. Add simple decorative embellishments, such as buttons, prints, sequins and appliqué. Compare and contrast: work from different designers can be compared by assessing specific criteria, such as their visual impact, fitness for purpose and target market. Explain the similarities and difference between the work of two designers.	safely for cutting and joining materials and components. Mechanism and movement: 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. Structure: Explore different ways of joining wood to construct the shaduf according to a design, using appropriate equipment. Evaluation: asking questions can help others to evaluate their products, such as asking them whether the selected materials achieved the purpose of the model. Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account. Staying safe: Understand how to safely handle equipment for joining wood – saws, hand drills, glue guns, etc. Work safely placing your hands in the correct place when using equipment	fat, salt and sugar should only be eaten occasionally as part of a healthy, balanced diet. Identify the main food groups (carbohydrates, protein, dairy, fruits and vegetables, fats and sugars). Origins of food: 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. Identify and name foods that are produced in different places. Evaluation: asking questions can help others to evaluate their products, such as asking them whether the selected materials achieved the purpose of the model. Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.

Year 4 DT Curriculum

Year 4	Autumn 2 **What is it like to live in modern Greece?** **DT: Can I make a healthy Greek dish?**	Spring 1 **Why did the Romans invade and how did Britain respond?** **DT: Can I make a Roman purse? Can I make an aqueduct?**	Summer 1 **Where does energy come from?** **DT: Can I design a coal lift shaft?**
Substantive Concepts:	Food and nutrition  Understanding dietary requirements. Link: Healthy Greek food.	Textiles and materials. Structure  Durability of fabric. Embroidery. Link: Roman draw string purses.	Mechanisms and structure  Levers, pulleys and gears. Link: Create a device to pick up coal out of a mine.
Components:	➢ C1: Can I research what makes a healthy diet? ➢ C2: What foods come from Greece and how healthy are they? ➢ C3: How does culture influence the design of some products? ➢ C4: Can I explore different cooking techniques? ➢ C5: Can I design a healthy, traditional Greek dish? ➢ C6: Can I use my cutting, peeling and cooking skills to make a Greek dish? ➢ C7: Can I evaluate my product?	➢ C1: What are the advantages and disadvantages of different fastenings? ➢ C2: Can I explore different purses and consider their strengths and weaknesses. ➢ C3: Can I design a draw string purse. ➢ C4: Can I test a paper template to help prepare the product? ➢ C5: Can I use sewing techniques to make a Roman purse? ➢ C6: Can I evaluate my product?	➢ C1: Can I explore how cogs and pulleys work? ➢ C2: Can I experiment with different pulleys? ➢ C2: Can I understand why a mine shaft was needed and explore previous designs? ➢ C3: Can I design a simple pulley system using cotton reels? ➢ C4: Can I make a pulley system to act as a coal shaft? ➢ Can I test and evaluate my pulley system?
Assessment Checkpoints:	✓ Understand what makes a healthy diet. ✓ Explain how culture can influence food. ✓ Describe the taste, texture and flavour of Greek foods. ✓ Use a budget to plan a recipe. ✓ Follow a recipe with support. ✓ Adapt a recipe using additional ingredients.	✓ Explore different types of fastenings and understand the advantages and disadvantages of each. ✓ Explore and compare different purses. ✓ Use fabric cutting and sewing skills to make a draw string purse. ✓ Evaluate a product's strengths and weaknesses.	✓ Experiment with different pulleys understanding how a single and double pulley system works. ✓ Make observations about materials that would be appropriate for a mine shaft lift. ✓ Explain the transference of forces to choose the appropriate mechanisms for a lift shaft. ✓ Compare pulley systems to discuss the pros and cons.
Substantive Knowledge:	Everyday products: 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. Explain how the design of a product has been influenced by the culture or society in which it was designed or made. Food preparation and Cooking: cooking techniques include baking, boiling, frying, grilling and roasting. Identify and use a range of	Everyday 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. Investigate and identify Materials for purpose: 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. Materials: 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. Hand sew a hem or seam using a running stitch. Decorating textiles: lock printing techniques and fabric paint are used to create decorative, repeated patterns on fabrics.	Mechanism and movement: 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. Explore and use a range of mechanisms (levers, axles, gears and pulleys) in models or products Creativity: annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way. Use annotated

	cooking techniques to prepare a Greek meal. Nutrition: 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. Design a healthy Greek meal and explain why it is healthy. Materials for purpose: 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. Origins of food: articular 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. Identify and name foods that are produced in different places in the UK and beyond.	Create detailed decorative patterns on fabric using printing techniques. Compare and contrast: comparison table can be used to compare products by listing specific criteria on which each product can be judged or scored. Create and complete a comparison table to compare two or more products. Evaluation: 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. 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	sketches and exploded diagrams to test and communicate their ideas Investigation: 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. Select, name and use tools with adult supervision. Structures: 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). Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them. Staying safe: 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 Understand how to safely handle equipment for joining wood – saws, hand drills, glue guns, etc. Work safely placing your hands in the correct place when using equipment.

Year 5 DT Curriculum

Year 5	Autumn 2 **How did trade get global?** **DT: Can I make a moving CAMS toy to show transport and farming?** **Can I design a light up Christmas decoration?**	Spring 1 **What can we learn from the solar system and stars?** **DT: Can I design and create a sundial?**	Summer 2 **How can we ensure our oceans stay amazing?** **DT: Can I design a modern day ship with sails?**
Substantive Concepts:	Mechanisms  Cams and followers Link: Farming and transport.  Electrical systems Switches and circuits Link: light up Christmas decoration.	Structure and materials  Woodwork. Developing stability in structures. Link: Sundial.	Computing and programming. Structure and Textiles.  CAD 3D Design. Ship structure and joins. Textiles – durability for sails. Link: Modern day ship with sails.
Components:	➢ C1: Can I research moveable toys from past and present? ➢ C2: Can I describe parts of a moving toy? ➢ C3: Can I observe the effect of different shaped CAMS mechanisms? ➢ C3: Can I design and label a moveable cams toy linked to transport or farming? ➢ C4: Can I create a CAMS moving toy? ➢ C1: Can I explore simple circuits to make a light work? ➢ C2: Can I draw, name and label electrical components in a circuit? ➢ C3: Can I use my knowledge of circuits to create a light up Christmas decoration?	➢ C1: What is a sundial and how does it work? ➢ C2: What materials would be good to use outside to make a sundial? ➢ C3: Can we explore techniques for cutting and joining wood? ➢ C4: Can we use labelled diagrams to design our own sundials? ➢ C5: Can we make a sundial using woodwork skills? ➢ C6: Can we test and evaluate our sundials?	➢ C1: Can I explore ships in the past and the present and identify their key features (Including Viking longboats)? ➢ C2: Can I explore materials used to create a ship and sails? ➢ C3: Can I select appropriate materials to design my ship with sails? ➢ C4: Can I design my ship using CAD 3D modelling? ➢ C4: Can I identify appropriate ways of joining my materials to create my ship? ➢ C5: Can I make a ship with sails? ➢ C6: Can I test and evaluate my product?
Assessment Checkpoints:	✓ Use a CAMS mechanism made up of two or three components: a cam, slider and follower. ✓ Understand how different CAMS move. ✓ Use CAMS mechanisms to make a toy move. ✓ Experiment with materials that conduct electricity, ✓ Apply skills to solve a problem and allow a circuit to light up when switched on. ✓ Use circuits to add light to a decoration.	✓ Explain what sundials are used for and how they work. ✓ Explore and name different types of sundials and their materials. ✓ Use knowledge to design our own sundial. ✓ Use wood cutting and joining skills to create a sundial. ✓ Test and evaluate our products.	✓ To identify different types of ships and the materials used. ✓ To select appropriate materials to create a ship with sails. ✓ To use CAD 3D modelling software to create my design. ✓ To use joining and sewing techniques to attach different materials together. ✓ To test if I have made a ship that floats.
Substantive Knowledge:	Mechanisms: Use Cams to convert circular motion into linear motion.	Everyday products: Explore how products that have been used to help people in their everyday lives began e.g. clock began as a sundial.	Mechanisms: pneumatic systems use energy that is stored in compressed air to do work, such as inflating balloon to open a model monster's mouth. These effects can be achieved using

	Structures: 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. Build a framework using a range of materials to support mechanisms. Evaluation: testing a product against the design criteria will highlight anything that needs improvement or redesign. Changes are often made to a design during manufacture. Test and evaluate products against a detailed design specification and make adaptations as they develop the product Electrical: Make a light up Christmas decoration. Electrical: 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. Staying safe: Explain the functionality and purpose of safety features on a range of products 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.	Investigation: here 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. Name and select increasingly appropriate tools for a task and use them safely. Structure: 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. Build a framework using a range of materials to support mechanisms. Materials for Purpose: materials should be cut and combined with precision. For example, pieces of wood could be cut with a saw and glued or nailed together. Select and combine materials with precision. Compare and contrast: 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.	syringes and plastic tubing. Use mechanical systems in their products, such as pneumatics **Creativity:** 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. **ICT:** Using CAD 3D modelling software to design a template of our ship and use the design to support our build. **Materials:** 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. Combine stitches and fabrics with imagination to create a mixed media collage. Materials for purpose: materials should be cut and combined with precision. For example, pieces of fabric could be cut with sharp scissors and sewn together. Select and combine materials with precision. Decorating materials: 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. Structure: 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. Build a framework using a range of materials to support mechanisms.

Year 6 DT Curriculum

Year 6	Autumn 2 **How does light travel?** **DT: Can I make a motorised boat?**	Spring 1 **How will we rise to the challenge of climate change?** **DT: Can I design and make a wind turbine?**	Summer 2 **What will make me a great leader?** **DT: Can I select and create a dish from a different UK region?**
Substantive Concepts:	Electrical systems and materials  Complex switches and systems. Link: Motorised boat.	Electrical systems & Mechanisms. Computing and programming.  Complex switches and systems. 3D CAD design Link: Wind turbine.	Food and nutrition  Cultural influences on food. Link: Creating food from different UK regions.
Components:	➢ C1: How are motors used in electrical products? ➢ C2: Can we develop our circuit skills to include a range of features e.g. solar panels, LEDs, turbines, motors and buzzers. ➢ C3: Can we develop a circuit with a motor that could move a boat? ➢ C4: Can we design a boat to use with a motor? ➢ C5: Can we make and test our motorised boats? ➢ C6: Can we evaluate our products.	➢ C1: How do wheels, axels and gears work when a force is applied to a wheel? ➢ C2: Can I understand how wind turbines are a renewable energy source and the turning motion transfers energy to a generator to produce electricity? ➢ C3: Can I produce a detailed design which I have developed through a range of ideas, including cross-sectional? ➢ C4: Can I work a range of tools, materials and equipment, showing an understanding of functional properties and aesthetic qualities? ➢ C5: Can I identify and solve product design problems? ➢ C6: Can I evaluate my product?	➢ C1: How are ingredients reared and processed? ➢ C2: How can recipes be adapted? ➢ C3: What does the label on a product tell us about nutritional content? ➢ C4: Can I explore different dishes from different UK regions? ➢ C5: How can food be prepared safely using a system? ➢ C6: Can I create a recipe for a regional dish? ➢ C7: Can I make my recipe using my culinary skills and knowledge? ➢ C8: Can I evaluate my recipe?
Assessment Checkpoints:	✓ Identify circuit components and explain their function. ✓ Explain that a series circuit is assembled in a loop to allow the electricity to flow along the path. ✓ Describe a motor as a circuit component that changes electrical energy into movement. ✓ Develop a design criteria considering the end user. ✓ Create a motorised boat with a circuit.	✓ Apply scientific knowledge of forces and electricity to DT products. ✓ To draw a technical labelled diagram of my design. ✓ To use a range of tools and equipment competently. ✓ To make prototypes and final versions of my product. ✓ To evaluate the appearance and function against a criterion.	✓ Describe the process of food production. ✓ Research a traditional recipe and make changes to it. ✓ Add nutritional value to a recipe by selecting ingredients. ✓ Prepare and cook a dish from a particular UK region. ✓ Talk about food safety and model good food safety when making a dish.
Substantive Knowledge:	Mechanism and movement: mechanical systems can include sliders, levers, linkages, gears, pulleys and cams. Other mechanisms include pneumatics and hydraulics. Explain and use mechanical systems in their products to meet a design brief. Electricity: computer programs can control electrical circuits that include a variety of components, such as switches, lamps, buzzers and motors. Understand and use electrical circuits that incorporate	Everyday products: peoples' lives have been improved in countless ways due to new inventions and designs. . Analyse how an invention or product has significantly changed or improved people's lives. Mechanism and movement: mechanical systems can include sliders, levers, linkages, gears, pulleys and cams. Other	Food preparation and cooking: 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. Follow a recipe that requires a variety of techniques and source the necessary ingredients independently

	a variety of components (switches, lamps, buzzers and motors) and use programming to control their products. Creativity: 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. Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways. ICT: 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: precision is important in producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fit together correctly. Select appropriate tools for a task and use them safely and precisely. Materials for purpose: 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. Choose the best materials for a task, showing an understanding of their working Characteristics Staying safe: 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.	mechanisms include pneumatics and hydraulics. Explain and use mechanical systems in their products to meet a design brief. Electricity: computer programs can control electrical circuits that include a variety of components, such as switches, lamps, buzzers and motors. Understand and use electrical circuits that incorporate a variety of components (switches, lamps, buzzers and motors) and use programming to control their products. Creativity: 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. Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways Investigation: precision is important in producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fit together correctly. Select appropriate tools for a task and use them safely and precisely. Materials for purpose: 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. Choose the best materials for a task, showing an understanding of their working characteristics Structure: 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. Select the most appropriate materials and frameworks for different structures, explaining what makes them strong.	Nutrition: 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. Plan a healthy daily diet, justifying why each meal contributes towards a balanced diet. Origins of food: 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 crop rotation, animal and plant manures, hand-weeding and biological pest control. Explain how organic produce is grown

	Knowledge and Skills Progression						
	Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Humankind: Everyday products	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. Explain how an everyday product could be improved.	particular products have been designed for specific tasks, such as nail clippers, the spinning top and the cool box. Explain	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. Investigate and identify 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	Explore how products that have been used to help people in their everyday lives began e.g. clock began as a sundial.	peoples' 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. Analyse how an invention or product has significantly changed or improved people's lives.

					different things in different cultures. Explain how the design of a product has been influenced by the culture or society in which it was designed or made.		
Staying safe	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 food. Follow rules and instructions to keep safe.	Rules are made to keep people safe from danger. Safety rules include always listening carefully and following instructions, using equipment only as and when directed, wearing protective clothing if appropriate and washing hands before touching food. Follow the rules to keep safe during a practical task	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.	Understand how to safely handle equipment for joining wood – saws, hand drills, glue guns, etc. Work safely placing your hands in the correct place when using equipment.	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 Understand how to safely handle equipment for joining wood – saws, hand drills, glue guns, etc. Work safely placing your hands in the correct place when using equipment.	Explain the functionality and purpose of safety features on a range of products 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.	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
Processes: Mechanism and movement	Vehicles and machines have wheels to help them move. Explore, build and play with a range of resources and construction kits with wheels.	Use sliders and levers in models or products.	Mechanisms include sliders, levers, linkages, gears, pulleys and cams. Use a range of mechanisms in models or products - Use a lever as a hinge to	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.	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;	Use Cams to convert circular motion into linear motion. shell structures are hollow, 3-D structures with a thin outer covering, such as a box. Frame	mechanical systems can include sliders, levers, linkages, gears, pulleys and cams. Other mechanisms include pneumatics and hydraulics.

			open the top of the beehive. Pupils may use wheels to move their structures. Levers and Linkages: Make a split Pin plant and bee to show how it gets pollen from a flower.	Sliders move from side to side or up and down, and are often used to make moving parts in books.	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. Explore and use a range of mechanisms (levers, axles, gears and pulleys) in models or products	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 the structure. Create shell or frame structures using diagonal struts to strengthen them 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. Use mechanical systems in their products, such as pneumatics	Explain and use mechanical systems in their products to meet a design brief.
Electricity					.	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	computer programs can control electrical circuits that include a variety of components, such as switches, lamps, buzzers and motors. Understand

						control on a stereo. Use electrical circuits of increasing complexity in their models or products, showing an understanding of control.	and use electrical circuits that incorporate a variety of components (switches, lamps, buzzers and motors) and use programming to control their products.
Creativity: Generation of ideas	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.	Design criteria are the explicit goals that a project must achieve. Create a design to meet simple criteria.	ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology. Generate and communicate their ideas through a range of different methods.	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. Develop design criteria to inform a design	annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way. Use annotated sketches and exploded diagrams to test and communicate their ideas	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. Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways.
Structures	Different materials have different properties and can be used for different purposes. Construct simple structures and models using a range of materials.	Different materials can be used for different purposes, depending on their properties. For example, cardboard is a stronger building material than paper.	structures can be made stronger, stiffer and more stable by using cardboard rather than paper and	Explore different ways of joining wood to construct the shaduf according to a design, using appropriate equipment.	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	various methods can be used to support a framework. These include cross braces, guy ropes and diagonal struts. Frameworks can be built using	strength can be added to a framework by using multiple layers. For example, corrugated cardboard

		Plastic is light and can float. Clay is heavy and will sink. Construct simple structures, models or other products using a range of materials.	triangular shapes rather than squares. A broader base will also make a structure more stable.		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). Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them.	lolly sticks, skewers and bamboo canes. Build a framework using a range of materials to support mechanisms.	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. Select the most appropriate materials and frameworks for different structures, explaining what makes them strong.
Use of ICT	Digital devices can be used to share information about creations with others. Use digital devices to take digital images or recordings of their creations to share with others.	Computer-aided 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.	Computer software can be used to help design or plan a product. Advantages include identifying and solving problems before the product is made and experimenting with different materials and colours. Labels can be added to designs for clarity. Use design software to create a simple labelled design or plan.		program is a set of instructions written to perform a specified task on a computer. Write a program to make something move on a tablet or computer screen remote.	Using CAD 3D modelling software to design a template of our ship and use the design to support our build.	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: Investigation	Different tools are needed for different tasks. For example, pencils and paper are needed for drawing pictures. Choose and explore appropriate tools for simple practical tasks.	Specific tools are used for particular purposes. For example, scissors are used for cutting and glue is used for sticking. Select the appropriate tool for a simple practical task.	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 their choice.	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. Use tools safely for cutting and joining materials and components.	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. Select, name and use tools with adult supervision.	here 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. Name and select increasingly appropriate tools for a task and use them safely.	precision is important in producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fit together correctly. Select appropriate tools for a task and use them safely and precisely.
Evaluation	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.	A strength is a good quality of a piece of work. A weakness is an area that could be improved. Talk about their own and each other's work, identifying strengths or weaknesses and offering support.	finished products can be compared with design criteria to see how closely they match. Improvements can then be planned. Explain how closely their finished products meet their design criteria and say what they could do better in the future.	asking questions can help others to evaluate their products, such as asking them whether the selected materials achieved the purpose of the model. Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.	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	testing a product against the design criteria will highlight anything that needs improvement or redesign. Changes are often made to a design during manufacture. Test and evaluate products against a detailed design specification and make adaptations as they develop the product	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. Demonstrate modifications made to a

					should be made. 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.		product as a result of ongoing evaluation by themselves and to others.
Materials:	Scissors are used to cut materials.	Glue and simple stitches, such as running stitch, can be used to join fabrics. Running stitch is made by passing a needle in and out of fabric at an even distance. Cut and join textiles using glue and simple stitches.	Explore different materials used for similar products and select the most appropriate.	A loom is a piece of equipment that is used for making fabric by weaving wool or thread. Weaving involves interlacing pieces of thread or yarn. Cut and join wools, threads and other materials to a loom.	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. Hand sew a hem or seam using a running stitch.	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. Combine stitches and fabrics with imagination to create a mixed media collage.	Select appropriate materials to meet the design brief in various products across Year 6.
Materials for purpose	Different materials are suitable for different purposes, such as construction kits for modelling and ingredients for baking. Select appropriate materials when constructing and making.	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. Select and use a range of materials, beginning to explain their choices	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. Choose appropriate components and materials and suggest ways of manipulating them	materials for a specific task must be selected on the basis of their properties. These include physical properties as well as availability and cost. Plan which materials will be needed for a task and explain why.	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	materials should be cut and combined with precision. For example, pieces of wood could be cut with a saw and glued or nailed together Select and combine materials with precision. materials should be cut and combined with	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. Choose the best materials for a task,

			to achieve the desired effect.		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.	precision. For example, pieces of fabric could be cut with sharp scissors and sewn together Select and combine materials with precision.	showing an understanding of their working characteristics
Decorating and embellishing textiles		Fabric can be decorated using materials and small objects, such as buttons and sequins. Decorations can be attached to the fabric by gluing, stapling or tying. Use gluing, stapling or tying to decorate fabric, including buttons and sequins.		embellishment is a decorative detail or feature added to something to make it more attractive. Add simple decorative embellishments, such as buttons, prints, sequins and appliqué.	lock printing techniques and fabric paint are used to create decorative, repeated patterns on fabrics. Create detailed decorative patterns on fabric using printing techniques.	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.	
Nature: Food preparation and cooking	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	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. Measure and weigh food items using non-standard measures, such as spoons and cups	some ingredients need to be prepared before they can be cooked or eaten. Prepare ingredients by peeling, grating, chopping and slicing.	Preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning. Prepare and cook a simple savoury dish.	cooking techniques include baking, boiling, frying, grilling and roasting. Identify and use a range of cooking techniques to prepare a Greek meal.		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. Follow a

							recipe that requires a variety of techniques and source the necessary ingredients independently
Nutrition	There are healthy and unhealthy foods. Fruit and vegetables are an important part of a healthy diet.	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. Select healthy ingredients for a fruit or vegetable salad.	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. Describe the types of food needed for a healthy and varied diet and apply the principles to make a simple, healthy meal.	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. 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. Design a healthy Greek meal and explain why it is healthy.		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. Plan a healthy daily diet, justifying why each meal contributes towards a balanced diet.
Origins of food	Food comes from different sources, including from animals, such as meat, fish, eggs and dairy, or from plants, such as fruit and vegetables. Begin to	Some foods come from animals, such as meat, fish and dairy products. Other foods come from plants, such as fruit, vegetables, grains, beans and	food comes from two main sources: animals and plants. Cows provide beef, sheep provide lamb and mutton and pigs provide	The types of food that will grow in a particular area depend on a range of factors, such as the rainfall,	Particular areas of the world have conditions suited to growing certain crops, such as coffee in Peru		organic produce is food that has been grown without the use of man-made fertilisers, pesticides,

	identify the origins of some foods.	nuts. Sort foods into groups by whether they are from an animal or plant source.	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. Identify the origin of some common foods (milk, eggs, some meats, common fruit and vegetables).	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. Identify and name foods that are produced in different places.	and citrus fruits in California in the United States of America. Identify and name foods that are produced in different places in the UK and beyond.		growth regulators or animal feed additives. Organic farmers use crop rotation, animal and plant manures, hand-weeding and biological pest control. Explain how organic produce is grown
Comparison: Compare and contrast	Aspects of designing and making can be compared with others, including inspiration for making a product and the tools and techniques used. Describe what, why and how something was	Two products can be compared by looking at a set of criteria and comparing both products against each one. Describe the similarities and differences between two products	products can be compared by looking at particular characteristics of each and deciding which is better suited to the purpose. Compare different or the	work from different designers can be compared by assessing specific criteria, such as their visual impact, fitness for purpose and target market.	comparison table can be used to compare products by listing specific criteria on which each product can be judged or scored. Create and	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	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.

	made and compare with others.		same products from the same or different brands	Explain the similarities and difference between the work of two designers.	complete a comparison table to compare two or more products.	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.	Create a detailed comparative report about two or more products or inventions.