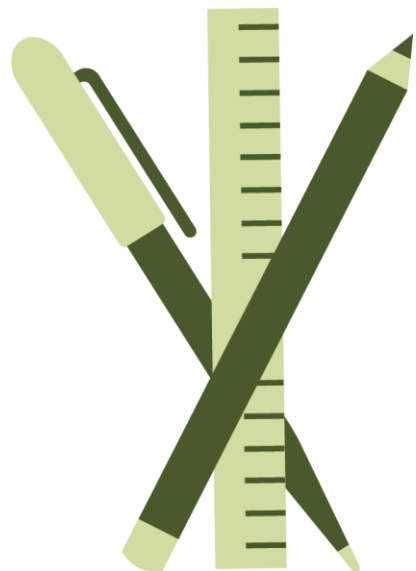




Grange Primary Academy

The best in everyone™

Part of United Learning



D&T and Food Expectations 2023-2024



Grange Curriculum: D&T and Food 2023/2024 only



	N3-4	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn	Throughout the year (See EYFS overview below)	Food Christmas Biscuits	Food Eat a Rainbow [Aut2] Preparing a colourful fruit salad and crudites.	Food Salads [Aut2] Preparing healthy, balanced salads that include proteins.	Picture Frames [Aut1] Picture frames that would be made and sold in a commercial context.	Food Soups [Aut2] Cooking vegetables and grains and combining into healthy soups.	Interactive Display [Aut2] Interactive information display for a context decided by pupils.	Head Coverings [Aut1] Made to measure hats and head coverings for a context decided by pupils.
Spring		Structures Exploring different joins and different ways to fold the material. Design focus	Moving Pictures Using simple linkages (levers) to make a moving picture for someone at home.	Moving Pictures Using simple linkages (levers) to make a moving picture for someone at home.	Keeping it Contained A solution for users who struggle to keep possessions safe in their bag.	Pulleys Using pulleys and levers to create a video that shares a message.	Food Sauces [Spr2] Building foundational cooking skills with a range of staple sauces.	Sustainable Systems [Spr1] Identifying a need and designing a sustainable solution at a system level.
Summer		Mechanisms How to transport water across the outside area. Pulley System	Outdoor Space Designing an outdoor space and creating a 3D model to share the design.	Outdoor Space Designing an outdoor space and creating a 3D model to share the design.	Food Sandwiches and Packed Lunches [Sum1] Making sandwiches with a balance of proteins fats & carbohydrates.	Mood Lighting [Sum2] Using nets and circuits to programme lighting.	Flat Pack Designing a flat pack toy or model that can be sold for construction by users.	Food Savoury Snacks [Sum1] Cooking and baking filled pastries and other balanced picnic snacks.



Grange Curriculum: D&T and Food 2024 onwards



	N3-4	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn	Throughout the year (See EYFS overview below)	Food Christmas Biscuits	Food Eat a Rainbow [Aut2] Preparing a colourful fruit salad and crudites.	Food Salads [Aut2] Preparing healthy, balanced salads that include proteins.	Picture Frames [Aut1] Picture frames that would be made and sold in a commercial context.	Food Soups [Aut2] Cooking vegetables and grains and combining into healthy soups.	Interactive Display [Aut2] Interactive information display for a context decided by pupils.	Head Coverings [Aut1] Made to measure hats and head coverings for a context decided by pupils.
Spring		Structures Exploring different joins and different ways to fold the material. Design focus	Moving Pictures Using simple linkages (levers) to make a moving picture for someone at home.	Wheels & Axles [Spr2] An engineering project to design a buggy that rolls straight and smoothly.	Keeping it Contained A solution for users who struggle to keep possessions safe in their bag.	Pulleys Using pulleys and levers to create a video that shares a message.	Food Sauces [Spr2] Building foundational cooking skills with a range of staple sauces.	Sustainable Systems [Spr1] Identifying a need and designing a sustainable solution at a system level.
Summer		Mechanisms How to transport water across the outside area. Pulley System	Outdoor Space Designing an outdoor space and creating a 3D model to share the design.	Glove Puppets Creating props to tell a story to children in EYFS.	Food Sandwiches and Packed Lunches [Sum1] Making sandwiches with a balance of proteins fats & carbohydrates.	Mood Lighting [Sum2] Using nets and circuits to programme lighting.	Flat Pack Designing a flat pack toy or model that can be sold for construction by users.	Food Savoury Snacks [Sum1] Cooking and baking filled pastries and other balanced picnic snacks.



EYFS: D&T across Early Years



	Opportunities for design and technology in 'Development Matters in the Early Years Foundation Stage' non-statutory guidance	Notes on effective design and technology practice
Expressive Arts and Design	<p>Birth to three – babies, toddlers and young children will be learning to:</p>	<p>Overview: This is the area of learning where D&T – related aspects can really be explored. The area focuses on children's creative development and mentions the need for a wide-range of materials, tools and other resources. This provides opportunities for children's learning in D&T to draw on the 'arts' when they are designing and making. It is equally important to be aware of the distinctive nature of D&T so that children receive a genuine design and technological experience. For D&T, the children and a adult would be discussing different users, the purpose of their product and how it works (function).</p> <p>Tips on effective practice:</p> <ul style="list-style-type: none"> • _Children's learning in D&T should include planned, purposeful play and both child-initiated and adult-led activities. • _Encourage children to think about what their product is for e.g. fruit drink for a party. • _Ask them to say who their product is for e.g. coat for Teddy. • _Function – make sure that children have opportunities to create products that have to work in some way in order to be successful e.g. using a construction kit, make a wall strong and stable enough for Humpty Dumpty. • _Aesthetics – ask children to think about the appearance, finish and texture of the product e.g. decorative effects used on a simple felt bag to suit the user. • _Children should have freedom to select media and materials from an appropriate range. • _Using the senses, as appropriate, they should explore the simple working characteristics of materials including food, textiles and construction materials. • _They need frequent opportunities to play with and explore a range of large and small construction kits that use different forms of joining e.g. magnetic, slot-together, stacking etc. • _They should also frequently explore materials that can be used to make things, such as felt, cardboard, softwood, plastics etc • _Construction kits should enable children to build towers, walls, frameworks and shell structures. • _Encourage children to think how they can stop their structures from falling over and how to make them stronger. • _Construction materials should sometimes include moving parts such as wheels, levers and hinges. • _Designing should not necessarily entail drawing, but children may retrospectively draw what they have made. • _Designing includes physically arranging and re-arranging materials and components and orally communicating what they are doing and have done. • _Designing is typically intuitive i.e. children design as they make.
	<p>Start to make marks intentionally.</p> <ul style="list-style-type: none"> • _Explore paint, using fingers and other parts of their bodies as well as brushes and other tools. • _Explore different materials, using all their senses to investigate them. Manipulate and play with different materials. • _Use their imagination as they consider what they can do with different materials. • _Make simple models which express their ideas. <p>Examples to support this</p> <ul style="list-style-type: none"> • _Use tablets or computers • _Introduce colour names • _Stimulate young children's interest in modelling. • _Suggestions: provide a wide range of found materials ('junk') as well as blocks, clay, soft wood, card, offcuts of fabrics and materials with different textures. Provide appropriate tools and joining methods for the materials offered. • _Encourage young children to explore materials/ resources finding out what they are/what they can do, and decide how they want to use them. 	
	<p>3 & 4-year-olds will be learning to:</p>	
	<ul style="list-style-type: none"> • _Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. • _Join different materials and explore different textures. <p>Examples to support this</p> <ul style="list-style-type: none"> • _Provide lots of flexible and open-ended resources for children's imaginative play. • _Offer opportunities to explore scale. Suggestions: - <ul style="list-style-type: none"> o long strips of wallpaper o child size boxes o different surfaces to work on e.g. paving, floor, tabletop or easel • _Listen and understand what children want to create before offering suggestions. • _Invite artists, musicians and craftspeople into the setting, to widen the range of ideas which children can draw on. • _Suggestions: glue and masking tape for sticking pieces of scrap materials onto old cardboard boxes, hammers and nails, glue guns, paperclips and fasteners. • _Help children to develop their drawing and modelmaking. Encourage them to develop their own creative ideas. Spend sustained time alongside them. Show interest in the meanings children give to their drawings and models. Talk together about these meanings. 	
	<p>Children in reception will be learning to:</p> <ul style="list-style-type: none"> • _Return to and build on their previous learning, refining ideas and developing their ability to represent them. • _Create collaboratively, sharing ideas, resources and skills. <p>Examples to support this</p> <ul style="list-style-type: none"> • _Teach children different techniques for joining materials, such as how to use adhesive tape and different sorts of glue. • _Provide a range of materials and tools and teach children to use them with care and precision. Promote independence, taking care not to introduce too many new things at once. 	



EYFS: D&T across Early Years



Understanding the World	Birth to three – babies, toddlers and young children will be learning to:	<p>Overview:</p> <p>This area of learning enables children to learn about products and environments that have been designed and made by people. Children think about how a range of everyday and less familiar products are used in places such as schools and homes. They select and use these products for particular purposes and investigate and evaluate them using a range of questioning techniques. They talk about features of their indoor and outdoor environment. To support their learning in design and technology, it is essential that children explore the built or design and made world.</p>
	<ul style="list-style-type: none"> • _Explore materials with different properties. • _Explore natural materials, indoors and outside. <p>Examples to support this</p> <ul style="list-style-type: none"> • _Provide open-ended play materials inside and outdoors. Suggestion: Treasure Baskets for repeated exploration of textures, sounds, smells and tastes. • _Offer lots of different textures for exploration with fingers, feet and whole body. Suggestions: wet and dry sand, water, paint and playdough. 	<p>Tips on effective practice:</p> <ul style="list-style-type: none"> • _Children need frequent opportunities to explore existing products. • _Ensure they explore products designed for different users and purposes. Having a product handling collection is useful. • _Make sure that existing product collections include those made from textiles, food and construction materials. They can feature everyday (but unusual) items and some with moving parts e.g. hand whisk. • _Encourage children to ask questions about who the products are for and what they do. • _Ask them to think about the materials that have been used and how the products have been made. • _Encourage them to say what they like or dislike about the design of the products. • _Ask children to talk about how the products look, feel and smell and explain how they work. • _Material handling collections allow for children to handle materials and suggest what they may be useful for, based on their properties. • _In handling collections, feature materials with different properties e.g. opaque, translucent and transparent plastics, magnetic and non-magnetic metals, stretchy, rough, smooth and soft fabrics. • _Children need frequent opportunities to explore aspects of the designed and made world through the indoor and outdoor environment. • _Go on a hunt around the classroom for products of a similar type e.g. those made from textiles or have a strong structure. • _Explore the built environment outdoors including play equipment and class visits. • _Provide opportunities for children to disassemble items. • _Explore materials and where they come from – wood from trees, sawdust when sanded. • _Have recycling bins in your class and get children to sort into different materials. • _Extend ‘important members of society’ to other professions such as plumbers and architects.
	3 & 4-year-olds will be learning to:	
	<ul style="list-style-type: none"> • _Use all their senses in hands on exploration of natural materials. • _Explore collections of materials with similar and/or different properties. • _Talk about what they see, using a wide vocabulary. • _Explore how things work. • _Explore and talk about different forces they can feel. • _Talk about the differences between materials and changes they notice <p>Examples to support this</p> <ul style="list-style-type: none"> • _Make collections of natural materials to investigate and talk about. Suggestions: <ul style="list-style-type: none"> o contrasting pieces of bark o different types of leaves and seeds o different types of rocks o different shells and pebbles from the beach • _Provide equipment to support these investigations. Suggestions: magnifying glasses or a tablet with a magnifying app. • _Provide mechanical equipment for children to play with and investigate. Suggestions: <ul style="list-style-type: none"> o wind-up toys o pulleys o sets of cogs with pegs and boards. • _Draw children’s attention to forces. Suggestions: <ul style="list-style-type: none"> o how the water pushes up when they try to push a plastic boat under it o how they can stretch elastic, snap a twig, but can’t bend a metal rod o magnetic attraction and repulsion • _Explore how different materials sink and float. • _Explore how you can shine light through some materials, but not others. Investigate shadows • _Plan and introduce new vocabulary related to the exploration, and encourage children to use it. 	
Children in reception will be learning to:		
<ul style="list-style-type: none"> • _Explore the natural world around them. <p>Examples to support this</p> <ul style="list-style-type: none"> • _Create opportunities to discuss how we care for the natural world around us. • _Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water. 		



EYFS: D&T across Early Years



Physical Development

Birth to three – babies, toddlers and young children will be learning to:

- _Build independently with a range of appropriate resources.
- _Develop manipulation and control.
- _Explore different materials and tools.
- _Use large and small motor skills to do things independently, for example manage buttons and zips, and pour drinks.

Examples to support this

- _Include lots of opportunities for children to move freely and explore their surroundings like a slope, a large hole, puddles or a sandpit.
- _Provide different types of paper for children to tear, make marks on and print on
- _Provide lots of different things for young children to grasp, hold and explore, like clay, finger paint, spoons, brushes, shells.
- _Encourage them to dress and undress independently. Ask "It's a bit cold and wet today, what do we need to wear to keep warm and dry?"

3 & 4-year-olds will be learning to:

- _Continue to develop their movement, balancing, riding (scooters, trikes and bikes) and ball skills
- _Choose the right resources to carry out their own plan. For example, choosing a spade to enlarge a small hole they dug with a trowel.
- _Use one-handed tools and equipment, for example, making snips in paper with scissors.

Examples to support this

- _Encourage children to transfer physical skills learnt in one context to another one. Suggestion: children might first learn to hammer in pegs to mark their Forest school boundary, using a mallet. Then, they are ready to learn how to use hammers and nails at the woodwork bench.
- _Explain why safety is an important factor in handling tools, and moving equipment and materials. Have clear and sensible rules for everybody to follow.
- _You can begin by showing children how to use onehanded tools (scissors and hammers, for example) and then guide them with hand-over-hand help. Gradually reduce the help you are giving and allow the child to use the tool independently.
- _Encourage children to pick up small objects like individual gravel stones or tiny bits of chalk to draw with

Children in reception will be learning to:

- _Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons.

Examples to support this

- _Offer children activities to develop and further refine their small motor skills. Suggestions: o threading and sewing, o woodwork, o pouring, o stirring, o making models with junk materials, construction kits and malleable materials like clay.
- _Regularly review the equipment for children to develop their small motor skills. Is it appropriate for the different levels of skill and confidence of children in the class? Is it challenging for the most dexterous children?

Overview:

Design and technology activities can significantly help with fine and gross motor experiences in children. Opportunities for sensory explorations and co-ordination can be achieved through a number of tasks and play. Using small tools, with feedback and support from adults, allow children to develop proficiency, control and confidence. Ensure you have a range of tools as they employ muscles in different ways (twisting, pushing and pulling) and can develop gross motor skills such as hammering and sawing.

Tips on effective practice:

- _Using small tools help to develop precision
- _Exploring different fastenings such as zips, press-studs, Velcro, toggles, nuts and bolts on product handling collections.
- _Wooden boards with holes in can accommodate a number of different fixings such as hex nuts, screws and nails. Where possible introduce tools too such as allen keys, stubby screwdrivers and hammers.
- _Consider soft surfaces for using hammers and nails, for example, polystyrene and cork can make the process easier. Golf tees provide a larger surface area to hit than many nails.
- _Can you set up a workshop area with wood, sandpaper and saw? Clamps and jigs can hold items in place as children cut and assemble.





		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive Knowledge	Conceptual	<ul style="list-style-type: none"> • Science: A plant is a living thing that grows in one place. A tree is a type of plant. (Y1 Aut1) • Science: The basic parts of plant include leaves, flowers, roots, stem (or trunk). (Y1 Aut1) • Science: There are four seasons: spring, summer, autumn and winter (Y1 Aut2) • Science: The weather changes gradually as we move from season to season (Y1 Aut2) 	<p>Food Sources:</p> <ul style="list-style-type: none"> • Fruits and vegetables come from plants (including trees). • Fruits contain a plant's seeds. Vegetables are other parts of the plant. • Food can come from farms, allotments and gardens. • Fruits and vegetables are usually harvested in a particular season. Different foods are in season at different times of the year. <p>Nutrition & Eating:</p> <ul style="list-style-type: none"> • We should eat 5 portions of fruit or vegetables each day. • 'Eating a rainbow' means to eat different types of fruits and vegetables, that might have lots of different colours. • Fruits and vegetables both contain lots of good things for our bodies. Fruits contain more sugar, so we should eat less of them. <p>Food Safety & Hygiene:</p> <ul style="list-style-type: none"> • Wash hands and tie hair back to stop the tiny living things on our hands getting onto the food and into our bodies. • Wear an apron to protect our clothes and stop the tiny living things on them getting into food and into our bodies. 	<ul style="list-style-type: none"> • Food Sources: Foods come from a range of sources, including plants (fruits and vegetables) and animals (meat and dairy products). (Y2) • Nutrition & Eating: Humans need to eat a healthy and balanced diet. This should include all the nutrients that we need, should be high in fruits and vegetables and low in fats, salt and sugars. (Y2) • Food Safety & Hygiene: Tie hair back and wash hands after sneezing, coughing and going to the toilet to stop the tiny living things on our hands getting into our bodies. (Y2)
	Procedural	<ul style="list-style-type: none"> • Eating a range of fruits and vegetables. (EYFS) 	<p>Prepare:</p> <ul style="list-style-type: none"> • Wash and drain fruits. • Chop using the claw technique. • Chop a range of foods, including bananas, cucumber and prepared pears, pineapple, peppers and celery. • Peel bananas, satsumas. <p>Combine & Assemble:</p> <ul style="list-style-type: none"> • Stir with wooden spoon. • Use fruit juice to prevent browning. <p>Work in the Kitchen:</p> <ul style="list-style-type: none"> • Follow simple recipes. • Wash up items by removing excess food, washing, rinsing and drying. 	<ul style="list-style-type: none"> • Prepare: Chop a wider range of foods, using the bridge technique. (Y2) • Combine & Assemble: Dress a salad using utensils. (Y2) • Work in the Kitchen: Wash up items in the most appropriate order, starting with least dirty, and change washing up water as required. (Y4)
DK			<ul style="list-style-type: none"> • Make food choices based on colour and quantity of sugar. 	<ul style="list-style-type: none"> • Make food choices based on Y1 plus quantities of fat and salt and dietary requirements (vegans and vegetarians). (Y2)





Pupils will identify someone in their **home environment** that they would like to send a card or message to, and will design and make a card with moving words or pictures. In focused practical tasks, pupils will make simple linkages like levers.

		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive	Conceptual	<ul style="list-style-type: none"> • Science: Materials can be artificial (man-made) or natural. (Y1 Spr1) • Science: Materials include woods, paper, rubber, plastics, metals, fabrics, glass, rock, water. (Y1 Spr1) • Science: Materials have different properties and are used to make different objects. (Y1 Spr1) • Science: Physical properties of materials include hard/soft, dull/shiny, rough/smooth. (Y1 Spr1) 	<p>Mechanisms:</p> <ul style="list-style-type: none"> • A mechanism produced movement in a product. • A lever is a simple mechanism. It is a rigid beam that pivots (turns). • A slider is a simple mechanism. It is a rigid beam that moves back and forth on a straight line. <p>D&T Shaping the World:</p> <ul style="list-style-type: none"> • Examples of levers in everyday life include door handles, see-saws, windscreen wipers. Examples of slides in everyday life include drawers/runners and some ladders. • Artists often create art for its own sake. Designers create things that are useful and have a purpose. 	<ul style="list-style-type: none"> • Mechanisms: A buggy has a body, wheels, axles, axle holders and chassis. Axles can be fixed or free. (Y2 Spr1) • Science: Mechanisms can change the direction of the force or reduce the amount of force required to do work. (Y5 Sum1) • Mechanisms: A pulley is a simple mechanism with a grooved wheel that spins on an axle. A drive belt transfers movement from one pulley to another. (Y5 Sum2) • Mechanisms: A cam changes the direction of movement from rotary to reciprocal. (Y5 Sum2)
	Procedural	<ul style="list-style-type: none"> • Making marks and simple shaping and joining techniques (EYFS) 	<ul style="list-style-type: none"> • Shaping: Make holes using a sharp pencil and adhesive putty (Blu Tac). • Shaping: Shape card with scissors. • Joining: Use a split pin, sticky fixers, Sellotape and folding to join materials, and adhesive putty (Blut Tac) to temporarily join materials. • Finishing: Finish products with decorations using colouring pencils and decorations made or sourced from a computer. 	<ul style="list-style-type: none"> • Marking out: Use a pencil and ruler to mark out the position of holes and straight lines. (Yr 4 Spr) • Shaping: Shape paper dowel with snippers and by bending. (Yr 4 Spr) • Joining: Use a wider variety of push fit components such as rubber washers, cams and paper clips used as modelling wire. (Yr 4 Spr)
Disciplinary		<ul style="list-style-type: none"> • Design Values: Use shared design criteria based on the values of Visual Appeal; Materials; Function. • Identify User Needs: Make choices about the specific users and purpose of a product. • Evaluate: Evaluate products according to the design criteria. • Make, Test, Iterate: Designing is about trying something and seeing what works, and then trying again. • Communicate Designs: Contribute to a class storyboard that shows a process for making. 	<ul style="list-style-type: none"> • Design Values: Use design criteria based on the values of Inclusivity and Accessibility. (Y1 Sum) • Identify User Needs: Use interviews to identify user needs. (Y1 Sum) • Communicate Designs: Draw simple design ideas and label them. (Y2 Sum) 	





Pupils will interview the key stakeholder (e.g. head teacher) who is redesigning an outdoor space **in the local community** to understand their needs. They will then create a model to communicate their designs. In the focused practical tasks, pupils create structures using card, paper, straws, wood and plasticine/clay.

		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive	Conceptual	<ul style="list-style-type: none"> • Science: Materials can be artificial (man-made) or natural. (Y1 Spr1) • Science: Materials include woods, paper, rubber, plastics, metals, fabrics, glass, rock, water. (Y1 Spr1) • Science: Materials have different properties and are used to make different objects. (Y1 Spr1) • Science: Physical properties of materials include hard/soft, dull/shiny, rough/smooth. (Y1 Spr1) 	<p>Structures:</p> <ul style="list-style-type: none"> • 2D shapes have a length and width. • 3D shapes have a length and width and height. • Free-standing structures can be made stronger with stiffer materials, thicker materials, or with more layers of material (laminating). • Free-standing structures can be made more stable by having a wider base or a heavier base. <p>Materials:</p> <ul style="list-style-type: none"> • Materials include woods, paper, card, rubber, plastics, metals, fabrics, glass, rock, water, plasticine/clay. <p>D&T Shaping the World:</p> <ul style="list-style-type: none"> • Architects are artists and designers who design buildings. Architects make models of spaces like towns to help them plan them. (Link to local area if possible). 	<ul style="list-style-type: none"> • Making structures more stable and stronger (Y2 Spr1, Y3 Aut1) • Shell structures and frame structures (Y4 Spr)
	Procedural	<ul style="list-style-type: none"> • Marking out: Use a pencil and ruler to mark out the position of holes and straight lines before shaping them. (Y1 Spr) • Shaping: Shape paper and card with scissors. (Y1 Spr) • Joining: Use glue sticks and folding to join materials. (Y1 Spr) 	<ul style="list-style-type: none"> • Shaping: Shape plasticine using rolling pins and basic craft tools. • Shaping: Shape plastic sheets, pipe cleaners and art straws. • Joining: Use PVA glue, sellotape and masking tape to join materials. 	<ul style="list-style-type: none"> • Shaping and joining using a wider range of materials and techniques.
Disciplinary		<ul style="list-style-type: none"> • Design Values: Use shared design criteria based on the values of Visual Appeal; Materials; Function. (Y1 Spr) • Evaluate: Evaluate products according to the design criteria. (Y1 Spr) • Make, Test, Iterate: Designing is about trying something and seeing what works, and then trying again. (Y1 Spr) 	<ul style="list-style-type: none"> • Design Values: Use design criteria based on the values of Inclusivity and Accessibility. • Identify User Needs: Use interviews to identify user needs. • Generate Ideas: Take photographs and use these as inspiration. • Communicate Designs: A model is a way of showing a design idea in 3D. • Communicate Designs: When designers communicate their ideas, they need to be drawn at the right size. • Communicate Designs: Talk about simple design ideas with others. 	<ul style="list-style-type: none"> • Design Values: Use design criteria based on the value of the Making Process. • Identify User Needs: Identify a user's needs in a specific context when they have a problem, through observing and through a 'user trip'. (Y3 Spr) • Generate Ideas: Use a wider range of techniques to generate ideas. • Communicate Designs: Draw simple design ideas and label them. (Y2 Sum)





		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive Knowledge	Conceptual	<ul style="list-style-type: none"> • Food Sources: Fruits and vegetables come from plants (including trees). Fruits contain a plant's seeds. Vegetables are part of the plant. (Y1) • Nutrition & Eating: Fruits and vegetables both contain lots of good things for our bodies. Fruits contain more sugar, so we should eat less of them. (Y1) • 'Eating a rainbow' means to different types of fruits and vegetables, that might have lots of different colours. (Y1) • Science: Humans need to eat a healthy and balanced diet. This should include all the nutrients that we need, should be high in fruits and vegetables and low in fats, salt and sugars. (Y2 Aut2) • Food Safety & Hygiene: Wash hands, tie hair back and wear an apron to stop the tiny living things on our hands and clothes getting onto the food and into our bodies. (Y1) • Science: Humans have five senses, smell, taste, touch, sight and hearing. (Y1 Sum2) • Science: The five senses are each associated with different body parts (eyes, ears, nose, tongue) (Y1 Sum2) • Science: Materials have different physical properties, some materials are hard whilst others are soft, some can be described as rough whilst others are smooth. (Y1 Spr) 	<p>Food Sources:</p> <ul style="list-style-type: none"> • Foods come from a range of sources, including plants (fruits and vegetables) and animals (meat and dairy products). • Milk comes from animals like cows, sheep, and goats. • Foods made from animal milks are called dairy products. • Some foods are eaten as they are (e.g. milk; fruits and vegetables). Some foods are processed in some way before we eat them (e.g. cheese is made from milk). <p>Nutrition & Eating:</p> <ul style="list-style-type: none"> • Vegetarians choose not eat animal meat. • Vegans do not eat any animal product. They eat milks and cheeses made from plants. • Some foods are sweet, and some are salty. • Texture is about how food feels in our mouths. Food textures include hard, soft, rough, smooth, crunchy, crispy, chewy, creamy. • Food is more interesting to eat if it has more than one texture at a time. <p>Food Safety & Hygiene:</p> <ul style="list-style-type: none"> • Tie hair back and wash hands after sneezing, coughing and going to the toilet to stop the tiny living things on our hands getting into our bodies. 	<ul style="list-style-type: none"> • Food Sources: Foods can be minimally processed (like fresh fruit and vegetables); moderately processed (like cheese and flour); significantly processed (like baked beans); or ultra-processed (like ready meals; sugary cereals and crisps). (Y6) • Nutrition & Eating: The main food groups are carbohydrates (starch and sugars), proteins, fats, fibre, vitamins and minerals. Humans need a balanced diet. (Sci Y3 Spr1) • Food Safety & Hygiene: The difference between 'best before' and 'use by' (Y3)
	Procedural	<ul style="list-style-type: none"> • Prepare: Chop a range of foods using the claw technique. (Y1) • Work in the Kitchen: Follow simple recipes and wash up items by removing excess food, washing, rinsing and drying. 	<p>Prepare:</p> <ul style="list-style-type: none"> • Use senses (sight, smell and touch) to check foods for any bits that should not be eaten. • Remove the outer leaves of lettuce and wash and drain them. • Use a colander or sieve to drain canned foods • Chop using the claw and bridge technique. • Chop a range of foods, including the above plus tomatoes, lettuce, feta and prepared cheddar. • Peel and grate carrots. <p>Combine & Assemble:</p> <ul style="list-style-type: none"> • Dress salad using two utensils and layer food on a salad bed. 	<ul style="list-style-type: none"> • Prepare: Chop an increasingly complicated selection of foods (e.g. onions, peppers).
Disc.	<ul style="list-style-type: none"> • Make food choices based on colour and quantity of sugar. 	<ul style="list-style-type: none"> • Make food choices based on colour and quantity of sugar, plus quantities of fat and salt, and dietary requirements (vegans and vegetarians). 	<ul style="list-style-type: none"> • Make food choices based on Y1-2 plus knowledge of food allergies. (Y3) 	





In this engineering project, pupils design a buggy that will travel down a ramp and roll the furthest possible distance from its starting point. In the focused practical tasks, pupils will make and test different configurations of buggy, including fixed and free axles and wheels of different sizes and thickness.

		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive	Conceptual	<ul style="list-style-type: none"> • Science: Materials have different properties and are used to make different objects. (Y1 Spr1) • Science: Physical properties of materials include hard/soft (Y1 Spr1), malleable/not malleable, windproof/not windproof. (Y2 Spr1) • History: The wheel was an important invention in the development of transport. (Y1 Spr) • Materials: Materials include woods, paper, card, rubber, plastics, metals, fabrics, glass, rock, water, plasticine. (Y1 Sum) • Mechanisms: A mechanism has an input and an output and changes movement or makes it easier (Y1 Spr) • D&T Shaping the World: Artists often create art for its own sake. Designers create things that are useful and have a purpose. (Y1 Spr). 	<p>Mechanisms:</p> <ul style="list-style-type: none"> • A moving buggy will include the body, wheels, axles, axle holders, and chassis. • There are two types of axle: fixed and free. Fixed axles attach to the chassis. Free axles are not attached to the chassis and can spin within the chassis. <p>Structures:</p> <ul style="list-style-type: none"> • Triangulation makes structures stronger and more stable. <p>D&T Shaping the World:</p> <ul style="list-style-type: none"> • Engineers are scientists who use their knowledge to make things that work like bridges and cars. 	<ul style="list-style-type: none"> • Science: Mechanisms can change the direction of the force or reduce the amount of force required to do work. (Y5 Sum1) • Mechanisms: A pulley is a simple mechanism with a grooved wheel that spins on an axle. A drive belt transfers movement from one pulley to another. (Y5 Sum2) • Mechanisms: A cam changes the direction of movement from rotary to reciprocal. (Y5 Sum2)
	Procedural	<ul style="list-style-type: none"> • Marking out: Use a pencil and ruler to mark out the position of holes and straight lines before shaping them. (Y1 Spr) • Shaping: Shape paper and card (Y1 Spr) and pipe cleaners and art straws with scissors. (Y1 Sum) • Shaping: Make holes using a hole punch, and by using a sharp pencil and adhesive putty. (Y1 Spr) • Joining: Use glue sticks (Y1 Spr), PVA glue, sellotape and masking tape to join materials. (Y1 Sum) 	<ul style="list-style-type: none"> • Shaping: Shape wooden lollipop sticks. • Joining: Use pre-drilled push fit items to join them, and sticky pads to join materials. 	<ul style="list-style-type: none"> • Shaping and joining using a wider range of materials and techniques.
Disciplinary	<ul style="list-style-type: none"> • Design Values: Use shared design criteria based on the values of Visual Appeal; Materials; Function Inclusivity and Accessibility. (Y1 Sum) • Evaluate: Evaluate products according to the design criteria. (Y1 Spr) • Make, Test, Iterate: Designing is about trying something and seeing what works, and then trying again. (Y1 Spr) • Science: It is important that we keep as much as we can the same, apart from the thing we measure and the one thing we change. (Y2 Spr1) 	<ul style="list-style-type: none"> • Generate Ideas: Use 'what if' questions to generate ideas. • Make, Test, Iterate: Designers and engineers build prototypes to test and improve their products. 	<ul style="list-style-type: none"> • Generate Ideas: Use premade templates, 'draw and fold', story books and personal photographs to inspire designs and creative ideas. (Y2 Sum) • Make, Test, Iterate: When using textiles, designers make a pattern from paper to test before making the final product. (Y2 Sum) 	





Pupils will design and make a glove puppet, made to fit the size of their hand, which will help to tell a story to children in EYFS (or other people) in the **school environment**. In the focused practical tasks, pupils practise joining fabrics in different ways, including a running stitch with needle and thread, glue and staples.

		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive	Conceptual	<ul style="list-style-type: none"> • Science: Materials can be artificial (man-made) or natural. (Y1 Spr1) • Science: One way to use materials more sustainably is to reduce, reuse and recycle wherever possible. (Y2 Spr1) • Science: Sustainability means meeting the needs of the people today while meeting the needs of people in the future. (Y2 Spr1) • Science: Physical properties of materials include rough/smooth. (Y2 Spr1) 	<p>Materials:</p> <ul style="list-style-type: none"> • Materials - including different types of fabric - have different properties and are used to make different objects. 	<ul style="list-style-type: none"> • Science: Materials have chemical and physical properties. (Y4 Sum2)
	Procedural	<ul style="list-style-type: none"> • Shaping: Make holes using a hole punch and shaping paper and card with scissors. (Y1 Spr) 	<ul style="list-style-type: none"> • Marking out: Temporarily fix a template or pattern to a material using pins and paperclips, and use chalk to mark out shapes before cutting them. • Marking out: Position patterns on fabrics in a way that reduces waste. • Shaping: Shape fabric using scissors, and use rubber bands to shape materials. • Joining: Use staples and fabric glue to join materials. • Joining: Thread a needle and join fabrics using a running stitch. • Joining: Use a seam allowance to make sure that the patterns keep their shape. • Finishing: Finish fabrics by decorating with pipe cleaners or other pieces of fabric. 	<ul style="list-style-type: none"> • Joining: Sew using a back stitch, and use press studs, buttons and tying with ribbon to join fabrics. (Y3 Spr)
Disciplinary		<ul style="list-style-type: none"> • Design Values: Use shared design criteria based on the values of Visual Appeal; Materials; Function (Y1 Spr) Inclusivity and Accessibility. (Y1 Sum) • Identify User Needs: Make choices about the specific users of a product. (Y1 Spr) • Evaluate: Evaluate products according to the design criteria. (Y1 Spr) • Make, Test, Iterate: Designing something, see what works, and then try again. (Y1 Spr) 	<ul style="list-style-type: none"> • Design Values: Use design criteria based on the value of the Making Process. • Identify User Needs: Contribute to design criteria by using approximate measurements (of the hand). • Generate Ideas: Use premade templates, 'draw and fold', story books and personal photographs to inspire designs and creative ideas. • Make, Test, Iterate: When using textiles, designers make a pattern from paper to test before making the final product. • Communicate Designs: Draw simple design ideas and label them. 	<ul style="list-style-type: none"> • Design Values: Use shared design criteria based on the value of Sustainability (and the whole life cycle of the product). (Y3 Aut) • Identify User Needs: Identify a user's needs in a specific context when they have a problem, through observing and through a 'user trip'. (Y3 Spr) • Generate Ideas: Use a wider range of techniques to generate ideas.





Pupils will build knowledge of frame and shell structures by designing and creating structures that can serve as picture frames that would be sold in a **commercial context**. In the focused practical tasks, pupils will make and test different ways of making their structures stand (with a stand and ties) or hang on a wall.

		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive	Conceptual	<ul style="list-style-type: none"> • Science: Physical properties of materials include hard/soft, dull/shiny, rough/smooth, malleable/not malleable, waterproof/not waterproof. (Y2 Spr1) • Science: Sustainability means meeting the needs of the people today, whilst meeting the needs of people of the future. One way to use materials more sustainably is to reduce, reuse and recycle wherever possible. (Y2 Spr1) • Structures: Free-standing structures can be made stronger with stiffer materials, thicker materials, or with more layers of material (laminating). (Y1 Sum) • Structures: Free-standing structures can be made more stable by having a wider base or a heavier base. (Y1 Sum) • Structures: Triangulation makes structures stronger and more stable. (Y2 Spr) 	<p>Structures:</p> <ul style="list-style-type: none"> • Triangulation makes structures and joints stronger and more stable. • Free-standing structures can be made more stable by adding a stand. • Ties can make structures more stable. <p>D&T Shaping the World:</p> <ul style="list-style-type: none"> • Free standing structures in the world around us have been made strong and stable with triangulation, using strong materials and having a wide base. 	<ul style="list-style-type: none"> • Structures: A shell structure has a continuous outer 'shell' and do not have a frame, like an egg shell or a dome in a building. (Y4 Spr) • A frame structure is made from separate pieces of material called members that form a frame, like a climbing frame or most houses. (Y4 Spr)
	Procedural	<ul style="list-style-type: none"> • Marking out: Use a pencil and ruler to mark out the position of holes and straight lines before shaping them. (Y1 Spr) • Shaping: Shape paper and card; (Y1 Spr), plastic sheets and lollipop sticks. (Y2 Spr) • Joining: Use glue sticks (Y1 Spr), PVA glue, masking tape (Y1 Sum) and sticky pads (Y2 Spr). • Finishing: Finish using decorations sourced or made using a computer (Y1 Aut). 	<ul style="list-style-type: none"> • Marking out: Use a set square to keep right angles. • Shaping: Use a bradawl to make a hole. • Shaping: Cut hard materials like wood with a junior hacksaw and clamps. • Finishing: Finish products with decorations using paints. 	
Disciplinary		<ul style="list-style-type: none"> • Design Values: Use shared design criteria based on the values of Visual Appeal; Materials; Function (Y1 Spr); Inclusivity and Accessibility (Y1 Sum); the Making Process. (Y2 Sum) • Identify User Needs: Make choices about the specific users of a product (Y1 Aut) • Evaluate: Evaluate products according to the design criteria. (Y1 Spr) • Generate Ideas: Use photographs, 'what if' questions and storybooks to inspire ideas. • Make, Test, Iterate: Designing something, see what works, and then try again. (Y1 Spr) • Communicate Designs: Draw simple design ideas and label them. (Y2 Sum) 	<ul style="list-style-type: none"> • Design Values: Use shared design criteria based on the value of Sustainability (and the whole life cycle of the product). • Generate Ideas: Disassemble different products and use these as inspiration for creating own ideas. 	<ul style="list-style-type: none"> • Design Values: Develop own, individual design criteria based on design values. (Y3 Spr) • Generate Ideas: Use constraints (e.g. max A5 page), Zwicky tables, and inspiration from nature to generate ideas. (Y3 Spr)





Pupils will design a product with a specific user and problem in mind (e.g. teacher keeps breaking sunglasses that are loose in their backpack), in a **school** or **home** context. In the focused practical tasks, pupils will practise ways of joining fabrics, including over stitch and using press studs, buttons and ribbons.

		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive	Conceptual	<ul style="list-style-type: none"> • Materials: Materials - including different types of fabric - have different properties and are used to make different objects. • Science: Physical properties of materials include hard/soft, dull/shiny, rough/smooth, waterproof/not waterproof, heatproof/not heatproof, windproof/not windproof, absorbent/not absorbent. (Y2 Spr1) 		<ul style="list-style-type: none"> • Science: Materials have chemical and physical properties. (Y4 Sum2)
	Procedural	<ul style="list-style-type: none"> • Marking out: Temporarily fix a pattern to a material using pins, staples (positioning them to reduce waste), and mark out using chalk. (Y2 Sum) • Marking out: Position patterns on fabrics in a way that reduces waste (Y2 Sum) • Shaping: Shape fabric using scissors and use rubber bands to shape materials (Y2 Sum) • Joining: Use staples and fabric glue to join materials (Y2 Sum) • Joining: Thread a needle and join fabrics using a running stitch (Y2 Sum) • Joining: Use a seam allowance to make sure that the patterns keep their shape (Y2 Sum) • Finishing: Finish fabrics by decorating with buttons, pipe cleaners or other pieces of fabric (Y2 Sum) 	<ul style="list-style-type: none"> • Joining: Join fabrics using an over stitch. • Joining: Use press studs, buttons and tying with ribbon to join fabrics. 	<ul style="list-style-type: none"> • Joining: Join fabrics using a back stitch. (Y6 Aut) • Finishing: Release tension by snipping along a curved seam. (Y6 Aut) • Finishing: Finish using a blanket stitch (Y6 Aut). • Finishing: Make minor adjustments to ensure a good fit. (Y6 Aut)





Pupils will design a product with a specific user and problem in mind (e.g. teacher keeps breaking sunglasses that are loose in their backpack), in a **school** or **home** context. In the focused practical tasks, pupils will practise ways of joining fabrics, including over stitch and using press studs, buttons and ribbons.

	Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Disciplinary	<ul style="list-style-type: none"> • Design Values: Use shared design criteria based on the values of Visual Appeal; Materials; Function (Y1 Spr); Inclusivity and Accessibility (Y1 Sum); Making Process (Y2 Sum); and Sustainability. (Y3 Aut) • Identify User Needs: Identify design criteria through approximate measurements. (Y2 Sum) • Evaluate: Evaluate products according to the design criteria. (Y1 Spr) • Generate Ideas: Use photographs, 'what if' questions and storybooks to inspire ideas (Yr 3 Aut 1) • Make, Test, Iterate: Designing something, see what works with the pattern, and then try again. (Y1 Spr) • Communicate Designs: Draw simple design ideas and label them. (Y2 Sum) 	<ul style="list-style-type: none"> • Design Values: Develop own, individual design criteria based on design values. • Identify User Needs: Identify a user's needs in a specific context, when they have a specific problem, through observations. • Identify User Needs: Identify a user's needs through a 'user trip' (doing the task that the user needs to do). • Generate Ideas: Use prototyping and constraints (size and colour). 	<ul style="list-style-type: none"> • Design Values: Develop own design criteria based on the value of Necessity: do we really <i>need</i> to design this product? (Y6 Spr1) • Identify User Needs: Develop design criteria with exact measurements. (Y6 Aut) • Generate Ideas: Use 'quick draw eights' to generate ideas. (Y4 Sum2)





		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive Knowledge	Conceptual	<ul style="list-style-type: none"> • Food Sources: Foods come from a range of sources, including plants (fruits and vegetables) and animals (meat and dairy products). • Nutrition & Eating: Vegetarians choose not eat animal meat. Vegans do not eat any animal product. (Y2) • Science: The main food groups are carbohydrates (starch and sugars), proteins, fats, fibre, vitamins and minerals. Humans need a balanced diet. (Y3 Spr1) • Food Safety & Hygiene: Wear an apron and tie hair back (Y1) and wash hands after sneezing, coughing and going to the toilet to stop the tiny living things on our hands getting into our bodies. (Y2) 	<p>Food Sources:</p> <ul style="list-style-type: none"> • Bread is made from flour, which is ground seeds of the wheat plant. • Sources of meat include chicken, sheep (lamb), pigs (pork products), tuna and other fish. <p>Nutrition & Eating:</p> <ul style="list-style-type: none"> • Some people are allergic to certain types of food, like nuts or gluten. This means their body reacts when they eat or are in contact with these foods. Some food allergies are mild, and some can be very serious. <p>Food Safety & Hygiene:</p> <ul style="list-style-type: none"> • Food should not be eaten after the 'use by' date. Foods can be eaten after the 'best before' date, but we should check them first. • High risk foods with a 'use by' date should be kept in the fridge. • Hands should be washed after handling raw eggs to stop the tiny things living in there getting into our bodies, because they can make us unwell. 	<ul style="list-style-type: none"> • Food Sources: Knowledge of where other foods come from, such as pasta is made from wheat flour and water (and sometimes egg). (Y5) • Nutrition & Eating: Some people are intolerant to certain types of food, like gluten or dairy products. This means their bodies cannot digest the foods. It can cause discomfort. (Y4) • Food Safety & Hygiene: The tiny living things that we need to stop getting into food are bacteria and viruses. They can sometimes make us unwell. (Sci Y6 Spr2)
	Procedural	<ul style="list-style-type: none"> • Prepare: Chop a range of foods using the claw (Y1) and bridge (Y2) technique. Use senses (sight, smell and touch) to check foods for any bits that should not be eaten. (Y2) • Work in the Kitchen: Follow simple recipes and wash up items by removing excess food, washing, rinsing and drying. 	<p>Prepare:</p> <ul style="list-style-type: none"> • Chop a range of foods, including the above plus hard-boiled eggs and cheddar. • Peel hard-boiled eggs. <p>Combine & Assemble:</p> <ul style="list-style-type: none"> • Stir with a teaspoon or tablespoon. • Spread butter / margarine with a knife. <p>Cook:</p> <ul style="list-style-type: none"> • Use a hob to boil (an egg). <p>Work in the Kitchen:</p> <ul style="list-style-type: none"> • Independently maintain a clean and organised workspace. 	<ul style="list-style-type: none"> • Prepare: Chop an increasingly complicated selection of foods (e.g. onions, peppers). • Cook: Use a hob to boil other foods (vegetables and pasta) and to sauté and simmer. • Work in the Kitchen: Wash up items in the most appropriate order, starting with least dirty, and change washing up water as required. (Y4)
DK	<ul style="list-style-type: none"> • Make food choices based on colour and quantity of sugar, plus quantities of fat and salt, and dietary requirements (vegans and vegetarians). 	<ul style="list-style-type: none"> • Make food choices based on colour; quantities of sugar, fat, and salt; dietary requirements; plus knowledge of food allergies. 	<ul style="list-style-type: none"> • Make food choices based on Y1-3 plus knowledge of food miles. (Y4) 	





		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive Knowledge	Conceptual	<ul style="list-style-type: none"> • Food Sources: Foods come from a range of sources, including plants (fruits and vegetables) and animals (meat and dairy products). • Nutrition & Eating: Vegetarians choose not eat animal meat. Vegans do not eat any animal product. (Y2) Some people are allergic to foods, which means their body as a reaction when they eat them. (Y3) • Science: The main food groups are carbohydrates (starch and sugars), proteins, fats, fibre, vitamins and minerals. Humans need a balanced diet. (Y3) • Food Safety & Hygiene: Wear an apron and tie hair back (Y1) and wash hands after sneezing, coughing and going to the toilet to stop the tiny living things on our hands getting into our bodies (Y2). Food should not be eaten after the 'use by' date. Foods can be eaten after the 'best before' date, but we should check them first. (Y3) 	<p>Food Sources:</p> <ul style="list-style-type: none"> • Beans and lentils are edible seeds from plants. • Seasoning adds to the taste of food. Seasoning can include salt, spices (like pepper), herbs, and sugar. • Spices are usually made from the seeds, roots, stem or fruits of a plant and add flavour to food. • Herbs are usually the leaves of a plant and add flavour to food. • Mushrooms are not plants nor animals. They are a type of fungus. <p>Nutrition & Eating:</p> <ul style="list-style-type: none"> • Some people are intolerant to certain types of food, like gluten or dairy products. This means their bodies cannot digest the foods. It can cause discomfort. <p>Food Safety & Hygiene:</p> <ul style="list-style-type: none"> • Hobs and hand blenders need to be used with care, keeping our fingers away. • When blending hot liquids, the blender should be on and/or it is kept well away from the user. • Food preparation sources should be wiped down before and after use to stop the tiny living things on the surfaces getting onto food. Food preparation areas should be left clean so that food pests are not attracted. 	<ul style="list-style-type: none"> • Food Sources: Knowledge of where other foods come from, and how they can be minimally, moderately, significantly or ultra processed. (Y6) • Nutrition & Eating: A healthy diet is made up of mostly minimally and moderately processed foods. Too many ultra-processed foods should be avoided. (Y6) • Food Safety & Hygiene: The tiny living things that we need to stop getting into food are bacteria and viruses. They can sometimes make us unwell. (Sci Y6 Spr2)
	Procedural	<ul style="list-style-type: none"> • Prepare: Chop a range of foods using the claw (Y1) and bridge (Y2) technique. Use senses (sight, smell and touch) to check foods for any bits that should not be eaten. (Y2) • Mathematics: Measure and compare volume/capacity (ml/l). (Y3) • Work in the Kitchen: Follow simple recipes and wash up items by removing excess food, washing, rinsing and drying (Y2), and independently maintain a clean and organised workspace (Y3). 	<p>Prepare:</p> <ul style="list-style-type: none"> • Chop a range of foods, including mushrooms and carrots. • Crush garlic. • Measure volumes in millilitres and litres using a measuring jug. <p>Combine & Assemble:</p> <ul style="list-style-type: none"> • Use a food processor or hand mixer. <p>Cook:</p> <ul style="list-style-type: none"> • Use a hob to sauté and simmer food, and to boil (vegetables). <p>Work in the Kitchen:</p> <ul style="list-style-type: none"> • Wash up items in the most appropriate order, starting with least dirty, and change washing up water as required. 	<ul style="list-style-type: none"> • Prepare: Chop an increasingly complicated selection of foods (e.g. onions), and incorporate estimation skills into measurements. • Combine & Assemble: Use a blender or hand-held blender. (Y5) • Cook: Use an oven to roast vegetables. (Y5)
DK	<ul style="list-style-type: none"> • Make food choices based on colour; quantities of sugar, fat, and salt; dietary requirements; and knowledge of food allergies. 	<ul style="list-style-type: none"> • Make food choices based on colour; quantities of sugar, fat, and salt; dietary requirements; knowledge of food allergies; plus food miles. 	<ul style="list-style-type: none"> • Make food choices based on Y1-4 plus time taken to prepare. (Y5) 	



Linkages, Pulleys and Cams



Pupils will make links to the Geography unit on Amazon rainforest deforestation.

	Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive	Conceptual <ul style="list-style-type: none"> • Science: Materials have different properties and are used to make different objects. (Y1 Spr1) • Science: Friction is a force between two surfaces that are sliding or trying to slide over each other. • The bumpier or rougher the surfaces, the more friction there will be. • Mechanisms: • A mechanism is a moving part in a product. (Yr1 Spr1) • A lever is a simple mechanism. It is a rigid beam that pivots (turns). (Yr1 Spr1) • A slider is a simple mechanism. It is a rigid beam that moves back and forth on a straight line. (Yr1 Spr1) • Mechanisms: Axles can be fixed or free. (Y2 Spr1) 	Mechanisms: <ul style="list-style-type: none"> • A linkage is a system of levers that are joined together to control movement. • Examples of linkages in everyday life including umbrellas, scissor lifters, tool-boxes and excavators • Linkages can create a range of different movements e.g. reciprocating and oscillating. • A mechanism has an input and an output. • A cam is a mechanism that changes rotary motion to reciprocating. • Different-shaped cams produce different follower movements • Examples of cams in everyday use include car engines, photocopiers and children's toys • A pulley is a grooved wheel over which a belt or rope is run • Examples of pulleys used in everyday life include theatre to open and close the curtains, fishing rod, zip wire, cable car D&T Shaping the World: <ul style="list-style-type: none"> • Ancient Egyptians and Ancient Greeks used knowledge of mechanisms to make levers and pulleys. (Link to History). 	<ul style="list-style-type: none"> • Science: Mechanisms can change the direction of the force or reduce the amount of force required to do work. (Y5 Sum1) • Mechanisms: A pulley is a simple mechanism with a grooved wheel that spins on an axle. A drive belt transfers movement from one pulley to another. (Y5 Sum2) • Mechanisms: A cam changes the direction of movement from rotary to reciprocal. (Y5 Sum2) • Structures: A shell structure has a continuous outer 'shell' and do not have a frame, like an egg shell or a dome in a building. (Y4 Spr) • A frame structure is made from separate pieces of material called members that form a frame, like a climbing frame or most houses. (Y4 Spr)
	Procedural <ul style="list-style-type: none"> • Making marks and simple shaping and joining techniques (EYFS) • Mathematics: Use a ruler to measure and mark lengths in centimetres. (Y4) • Joining: Use a range of glues, tapes and pre-drilled push fit items to join materials. (Y2 Spr2) • Finishing: Finish by using decorations/information created or sourced from a computer and/or paint. (Y1 Spr1) • Shaping: Make holes by using a sharp pencil and adhesive putty (Blu Tack). (Y1 Spr1) 	<ul style="list-style-type: none"> • Marking out: Use a pencil and ruler to mark out the position of holes and straight lines. • Shaping: Shape paper dowel with snippers and by bending. • Joining: Use a wider variety of push fit components such as rubber washers, cams and paper clips used as modelling wire. • Joining: Make minor alterations when positioning components to reduce the effects of friction. 	<ul style="list-style-type: none"> • Shaping with increasingly sophisticated tools. (KS3)





In this programming project, pupil review knowledge of mechanisms from Year 4 D&T; electrical circuits from Science; and programming from Computing to design and make an interactive information display for the **school** or **local community**.

		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive	Conceptual	<ul style="list-style-type: none"> • Structures: Free-standing structures can be made stronger with stiffer materials, thicker materials, or with more layers of material (laminating). Free-standing structures can be made more stable by having a wider base or a heavier base. (Y1 Sum) Triangulation makes structures and joints stronger and more stable. (Y3 Aut) • Programming: Electronic control systems have inputs, outputs and a central processor. A process flow chart drives a programmable system. Flow charts use command words like 'if', 'then', 'stop', 'start', 'repeat'. Programmes can run for a given number of loops or a set amount of time, or until something is no longer true. A variable is something that be changed. • Science: A complete circuit has at least one cell and at least one functioning component connected in a continuous loop. A short circuit is a circuit with just a cell and no other components. They can be dangerous. Electrical components include: wire, lamp, buzzer, motor and switch. Electrical appliances should be switched off when not in use. Switches complete or break a circuit. (Y4 Sum1) 	<p>Programming:</p> <ul style="list-style-type: none"> • Sensors can sense light, sound, and motion and can be used to trigger a program. • Some components, like LEDs and power terminals, need to be connected correctly (positive and negative pins the correct way round) to function. <p>D&T Shaping the World:</p> <ul style="list-style-type: none"> • Technology – and programmable technology – has had a huge impact on the world in living memory. <p>Also review from Y4 Spr Mechanisms:</p> <ul style="list-style-type: none"> • A pulley is a simple mechanism. It is a grooved wheel that spins on an axle. • A drive belt transfers movement from one pulley to another. 	<ul style="list-style-type: none"> • Science: Understanding how mechanisms relate to work done (KS3).
	Procedural	<ul style="list-style-type: none"> • Marking out: Use a set square to keep right angles (Y3). • Mathematics: Use a ruler to measure and mark lengths in centimetres. (Y4) • Shaping: Make a hole using a bradawl. (Y3 Aut) • Finishing: Finish the product by using decorations/information created or sourced from a computer and/or paint. 		
Disciplinary		<ul style="list-style-type: none"> • Design Values: Develop own design criteria based on the values of Visual Appeal; Materials; Function; Inclusivity and Accessibility; Making Process; and Sustainability. • Evaluate: Evaluate products according to the design criteria. • Communicate Designs: Draw an exploded diagram (Y4 Spr) 		





		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive Knowledge	Conceptual	<ul style="list-style-type: none"> • Food Sources: Foods come from a range of sources, including plants (fruits and vegetables) and animals (meat and dairy products) (Y2). Seasoning adds to the flavour of food. We can season with spices and herbs. (Y4) • Nutrition & Eating: Vegetarians choose not eat animal meat. Vegans do not eat any animal product. (Y2) Some people are allergic to foods, which means their body has a reaction when they eat them (Y3). Some people are intolerant to foods, which means they cannot digest them. (Y4) • Science: The main food groups are carbohydrates (starch and sugars), proteins, fats, fibre, vitamins and minerals. Humans need a balanced diet. (Y3) • Food Safety & Hygiene: Wear an apron and tie hair back (Y1) and wash hands after sneezing, coughing and going to the toilet to stop the tiny living things on our hands getting into our bodies (Y2). Food should not be eaten after the 'use by' date. Foods can be eaten after the 'best before' date, but we should check them first. (Y3) • Science: Poor thermal conductors (thermal insulators) do not allow energy to be transferred through them easily when heated. (Y4 Sum2) 	<p>Food Sources:</p> <ul style="list-style-type: none"> • Pasta is made from wheat flour and water (and sometimes egg). • Couscous is a type of pasta. <p>Food Safety & Hygiene:</p> <ul style="list-style-type: none"> • High risk foods that are cooked and ready to eat should be served immediately or kept in the fridge for 2-4 days. • Use a material that is a poor thermal conductor (thermal insulator) when stirring hot food or removing food from the oven. 	<ul style="list-style-type: none"> • Food Sources: Knowledge of where other foods come from, and how they can be minimally, moderately, significantly or ultra processed. (Y6) • Nutrition & Eating: A healthy diet is made up of mostly minimally and moderately processed foods. Too many ultra-processed foods should be avoided. (Y6) • Food Safety & Hygiene: The tiny living things that we need to stop getting into food are bacteria and viruses. They can sometimes make us unwell. (Sci Y6 Spr2)
	Procedural	<ul style="list-style-type: none"> • Prepare: Chop a range of foods using the claw (Y1) and bridge (Y2) technique. Use senses (sight, smell and touch) to check foods for any bits that should not be eaten. (Y2) Measure volumes in millilitres and litres using a measuring jug. (Y4) • Mathematics: Measure and compare mass (g/kg). (Y3) • Cook: Use a hob to sauté and simmer food, and to boil (vegetables). (Y4) • Work in the Kitchen: Follow simple recipes and wash up items in the most appropriate order (Y4) by removing excess food, washing, rinsing and drying (Y2), and independently maintain a clean and organised workspace (Y3). 	<p>Prepare:</p> <ul style="list-style-type: none"> • Use a can opener. • Chop a range of foods, including the above plus onions and cauliflower. • Measure mass in grams and kilograms using a balance. • Knowing when to measure (estimation) <p>Combine & Assemble:</p> <ul style="list-style-type: none"> • Use a blender or hand-held blender. • Whisk (to make roux and Bechamel sauce). <p>Cook:</p> <ul style="list-style-type: none"> • Use a hob to boil (pasta). • Use an oven to roast vegetables and brown cheese. 	<ul style="list-style-type: none"> • Prepare: Chop an increasingly complicated selection of foods. • Cook: Use an oven to bake. (Y6)
DK	<ul style="list-style-type: none"> • Make food choices based on colour; quantities of sugar, fat, and salt; dietary requirements; knowledge of food allergies; food miles. 	<ul style="list-style-type: none"> • Make food choices based on colour; quantities of sugar, fat, and salt; dietary requirements; knowledge of food allergies; food miles; plus time taken to prepare. 	<ul style="list-style-type: none"> • Make food choices based on Y1-5 plus carbon footprint of production and transport; occasion; and cost. (Y6) 	





Pupils will design and produce 'flat pack' toys, which can be slotted together by the end user as a **leisure** activity. Pupils could design this to be sold in a museum shop or toy shop (**enterprise**). In the focused practical task, pupils will use computer-aided design to create slottable shapes and test them quickly.

		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive	Conceptual	<ul style="list-style-type: none"> • Structures: 2D shapes have a length and width. 3D shapes have a length and width and height. (Y1 Sum) • Structures: Free-standing structures can be made stronger with stiffer materials, thicker materials, or with more layers of material (laminating). Free-standing structures can be made more stable by having a wider base or a heavier base. (Y1 Sum) • Structures: Triangulation makes structures and joints stronger and more stable (Y3 Aut) • Science: Physical properties of materials include hard/soft, dull/shiny, rough/smooth. (Y2 Spr1) • History: Prehistoric Britons, Ancient Egyptians, Ancient Greeks, Ancient Maya, Romans and Early Islamic Civilisation used knowledge of strong structures to build Stonehenge, pyramids and temples a very long time ago. (Y3 to Y5 Spr) 	<p>Structures:</p> <ul style="list-style-type: none"> • Structures can be made by slotting items together. <p>D&T Shaping the World:</p> <ul style="list-style-type: none"> • Flat pack furniture has made it easier for people to buy and transport furniture to their home. 	<ul style="list-style-type: none"> • Wider application of slotting to create and join structures (KS3)
	Proc.	<ul style="list-style-type: none"> • Shaping: Cut paper using scissors. (Y1 Spr) • Finishing: Finish using decorations sourced or made using a computer. (Y1 Aut) 	<ul style="list-style-type: none"> • Joining: Join pieces by slotting. • Finishing: File or sand to smooth edges. 	
Disciplinary		<ul style="list-style-type: none"> • Design Values: Develop own design criteria based on the values of Visual Appeal; Materials; Function (Y1 Spr); Inclusivity and Accessibility (Y1 Sum); Making Process (Y2 Sum); and Sustainability. (Y3 Aut) • Identify User Needs: Make choices about the specific users of a product (Y1 Spr) • Generate Ideas: Use premade templates as inspiration for creating own patterns. (Y2 Sum) • Communicate Designs: A model is a way of showing a design idea in 3D (Y1 Sum) 	<ul style="list-style-type: none"> • Make, Test, Iterate: Use Computed-Aided design to test models quickly and effectively. • Communicate Designs: Create a flow chart for the process of making (the model/toy from the flat pack). • Communicate Designs: Draw an exploded diagram. 	<ul style="list-style-type: none"> • Communicate Designs: Draw designs with measurements in centimetres. (Y6 Aut1)





Pupils will design a head covering or hat for themselves or for a friend (whose head they can measure) for a specific occasion in the **home, school** or **local community**. In the focused practical tasks, pupils will review and learn new joining and finishing techniques.

		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive	Conceptual	<ul style="list-style-type: none"> • Structures: Free-standing structures can be made stronger with stiffer materials, thicker materials, or with more layers of material (laminating). (Y1 Sum) • Structures: Frame and shell structures. (Y4 Sum) • Science: Physical properties of materials include hard/soft, waterproof/not waterproof, windproof/not windproof, absorbent/not absorbent, good thermal conductor/poor thermal conductor (insulator). (Y1-Y4) 		
	Procedural	<ul style="list-style-type: none"> • Marking out: Temporarily fix a pattern to a material using pins (positioning them to reduce waste), and mark out using chalk. (Y2 Sum) • Shaping: Shape lollipop sticks, pipe cleaners and fabric using hole punch and scissors. (Y1 Spr) • Joining: Use glue, staples, running stitch to join fabrics, using a seam allowance (Y2 Sum); sew using an over stitch, and use press studs, buttons and tying with ribbon to join fabrics. (Y3 Spr) • Finishing: Finish fabrics by decorating with buttons, pipe cleaners or other pieces of fabric. (Y2 Sum) 	<ul style="list-style-type: none"> • Joining: Join fabrics using a back stitch. • Finishing: Release tension by snipping along a curved seam. • Finishing: Finish using a blanket stitch. • Finishing: Make minor adjustments to ensure a good fit. 	<ul style="list-style-type: none"> • Wider range of joining and finishing stitches (KS3).
Disciplinary		<ul style="list-style-type: none"> • Design Values: Develop own design criteria based on the values of Visual Appeal; Materials; Function; Inclusivity and Accessibility; Making Process; and Sustainability. • Identify User Needs: Make choices about users and purpose. • Evaluate: Evaluate products according to the design criteria. (Y1 Spr) • Generate Ideas: Use a range of preferred techniques to generate ideas. • Communicate Designs: Draw simple diagrams. 	<ul style="list-style-type: none"> • Identify User Needs: Develop design criteria with exact measurements. • Evaluate: Evaluate products through secondary research and evaluate the sources of this secondary information. • Communicate Designs: Draw designs with measurements in centimetres. 	<ul style="list-style-type: none"> • Identify User Needs: Recognise the difference between user needs and user wants in an interview; and how there may be different users and needs within one product. (Y6 Spr) • Evaluate: Evaluate products against a growing list of design values. (KS3) • Communicate Designs: Complete scale and isometric drawings of designs. (KS3)





In the final Design & Technology project of primary school, pupils will identify a problem or issue related to sustainability, identify user needs in this area and design a system – rather than a product – that will help address these needs.

		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive	Conceptual	<ul style="list-style-type: none"> • Science: Sustainability means meeting the needs of the people today while meeting the needs of people in the future. (Y2 Spr1) • Geography: There are a range of ways that we can mitigate and adapt to climate change. (Y6 Aut2) • Geography: Plastics take hundreds of years to break down. They threaten biodiversity and can kill organisms directly or indirectly by destroying habitats. Creating plastics requires fossil fuels and releases greenhouse gases into the atmosphere. (Y6 Aut2) • [See the Sustainability Curriculum for more prior knowledge that pupils could draw upon] 	<p>D&T Shaping the World:</p> <ul style="list-style-type: none"> • Designers and engineers have developed sustainable systems in agriculture, waste and electricity generation 	
	Procedural	<ul style="list-style-type: none"> • [Required prior knowledge will depend on the problem that pupils aim to solve and the potential solutions they design.] 		
Disciplinary		<ul style="list-style-type: none"> • Design Values: Develop own design criteria based on the values of Visual Appeal; Materials; Function; Inclusivity and Accessibility; Making Process; and Sustainability. • Identify User Needs: Identify user needs through interviews and observations, and carrying out 'user trips'. • Generate Ideas: Use a range of techniques to generate ideas. 	<ul style="list-style-type: none"> • Design Values: Develop own design criteria based on the value of Necessity: do we really <i>need</i> to design this product? • Identify User Needs: Recognise the difference between user needs and user wants in an interview. • Identify User Needs: Identify different users who may use a service, and how their needs may be different. • Generate Ideas: Identify a problem or issue in a system, and design to help solve this problem. 	<ul style="list-style-type: none"> • Design Values: Develop design criteria based on additional values such as cost and specific measures like emissions of CO₂ or equivalent. (KS3) • Identify User Needs: Identify user needs from wants through user interviews and workshops. (KS3) • Generate Ideas: Develop additional ways of generating ideas, and become confident in deciding which works best in different situations. (KS3)





		Required Prior Knowledge	Knowledge to be Explicitly Taught	How Knowledge will be Built Upon
Substantive Knowledge	Conceptual	<ul style="list-style-type: none"> • Food Sources: Foods come from a range of sources, including plants (fruits and vegetables) and animals (meat and dairy products) (Y2). Seasoning adds to the flavour of food. We can season with spices and herbs. (Y4) • Nutrition & Eating: Vegetarians choose not eat animal meat. Vegans do not eat any animal product. (Y2) Some people are allergic to foods, which means their body as a reaction when they eat them (Y3). Some people are intolerant to foods, which means they cannot digest them. (Y4) • Science: The main food groups are carbohydrates (starch and sugars), proteins, fats, fibre, vitamins and minerals. Humans need a balanced diet. (Y3) • Food Safety & Hygiene: Wear an apron and tie hair back (Y1) and wash hands after sneezing, coughing and going to the toilet to stop the tiny living things on our hands getting into our bodies (Y2). Food should not be eaten after the 'use by' date. Foods can be eaten after the 'best before' date, but we should check them first (Y3). Use a material that is a poor thermal conductor when stirring hot food or removing food from the oven. (Y5) • Science: Bacteria and viruses are microorganisms. Some bacteria are helpful, and others can cause diseases in other organisms. (Y6 Spr2) 	<p>Food Sources:</p> <ul style="list-style-type: none"> • Foods can be minimally processed (like fresh fruit and vegetables); moderately processed (like cheese and flour); significantly processed (like baked beans); or ultra-processed (like ready meals; sugary cereals and crisps). <p>Nutrition & Eating:</p> <ul style="list-style-type: none"> • A healthy diet is made up of mostly minimally and moderately processed foods. Too many ultra-processed foods should be avoided. <p>Food Safety & Hygiene:</p> <ul style="list-style-type: none"> • The tiny living things that we need to stop getting into food are bacteria and viruses. They can sometimes make us unwell. 	<ul style="list-style-type: none"> • Food Sources: Knowledge of where other foods come from. • Nutrition & Eating: Understanding recommended daily intakes of various foods, and how physical activity affects this. (KS3) • Food Safety & Hygiene: The different microorganisms that can cause diseases; what harm they cause and how. (KS3)
	Procedural	<ul style="list-style-type: none"> • Prepare: Chop a range of foods using the claw (Y1) and bridge (Y2) technique. Use senses (sight, smell and touch) to check foods for any bits that should not be eaten. (Y2) Measure volumes (ml/l) using a measuring jug (Y4) and mass (g/kg) using a balance. (Y5) • Mathematics: Measure and compare mass (g/kg). (Y3) • Cook: Use a hob to sauté/simmer (Y4) and an oven to roast. (Y5) • Work in the Kitchen: Follow simple recipes and wash up items in the most appropriate order (Y4) by removing excess food, washing, rinsing and drying (Y2), and independently maintain a clean and organised workspace (Y3). 	<p>Prepare:</p> <ul style="list-style-type: none"> • Crack eggs. <p>Combine & Assemble:</p> <ul style="list-style-type: none"> • Rub flour into butter. • Shape and cut using cutters. <p>Cook:</p> <ul style="list-style-type: none"> • Use an oven to bake food. 	<ul style="list-style-type: none"> • Prepare: Chop an increasingly complicated selection of foods. • Cook: Use a growing range of appliances to cook (e.g. slow cooker; grill; air fryer).
DK	<ul style="list-style-type: none"> • Make food choices based on colour; quantities of sugar, fat, and salt; dietary requirements; knowledge of food allergies; food miles; and time taken to prepare. 	<ul style="list-style-type: none"> • Make food choices based on colour; quantities of sugar, fat, and salt; dietary requirements; knowledge of food allergies; food miles; time taken to prepare; plus carbon footprint of production and transport; occasion; and cost. 	<ul style="list-style-type: none"> • Make food choices based on Y1-6 plus meal planning to ensure waste is minimised. (KS3) 	





Part 1 of 3

	Materials	Mechanisms
EVFS	<ul style="list-style-type: none"> Materials can be artificial (man-made) or natural. 	
Y1	<ul style="list-style-type: none"> Materials include woods, paper, card, rubber, plastics, metals, fabrics, glass, rock, water, plasticine/clay Science: Materials have different properties and are used to make different objects. Science: Physical properties of materials include hard / soft, dull / shiny, rough / smooth. 	<ul style="list-style-type: none"> A mechanism makes changes movement or makes movement easier. A mechanism has an input and an output. A lever is a simple mechanism. It is a rigid beam that pivots (turns). A slider is a simple mechanism. It is a rigid beam that moves back and forth on a straight line. A linkage is a system of links that are joined together to control movement. A lever is an example of a linkage.
Y2	<ul style="list-style-type: none"> Science: Physical properties of materials include the above plus malleable / not malleable, waterproof / not waterproof, heatproof / not heatproof, windproof / not windproof, absorbent / not absorbent. Materials - including different types of fabric - have different properties and are used to make different objects. 	<ul style="list-style-type: none"> A moving buggy will include the body, wheels, axles, axle holders, and chassis. There are two types of axle: fixed and free. Fixed axles attach to the chassis. Free axles are not attached to the chassis and can spin within the chassis.
Y3	<ul style="list-style-type: none"> Science: Physical properties of materials include the above plus transparent / translucent / opaque, magnetic / non-magnetic. 	
Y4	<ul style="list-style-type: none"> Science: Physical properties of materials include the above plus good electrical conductor / poor electrical conductor (insulator), good thermal conductor / poor thermal conductor (insulator) Science: Chemical properties of materials include toxicity and flammability. 	<ul style="list-style-type: none"> A pulley is a simple mechanism. It is a grooved wheel that spins on an axle. A drive belt transfers movement from one pulley to another. A cam changes the direction of movement from rotary to reciprocal. A spring is an energy store. It stores energy that can be transferred to a different energy store. Pulleys can redirect forces, or reduce the force required to lift heavy objects.
Y5	<ul style="list-style-type: none"> Explicit review of the above. 	<ul style="list-style-type: none"> Explicit review of the above.
Y6	<ul style="list-style-type: none"> Explicit review of the above. 	





Part 2 of 3

	Structures	Programming & Control
EYFS	To be added	
Y1	<ul style="list-style-type: none"> • 2D shapes have a length and width. • 3D shapes have a length and width and height. • Free-standing structures can be made stronger with stiffer materials, thicker materials, or with more layers of material (laminating). • Free-standing structures can be made more stable by having a wider base or a heavier base. 	<ul style="list-style-type: none"> • Computing: Electronic control systems have inputs, outputs and a central processor. • Computing: A process flow chart drives a programmable system. • Computing: Flow charts use key words of 'if', 'then', 'stop', 'start', 'repeat' and other command words (depending on software) • Computing: Programmes can run for a given number of loops or a set amount of time, or until something is no longer true. • Computing: A variable is something that be changed.
Y2	<ul style="list-style-type: none"> • Triangulation makes structures stronger and more stable. 	
Y3	<ul style="list-style-type: none"> • Triangulation makes structures and joints stronger and more stable. • Free-standing structures can be made more stable by adding a stand. • Ties can make structures more stable. 	
Y4	<ul style="list-style-type: none"> • Structures can be made by slotting items together. • A shell structure has a continuous outer 'shell' and do not have a frame, like an egg shell or a dome in a building. • A frame structure is made from separate pieces of material called members that form a frame, like a climbing frame or most houses. • Frame and shell structures can be made by folding 2D nets. 	<ul style="list-style-type: none"> • Science: A complete circuit has at least one cell and at least one functioning component connected in a continuous loop. An incomplete circuit has components missing or is not connected in a continuous loop. • Science: A short circuit is a circuit with just a cell and no other components. They can be dangerous. • Science: Electrical components include: wire, lamp, buzzer, motor and switch. • Science: Electrical appliances should be switched off when not in use. • Science: Switches complete or break a circuit. • Apply the above to a D&T context.
Y5	<ul style="list-style-type: none"> • Explicit review of the above. 	
Y6	<ul style="list-style-type: none"> • Explicit review of the above. 	<ul style="list-style-type: none"> • Science: A non-renewable energy source is one that is used much faster than it is created. Fossil fuels take millions of years to form but minutes to burn, so we will run out. Burning fossil fuels to transfer electrical energy is a non-renewable energy source. • Science: Renewable energy sources quickly replenish themselves, meaning that we can use them again and again and we will not run out. Wind, solar, geothermal and hydrological power are all examples of renewable energy sources. • Apply the above to a D&T context.





Part 3 of 3

D&T Shaping the World	
EYFS	To be added
Y1	<ul style="list-style-type: none"> • Examples of levers in everyday life include see-saws, wheelbarrows, door handles and scissors. • An artist makes something beautiful that has meaning. Designers make things that are useful and have a purpose, which may also look beautiful. • Designers and architects make models of spaces like towns to help them plan them.
Y2	<ul style="list-style-type: none"> • An artist makes something beautiful that has meaning. Designers make things that are useful and have a purpose, which may also look beautiful. Engineers are scientists who use their knowledge to make things that work like bridges and cars. • History: The wheel is a very important invention because it helped people to move heavy things more easily. They did not need to carry them or use animals to carry them.
Y3	<ul style="list-style-type: none"> • Free standing structures in the world around us have been made strong and stable with triangulation, using strong materials and having a wide base.
Y4	<ul style="list-style-type: none"> • History: Prehistoric Britons, Ancient Egyptians, Ancient Greeks and Ancient Maya used knowledge of strong structures to build Stonehenge, pyramids and temples a very long time ago. • Flat pack furniture has made it easier for people to buy and transport furniture to their home. • There are natural and artificial shell structures and frame structures all around us.
Y5	<ul style="list-style-type: none"> • Technology – and programmable technology – has had a huge impact on the world in living memory. • History: Prehistoric Britons, Ancient Egyptians, Ancient Greeks, Ancient Maya, Early Islamic Civilisation, and Romans used knowledge of mechanisms to make levers and pulleys.
Y6	<ul style="list-style-type: none"> • Designers and engineers have developed sustainable systems in agriculture, waste and electricity generation.



D&T Procedural Knowledge



	Marking Out	Shaping	Joining	Finishing
EYFS	To be added			
Year 1	<ul style="list-style-type: none"> Use a pencil or chalk to decide on the location of holes prior to making them. Use a ruler to mark out the position of a straight line. 	<ul style="list-style-type: none"> Make a hole using a hole punch. Make a hole using a sharp pencil and blue tack. Cut materials with scissors. Shape plasticine using rolling pins and basic craft tools. Shape paper, card, aluminium foil, plastic sheets, pipe cleaners, plasticine, art straws. 	<ul style="list-style-type: none"> Use a split pin to join materials. Use folding to secure pieces in place. Use glue sticks to join materials. Use Blu-Tac to (temporarily) join materials. Use PVA glue to join materials. Use sellotape to join materials Use masking tape to join materials. 	<ul style="list-style-type: none"> Finish products with decorations using colouring pencils. Finish products with decorations made or sources from a computer.
Year 2	<ul style="list-style-type: none"> Temporarily fix a template or pattern to a material using pins and paperclips, and mark out shapes before cutting them. Position patterns to reduce waste (link to Science and Sustainability). 	<ul style="list-style-type: none"> Shape wooden lollipop sticks, rubber bands and fabrics. 	<ul style="list-style-type: none"> Use pre-drilled push fit items to join them. Use sticky pads to join materials Use a seam allowance to join fabrics. Use staples to join fabric and other materials. Use pins to (temporarily) join materials. Use fabric glue to join fabrics Join fabrics using a running stitch. Thread a needle and start a stitch. 	<ul style="list-style-type: none"> Finish fabrics by decorating with buttons, pipe cleaners or other pieces of fabric.
Y3	<ul style="list-style-type: none"> Use a set square to keep right angles. 	<ul style="list-style-type: none"> Make a hole using a bradawl. Cut hard materials using a junior hacksaw and clamps. 	<ul style="list-style-type: none"> Join fabrics using an over stitch. Join fabrics using press studs, buttons, and tying with ribbon. Join pieces by slotting. 	<ul style="list-style-type: none"> Finish products with decorations using paints.
Y4	<ul style="list-style-type: none"> Review of the above. 	<ul style="list-style-type: none"> Score with scissors to get a sharp crease. 	<ul style="list-style-type: none"> Review of the above. 	<ul style="list-style-type: none"> File or sand to shape and smooth.
Y5	<ul style="list-style-type: none"> Use a ruler to measure lengths in centimetres (Y4 Mathematics). 	<ul style="list-style-type: none"> Cut very hard materials, such as modelling wire with pliers. 	<ul style="list-style-type: none"> Review of the above. 	<ul style="list-style-type: none"> Review of the above.
Y6	<ul style="list-style-type: none"> Review of the above. 	<ul style="list-style-type: none"> Review of the above. 	<ul style="list-style-type: none"> Join fabrics using a back stitch. 	<ul style="list-style-type: none"> Release tension by snipping along a curved seam. Finish fabrics using a blanket stitch.





Part 1 of 2

	Designing in Different Contexts	Design Values	Identifying User Needs	Evaluating Products
EYFS	To be added			
Y1	<ul style="list-style-type: none"> Design a product for users in a home environment. Design a product for users in a local community environment. 	<ul style="list-style-type: none"> Design and evaluate based on: <ul style="list-style-type: none"> Visual appeal; Materials; Function; Inclusivity and accessibility. 	<ul style="list-style-type: none"> Identify the specific users that products have been made for and the purpose they have. Make choices about user(s) to design for. Identify user needs through interviews (qualitative). 	<ul style="list-style-type: none"> Evaluate products according to the design criteria, which grows in complexity as the list of design values grow.
Y2	<ul style="list-style-type: none"> Design a product for users in a school environment. 	<ul style="list-style-type: none"> Design and evaluate based on: <ul style="list-style-type: none"> The above values The making process. 	<ul style="list-style-type: none"> Identify design criteria through approximate measurements. 	
Y3	<ul style="list-style-type: none"> Design a product for users in a commercial environment. 	<ul style="list-style-type: none"> Design and evaluate based on: <ul style="list-style-type: none"> The above values Sustainability (of the whole product life cycle). 	<ul style="list-style-type: none"> Identify user needs through observations (qualitative). Identify user needs through a 'user trip' (doing the thing that users do). Identify a user's needs in a specific context, when they have a specific problem. 	
Y4	<ul style="list-style-type: none"> Design a product for users in an enterprise environment. Design a product for users in a leisure environment. 	<ul style="list-style-type: none"> Design and evaluate based on the above values. 	<ul style="list-style-type: none"> Explicit review of the above. 	
Y5	<ul style="list-style-type: none"> Design a product for users in a wider environment. 	<ul style="list-style-type: none"> Design and evaluate based on the above values. 	<ul style="list-style-type: none"> Explicit review of the above. 	
Y6		<ul style="list-style-type: none"> Design and evaluate based on: <ul style="list-style-type: none"> The above values Necessity (do we really <i>need</i> this product?). 	<ul style="list-style-type: none"> Identify design criteria through exact measurements (cm). Recognise the difference between needs and wants in user interviews. Identify different users who may use a service, and how their needs may differ. 	





Part 2 of 2

	Generating Ideas	Making, Testing, Iterating	Communicating Designs
EYFS	To be added		
Y1	<ul style="list-style-type: none"> Generate ideas in a range of ways, including: <ul style="list-style-type: none"> taking photographs and using these as inspiration. 	<ul style="list-style-type: none"> Designing is about trying something and seeing what works, and trying again. 	<ul style="list-style-type: none"> Contribute to a class storyboard to show the process for making. A model is a way of showing a design idea in 3D. When we communicate our design ideas they need to be drawn at the right size. Talk about simple design ideas with others.
Y2	<ul style="list-style-type: none"> Generate ideas in a range of ways, including: <ul style="list-style-type: none"> The above. 'What if' questions. Premade templates. 'Draw and fold'. Using story books. Using personal photographs. 	<ul style="list-style-type: none"> Designers build prototypes to test their products. When using textiles, designers make a pattern from paper to test before making the final product. 	<ul style="list-style-type: none"> Draw simple design ideas and labelling them.
Y3	<ul style="list-style-type: none"> Generate ideas in a range of ways, including: <ul style="list-style-type: none"> The above. Disassembling existing products. Using design constraints. Using Zwicky tables. Using nature to get inspiration. 	<ul style="list-style-type: none"> Explicit review of the above. 	<ul style="list-style-type: none"> Explicit review of the above.
Y4	<ul style="list-style-type: none"> Generate ideas in a range of ways, including: <ul style="list-style-type: none"> The above. 'Quick Draw Eights' 	<ul style="list-style-type: none"> Use CAD to test models quickly and effectively. Design process is iterative, and includes generating ideas; evaluating; testing and refining. 	<ul style="list-style-type: none"> Create a flow chart for process for making. Draw an exploded diagram.
Y5	<ul style="list-style-type: none"> Review of the above, selecting best strategies for the given context. 	<ul style="list-style-type: none"> Explicit review of the above. 	<ul style="list-style-type: none"> Explicit review of the above.
Y6	<ul style="list-style-type: none"> Review of the above, selecting best strategies for the given context. 	<ul style="list-style-type: none"> Explicit review of the above. 	<ul style="list-style-type: none"> Draw designs that show measurements.





Part 1 of 2

	Food Sources	Nutrition & Eating
EYFS	To be added	
Y1	<ul style="list-style-type: none"> • Science: A plant is a living thing that grows in one place. A tree is a type of plant. • Science: The basic parts of plant include leaves, flowers, roots, stem (or trunk). • Fruits and vegetables come from plants (including trees). • Fruits contain a plant's seeds. Vegetables are part of the plant. • Food can come from farms, allotments and gardens. • Fruits and vegetables are usually harvested in a particular season. Different foods are in season at different times of the year. 	<ul style="list-style-type: none"> • We should eat 5 portions of fruit or vegetables each day. • 'Eating a rainbow' means to eat different types of fruits and vegetables, that might have lots of different colours. • Fruits and vegetables both contain lots of good things for our bodies. Fruits contain more sugar, so we should eat less of them
Y2	<ul style="list-style-type: none"> • Science: Many plants make fruits or vegetables. Some of these grow below ground. • Science: Some plants grow from bulbs. A bulb is a resting stage for certain plants. • Foods come from a range of sources, including plants (fruits and vegetables) and animals (meat). • Milk comes from animals like cows, sheep, and goats. • Foods made from animal milks are called dairy products. • Some foods are eaten as they are (e.g. milk; fruits and vegetables). Some foods are processed in some way before we eat them (e.g. cheese is made from milk). 	<ul style="list-style-type: none"> • Science: Humans need to eat a healthy and balanced diet. This should include all the nutrients that we need, should be high in fruits and vegetables and low in fats, salt and sugars. • Vegetarians choose not to eat animal meat. • Vegans do not eat any animal product. They eat milks/cheeses made from plants. • Some foods are sweet, and some are salty. • Texture is about how food feels in our mouths. Food textures include hard, soft, rough, smooth, crunchy, crispy, chewy and creamy. • Food is more interesting to eat if it has more than one texture at a time.
Y3	<ul style="list-style-type: none"> • Bread is made from flour, which is ground seeds of the wheat plant. • Sources of meat include chicken, sheep (lamb), pigs (pork products), tuna and other fish. 	<ul style="list-style-type: none"> • Science: The main food groups are carbohydrates (starch and sugars), proteins, fats, fibre, vitamins and minerals. Humans need a balanced diet. • Some people are allergic to certain types of food, like nuts or gluten. This means their body reacts when they eat or are in contact with these foods. Some food allergies are mild, and some can be very serious.
Y4	<ul style="list-style-type: none"> • Beans and lentils are edible seeds from plants. • Seasoning adds to the taste of food. Seasoning can include salt, spices (like pepper), herbs, and sugar. • Spices are usually made from the seeds, roots, stem or fruits of a plant and add flavour to food. • Herbs are usually the leaves of a plant and add flavour to food. • Mushrooms are not plants nor animals. They are a type of fungus. 	<ul style="list-style-type: none"> • Some people are intolerant to certain types of food, like gluten or dairy products. This means their bodies cannot digest the foods. It can cause discomfort.
Y5	<ul style="list-style-type: none"> • Pasta is made from wheat flour and water (and sometimes egg). • Couscous is a type of pasta. 	<ul style="list-style-type: none"> • Explicit review and application of the above.
Y6	<ul style="list-style-type: none"> • Foods can be minimally processed (like fresh fruit and vegetables); moderately processed (like cheese and flour); significantly processed (like baked beans); or ultra-processed (like ready meals; sugary cereals and crisps). 	<ul style="list-style-type: none"> • A healthy diet is made up of mostly minimally and moderately processed foods. Too many ultra-processed foods should be avoided.





Part 2 of 2

Food Safety & Hygiene	
EYFS	To be added
Y1	<ul style="list-style-type: none"> • Store dairy products in the fridge. • Wash hands and tie hair back to stop the tiny living things on our hands getting onto the food and into our bodies. • Wear an apron to protect our clothes and stop the tiny living things on them getting into food and into our bodies.
Y2	<ul style="list-style-type: none"> • Tie hair back and wash hands after sneezing, coughing and going to the toilet to stop the tiny living things on our hands getting into our bodies.
Y3	<ul style="list-style-type: none"> • Food should not be eaten after the 'use by' date. Foods can be eaten after the 'best before' date, but we should check them first. • High risk foods with a 'use by' date should be kept in the fridge. • Hands should be washed after handling raw eggs to stop the tiny things living in there getting into our bodies, because they can make us unwell.
Y4	<ul style="list-style-type: none"> • Hobs and hand blenders need to be used with care, keeping our fingers away. • When blending hot liquids, the blender should be on and/or it is kept well away from the user. • Food preparation sources should be wiped down before and after use to stop the tiny living things on the surfaces getting onto food. • Food preparation areas should be left clean so that food pests are not attracted.
Y5	<ul style="list-style-type: none"> • High risk foods that are cooked and ready to eat should be served immediately or kept in the fridge for 2-4 days. • Science: Use a material that is a poor thermal conductor (thermal insulator) when stirring hot food or removing food from the oven.
Y6	<ul style="list-style-type: none"> • Science: The tiny living things that we need to stop getting into food are bacteria and viruses. They can sometimes make us unwell.



Food Procedural Knowledge



	Preparation	Combining & Assembling	Cooking	Working in the Kitchen
EYFS	To be added			
Y1	<ul style="list-style-type: none"> Wash and drain fruits. Chop using the claw technique. Chop a range of foods, including bananas, grapes, strawberries, cucumber and prepared pears, pineapple, peppers and carrots. Peel bananas, satsumas. Measure dry foods and liquids using a teaspoon and tablespoon. 	<ul style="list-style-type: none"> Stir with wooden spoon. Use fruit juice to prevent browning. 		<ul style="list-style-type: none"> Follow simple recipes. Wash up items by removing excess food, washing, rinsing and drying.
Y2	<ul style="list-style-type: none"> Remove the outer leaves of vegetables (e.g. lettuce) and wash and drain them. Use senses (sight, smell and touch) to check foods for any bits that should not be eaten. Use a colander or sieve to drain canned foods Chop using the claw and bridge technique. Chop a range of foods, including the above plus tomatoes, lettuce, feta and prepared cheddar. Peel carrots. Grate carrots. 	<ul style="list-style-type: none"> Dress salad using two utensils. Layer food on a bed of salad. 		<ul style="list-style-type: none"> Application of the above.
Y3	<ul style="list-style-type: none"> Chop a range of foods, including the above plus hard-boiled eggs and cheddar. Peel hard-boiled eggs. 	<ul style="list-style-type: none"> Stir with a teaspoon or tablespoon. Spread butter / margarine with a knife. 	<ul style="list-style-type: none"> Use a hob to boil (an egg). 	<ul style="list-style-type: none"> Application of the above. Independently maintain a clean and organised workspace.
Y4	<ul style="list-style-type: none"> Chop a range of foods, including the above plus mushrooms, carrots, and peppers. Crush garlic. Mathematics: Measure volumes in millilitres and litres using a measuring jug. 	<ul style="list-style-type: none"> Use a food processor or hand mixer. 	<ul style="list-style-type: none"> Use a hob to sauté food. Use a hob to simmer food. Use a hob to boil (vegetables). 	<ul style="list-style-type: none"> Application of the above. Wash up items in the most appropriate order, starting with least dirty, and change washing up water as required.
Y5	<ul style="list-style-type: none"> Use a can opener. Chop a range of foods, including the above plus onions and cauliflower. Mathematics: Measure mass in grams and kilograms using a balance. Knowing when to measure (estimation) 	<ul style="list-style-type: none"> Use a blender or hand-held blender. Whisk (to make roux and Bechamel sauce). 	<ul style="list-style-type: none"> Use a hob to boil (pasta). Use an oven to roast vegetables. Use an oven to brown cheese. 	<ul style="list-style-type: none"> Application of the above.
Y6	<ul style="list-style-type: none"> Crack eggs. 	<ul style="list-style-type: none"> Rub flour into butter. Shape and cut using cutters. 	<ul style="list-style-type: none"> Use an oven to bake food. 	<ul style="list-style-type: none"> Application of the above.





Making Food Choices	
EYFS	
Y1	<ul style="list-style-type: none">• Make food choices based on:<ul style="list-style-type: none">• Colour.• Quantity of sugar.• Seasonality.
Y2	<ul style="list-style-type: none">• Make food choices based on:<ul style="list-style-type: none">• The above.• Quantity of fat.• Quantity of salt.• Dietary requirements (vegans and vegetarians)
Y3	<ul style="list-style-type: none">• Make food choices based on:<ul style="list-style-type: none">• The above.• Food allergies
Y4	<ul style="list-style-type: none">• Make food choices based on:<ul style="list-style-type: none">• The above.• Food miles.
Y5	<ul style="list-style-type: none">• Make food choices based on:<ul style="list-style-type: none">• The above• Time taken to prepare.
Y6	<ul style="list-style-type: none">• Make food choices based on:<ul style="list-style-type: none">• The above• Carbon footprint of production and transport.• Occasion.• Cost.



Alignment to the National Curriculum



The below tables outlines where the statutory content from the National Curriculum is **first taught** across KS1 or KS2.

In KS1, pupils should be taught:

Design	Design purposeful, functional, and 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.	Covered throughout D&T units.
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.	Y1 Sum, Y2 Spr (structures) Y1 Spr (levers/sliders), Y2 Spr (wheels/axles)
Cooking & Nutrition	Use the basic principles of a healthy and varied diet to prepare dishes. Understand where food comes from.	Y1 Aut, Y2 Aut

In KS2, 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.	Covered throughout D&T units.
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 [e.g., series circuits incorporating switches, bulbs, buzzers and motors]. Apply their understanding of computing to program, monitor and control their products.	Y3 Aut, Y4 Spr, Y4 Sum, Y5 Sum Y4 Spr, Y5 Aut Y4 Sum, Y5 Aut Y4 Sum, Y5 Aut
Cooking & 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.	Y3 Sum, Y4 Aut, Y5 Spr, Y6 Sum

