Design Technology Progression of Skills

KS1

	Year 1			Year 2		
	Structures	**Mechanisms**	**Textiles**	**Nutrition**	**Structures**	**Mechanisms**
Design	• Thinking about what others might want from a design. • Beginning to recognise how products and designs in the world around us solve certain needs. • Considering who they are designing for – identifying the user • Stating what they intend to make and why – identifying the purpose. • Talking about ideas, with purpose and user in mind. • Talking about existing products when generating ideas. • Using basic drawing skills to communicate ideas. • Learning the importance of a clear design criteria • Including individual preferences and requirements in a design	• Thinking about what others might want from a design. • Beginning to recognise how products and designs in the world around us solve certain needs. • Considering who they are designing for – by identifying the user. • Stating what they intend to make and why – by identifying the purpose • Talking about ideas with purpose and user in mind. • Talking about existing products when generating ideas. • Creating mock-ups to communicate designs. • Explaining how to adapt mechanisms, using bridges or guides to control the movement. • Designing a moving story book for a given audience. • Thinking about what others might want from a design. • Beginning to recognise how products and designs in the world around us solve certain needs. • Considering who they are designing for - by identifying the user. • Stating what they intend to make and why - by identifying the purpose. • Talking about ideas with purpose and user in mind. • Talking about existing products when generating ideas. • Using basic drawing skills to communicate ideas. • Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move. • Creating clearly labelled drawings that illustrate movement.	• Stating what they intend to make and why - identifying the purpose. • Talking about ideas, with purpose and user in mind. • Using basic drawing skills to communicate ideas. • Using a template to create a design for a puppet.	• Designing three wrap ideas.	• Using a simple design brief that outlines the intended use, target user, and key features of the product, to create simple design criteria. • Creating ideas with design criteria in mind. • Referring to specific parts of existing products when generating ideas. • Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects. •	• Creating ideas with design criteria in mind. • Referring to specific parts of existing products when generating ideas. • Using labels to explain parts of a design, label materials etc, including using ICT. • Integrating moving parts when creating mock-ups.
Make	• Choosing between a small number of materials, ingredients or components. • Explaining their choices based on personal experiences.	• Planning more than one step ahead. • Choosing between a small number of materials, ingredients or components.	• Choosing between a small number of materials, ingredients or components. • Explaining their choices based on personal experiences.	• Chopping foods safely to make a wrap. • Constructing a wrap that meets a design brief. • Grating foods to make a wrap.	• Choosing materials, ingredients or components from a wider range of materials, ingredients or components.	• Integrating moving parts when creating mock-ups. • Planning more than one step ahead.

	• Requesting equipment appropriate to the purpose. (e.g. scissors for cutting, glue for joining) • Beginning to use objects with a fixed width or length to create even spacing of markings or cuts (e.g. a lolly stick). • Refining their grip to cut competently and confidently. • Cutting straight lines and evenly spaced lines. • Beginning to cut large shapes and thicker materials like card. • Making stable structures from card. • Following instructions to cut and assemble the supporting structure of a windmill. • Making functioning turbines and axles which are assembled into a main supporting structure • Finding the middle of an object. • Puncturing holes. • Adding weight to structures. • Creating supporting structures. • Cutting evenly and carefully.	• Explaining their choices based on personal experiences. • Requesting equipment appropriate to the purpose. (e.g. scissors for cutting, glue for joining). • Explaining in simple terms why certain tools must be handled carefully. • Following and recalling simple safety instructions. • Beginning to use objects with a fixed width or length to create even spacing of markings or cuts. (e.g. a lolly stick). • Refining their grip to cut competently and confidently. • Cutting straight lines and evenly spaced lines. • Beginning to cut large shapes and thicker materials like card. • Puncturing holes • Applying masking tape to fix something in place or join to edges. • Using tools, like scissors, to create shapes. • Beginning to cut large shapes and thicker materials like card. • Following a design to create moving models that use levers and sliders. • Planning more than one step ahead. • Choosing between a small number of materials, ingredients or components. • Explaining their choices based on personal experiences. • Requesting equipment appropriate to the purpose (e.g. scissors for cutting and glue for joining). • Explaining in simple terms why certain tools must be handled carefully. • Following and recalling simple safety instructions. • Finding the middle of an object. • Refining their grip to cut competently and confidently. • Cutting straight lines and evenly spaced lines. • Beginning to cut large shapes and thicker materials like card. • Puncturing holes. • Recognising the edges of paper and card need to be stuck firmly using a glue stick.	• Explaining in simple terms why certain tools must be handled carefully. • Following and recalling simple safety instructions. • Using a straightedge to draw a straight line. • Beginning to use objects with a fixed width or length to create even spacing of markings or cuts. (e.g. a lolly stick). • Using a large plastic needle and large-weave embroidery fabric to begin to create a running stitch. • Applying masking tape to fix something in place or join to edges. • Adding texture to create visual interest. • Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing steps for construction.	• Snipping smaller foods instead of cutting. • Spreading soft foods to make a wrap. • Identifying the five food groups. • Learning about a balanced diet.	• Explaining their choices based on the properties of materials and components. • Looking for ways to make cutting easier, like turning the material they are cutting, not fully closing scissors etc. • Choosing known geometric shapes when making. • Beginning to shape objects to improve how they work. • Making a structures according to design criteria. •	• Choosing materials or components from a wider range of materials or components. • Choosing between pieces of equipment that are used for the same purpose (e.g. joining) and explaining why their choice suits the task. • Explaining their choices based on the properties of materials and components. • Following and recalling simple safety instructions.

		• Using tools, like scissors, to create shapes. • Beginning to cut large shapes and thicker materials like card. • Beginning to use controlled painting or colouring techniques to finish a product. • Adding texture to create visual interest. • Adapting mechanisms: - when they do not work as they should; - to fit their vehicle design; -to improve how they work after testing their vehicle.				
Evaluate	• Discussing existing products, saying what they like about them. • Comparing two products and discuss which is better for a specific purpose. • Saying what they like about their peers' designs and products. • Accepting feedback and understanding it is meant to improve their work • Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't. • Suggest points for improvements.	• Discussing existing products, saying what they like about them. • Discussing how their products could be improved based on personal preferences. • Saying what they like about their peers' designs and products. • Accepting feedback and understanding it is meant to improve their work. • Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. • Reviewing the success of a product by testing it with its intended audience. • Discussing existing products, saying what they like about them. • Comparing two products and discussing which is better for a specific purpose. • Discussing how their products could be improved based on personal preferences. • Comparing their finished products with their original designs. • Saying what they like about their peers' designs and products. • Accepting feedback and understanding it is meant to improve their work. • Testing wheel and axle mechanisms, identifying what stops the wheels from turning and recognising that a wheel needs an axle in order to move.	• Saying what they like about their peers' designs and products. • Accepting feedback and understanding it is meant to improve their work. • Reflecting on a finished product, explaining likes and dislikes.	• Describing appearance, smell and taste. • Tasting and evaluating different food combinations. • Describing the information that should be included on a label.		• Discussing whether they were able to use the tools and techniques effectively. • Comparing a range of products and explaining why some better meet different design criteria than others. • Evaluating their ideas and creations against simple design criteria.
Technical Knowledge	• Recognising that different structures are used for different purposes.	• Recognising and exploring everyday objects that have mechanisms.	• Discussing fabric properties. • Threading large needles.	• To know that 'diet' means the food and drink that a person or animal usually eats.	• Recognising that different structures are used for different purposes.	• Recognising and exploring everyday objects that have mechanisms.

	• Exploring the features of structures. • Describing structures as buildings or freestanding structures. • Making stable structures from card. • Creating supporting structures to aid stability. • Using stable objects like cylinders to create structures. • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together. • To know that the sails or blades of a windmill are moved by the wind. • To know that a structure is something built for a reason. • To know that stable structures do not topple. • To know that adding weight to the base of a structure can make it more stable	• Recognising everyday objects that use a slider mechanism (e.g. drawers, sliding doors, paper trimmer). • To know that a mechanism is the parts of an object that move together. • To know that a slider mechanism moves an object from side to side. • To know that a slider mechanism has a slider, slots, guides and an object. • To know that bridges and guides are bits of card that purposefully restrict the movement of the slider. • Recognising and exploring everyday objects that have mechanisms. • Many things that move have parts inside to help them work. • Mechanisms usually limit unwanted movement. • An axle allows the wheel to turn without falling off. • To know that wheels need to be round to rotate and move. • To understand that for a wheel to move, it must be attached to a rotating axle. • To know that an axle moves within an axle holder which is fixed to the vehicle or toy. • To know that the frame of a vehicle (chassis) needs to be balanced.	• Rehearsing sewing techniques with large needles and thick thread, like wool. • Sewing a running stitch in large-weave embroidery fabric or hessian. • Creating patterns and following them with stitching. • Spacing stitches evenly. • To know drawings are a way to explain ideas. • To know that choosing different materials or components will affect what the product does or looks like. • To know the names of common pieces of equipment. • To know that following instructions helps with safety. • To know that spacing cuts or marks evenly can be useful. • To know that exture is how something feels. • To know their ideas or products can be made better. • To know their final product might be different to their original idea. • To know their ideas can make someone else's work better. • To know other people's ideas can help make their work better. • To know evenly spaced stitches help when following a pattern. • To know that 'joining technique' means connecting two pieces of material together. • To know that there are various temporary methods of joining fabric by using staples, glue or pins. • To understand that different techniques for joining materials can be used for different purposes. • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. • To know that drawing a design idea is useful to see how an idea will look. www.kapow	• To know what makes a balanced diet. • To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. • To know that I should eat a range of different foods from each food group, and roughly how much of each food group. • To know that 'ingredients' means the items in a mixture or recipe. • To know how to cut, grate, snip and spread to prepare foods. • To know how to review and give a score to evaluate.	• Exploring the features of structures. • Making stable structures from card. • Creating supporting structures to aid stability. • Using stable objects like cylinders to create structures. • Building a strong and stiff structure by folding paper. • Folding to strengthen or stiffen. • Comparing the stability of different shapes. • Identifying the weakest part of a structure. • To know that shapes and structures with wide, flat bases or legs are the most stable. • To understand that the shape of a structure affects its strength. • To know that materials can be manipulated to improve strength and stiffness. • To know that a structure is something which has been formed or made from parts. • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. • To know that a 'strong' structure is one which does not break easily. • To know that a 'stiff' structure or material is one which does not bend easily. •	• Exploring everyday objects that use levers (e.g scissors, tongs, door handle, stapler).

Lower KS2

	Year 3			Year 4		
	Textiles	**Nutrition**	**Mechanisms**	**Structures**	**Mechanisms**	**Electrical Systems**
Design	• Designing and making a template from an existing cushion and applying individual design criteria.	• Describing how climate affects where foods grow.	• Creating simple design criteria that outline basic functionality and appeal to individual users or target audiences. • Taking part in structured idea blasting sessions. • Coming up with more ideas and considering the feasibility of their ideas in the classroom. • Developing drawing and sketching skills with a focus on clarity and simplicity. • Developing designs by adding detail and justifications about materials, tools, methods. • Beginning to recognise the benefit of a range of diagram types or prototypes to communicate ideas. (e.g. sketches, cross-sectional diagram, thumbnail sketches and exploded diagrams). • Designing a toy which uses a pneumatic system. • Developing design criteria from a design brief. • Generating ideas using thumbnail sketches and exploded diagrams. • Learning that different types of drawings are used in design to explain ideas clearly.	• Noticing simple problems or needs in their everyday life. • Creating simple design criteria that outline basic functionality and appeal to individual users or target audiences. • Taking part in structured idea-generation sessions. • Coming up with more ideas and considering the feasibility of their ideas in the classroom. • Developing drawing and sketching skills with a focus on clarity and simplicity. • Developing designs by adding detail and justifications about materials, tools, methods. • Beginning to recognise the benefit of a range of diagram types or prototypes to communicate ideas. • Creating prototypes using materials with similar properties to their final design.	• Taking part in structured brainstorming sessions. • Developing drawing and sketching skills with a focus on clarity and simplicity. • Beginning to recognise the benefit of a range of diagram types or prototypes to communicate ideas. (e.g. sketches, cross-sectional diagram, thumbnail sketches and exploded diagrams) • Creating prototypes using materials with similar properties to their final design. • Creating simple design criteria that outline basic functionality and appeal to individual users or target audiences. • Developing designs by adding detail and justifications about materials, tools, methods.	• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.
Make	• Following design criteria to create a cushion or Egyptian collar. • Selecting and cutting fabrics with ease using fabric scissors. • Threading needles with greater independence. • Tying knots with greater independence. • Sewing cross stitch to join fabric. • Decorating fabric using appliqué. • Completing design ideas with stuffing and sewing the edges (Cushions) or embellishing the collars based on design ideas (Egyptian collars).	• Identifying seasonal ingredients from the UK. • Following the instructions within a recipe. • Tasting seasonal ingredients. • Peeling foods by hand or with a peeler. • Cutting ingredients safely. • Choosing ingredients based on a design brief.	• Selecting equipment required for a series of tasks based on the plan. Explain why each piece is suitable for each stage. • Suggesting simple safety rules based on their understanding of tool dangers. • Participating in discussions about classroom safety procedures. • Cutting out more complex shapes accurately. • Handle different sizes and types of scissors with confidence. • Using PVA glue to join corrugated card and light wood (e.g. balsa wood). • Choosing shapes to suit the function of a product. • Painting or colouring precisely to improve the finish. • Making facades from a range of materials.	• Selecting materials, components or ingredients from a wider choice but within a limited design space (e.g. seasonal ingredients from May and June in the UK). • Selecting materials, components or ingredients based on their form as well as their functional properties. • Explaining their choices with regard to function and form. • Suggesting simple safety rules based on their understanding of tool dangers. • Participating in discussions about classroom safety procedures. • Following detailed safety instructions. • Using a ruler as a measuring tool with increasing accuracy. • Cutting out more complex shapes accurately.	• Following detailed safety instructions. • Using a ruler as a measuring tool with increasing accuracy by creating spaced marks using millimetres and measuring lengths of objects. • Handle different sizes and types of scissors with confidence. • With close supervision using a hot glue gun to join wooden materials (e.g. lolly sticks). • Selecting equipment required for a series of tasks based on the plan. Explain why each piece is suitable for each stage. • Selecting materials, components or ingredients from a wider choice but within a limited design space (e.g. seasonal ingredients from May and June in the UK).	• Making a torch with a working electrical circuit and switch. • Using appropriate equipment to cut and attach materials. • Assembling a torch according to the design and success criteria.

			• Sealing edges with tape to cover gaps in joins. • Creating a pneumatic system to create a desired motion. • Building secure housing for a pneumatic system. • Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy. • Selecting materials due to their functional and aesthetic characteristics. • Manipulating materials to create different effects by cutting, creasing, folding and weaving.	• Handle different sizes and types of scissors with confidence. • Creating accurate shapes from templates. • Choosing shapes to suit the function of a product. • Painting or colouring precisely to improve the finish. • Making facades from a range of materials. • Creating different textural effects with a variety of materials.		
Evaluate	• Evaluating an end product and thinking of other ways in which to create similar items.	• Describing the texture and flavour of ingredients. • Describing the benefits of seasonal fruits and vegetables and the impact on the environment.	• Analysing why specific products, designers or inventors are successful. • Evaluating their designs by comparing them against design criteria and considering feedback from peers to suggest improvements. • Explaining why they think certain aspects of a peer's design are effective or why they suggested specific improvements. • Reflecting on feedback to decide if and how it could be used to improve future iterations. • Using the views of others to improve designs. • Testing and modifying the outcome, suggesting improvements. • Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.	• Investigating and analysing a range of existing products by looking at their functionality and appeal. • Analysing why specific products, designers or inventors are successful. • Evaluating their designs by comparing them against design criteria and considering feedback from peers to suggest improvements. • Evaluating how effective their chosen materials and tools were in fulfilling the design brief. • Explaining why they think certain aspects of a peer's design are effective or why they suggested specific improvements. • Reflecting on feedback to decide if and how it could be used to improve future iterations.	• Explaining why they think certain aspects of a peer's design are effective or why they suggested specific improvements. • Reflecting on feedback to decide if and how it could be used to improve future iterations. • Investigating and analysing a range of existing products by looking at their functionality and appeal. • Analysing why specific products, designers or inventors are successful. • Evaluating their designs by comparing them against design criteria and considering feedback from peers to suggest improvements. • Evaluating how effective their chosen materials and tools were in fulfilling the design brief. •	• Evaluating electrical products. • Testing and evaluating the success of a final product.
Technical Knowledge	• To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. • To know that when two edges of fabric have been joined together it is called a seam. • To know that it is important to leave space on the fabric for the seam. • To understand that some products are turned inside out after sewing so the stitching is hidden.	• To know that seasonal means foods that grow in a given season in a given country. • To know some seasonal foods that grow in the UK and what season they grow in. • To know that eating seasonal foods can have a positive impact on the environment. • To know how to describe the flavour and texture of foods. • To know how to cut and peel safely. • To know that the appearance of food is as important as taste.	• Beginning to understand how mechanisms work. • Recognising pneumatic systems in everyday objects (e.g. car boot, adjustable chair.) • To understand how pneumatic systems work. • To understand that pneumatic systems can be used as part of a mechanism. • To know that pneumatic systems operate by drawing in, releasing and compressing air.	• Beginning to understand how different structures are built. • To stiffen structures by layering. • To strengthen structures by layering materials (lamination). • To strengthen structures by ribbing.	• To understand that a mechanical system can allow us to move something more easily. • To know that mechanical systems have more than one mechanism that moves to make them work. • To know that mechanical systems are often hidden in products to make them look more appealing. •	• To understand that electrical conductors are materials which electricity can pass through. • To understand that electrical insulators are materials which electricity cannot pass through. • To know that a battery contains stored electricity that can be used to power products. • To know that an electrical circuit must be complete for electricity to flow. • To know that a switch can be used to complete and break an electrical circuit.

		• To know that similar coloured fruits and vegetables often have similar nutritional benefits.				

Upper KS2

	Year 5			Year 6		
	Mechanisms	**Nutrition**	**Textiles**	**Electrical Systems**	**Structures**	**Digital World**
Design	• Noticing wider-reaching problems or needs in the community. • Identifying a wide range of needs and potential barriers through market research. • Writing more complex problem statements that consider multiple factors and constraints. • Creating more complex design criteria that require considering detailed user needs, environmental impact, materials and cost. • Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about their ideas' practicality and originality. • Beginning to use more complex annotated sketches, such as cross-sectional and exploded diagrams and pattern pieces in design. • Using a series of prototypes to refine and improve their designs.	• Researching existing recipes. • Suggesting alternative ingredients. • Designing a jar label.	• Designing a stuffed toy, considering the main component shapes required and creating an appropriate template. • Considering the proportions of individual components.	• Creating more complex design criteria that require considering detailed user needs, environmental impact, materials and cost. • Developing more independence in generating ideas. • Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about the practicality and originality of their ideas. • Using a series of prototypes to refine and improve their designs. • Creating more complex design criteria that require considering detailed user needs, environmental impact, materials and cost. • Developing more independence in generating ideas. • Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about the practicality and originality of their ideas. • Using a series of prototypes to refine and improve their designs	• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs. • Identifying more complex problem statements that consider multiple factors and constraints with guidance. • Developing more independence in generating ideas. • Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about their ideas' practicality and originality. • Using 3D CAD software to communicate their ideas. • Using a series of prototypes to refine and improve their designs. • .	• Writing a design brief from information submitted by a client. • Developing design criteria to fulfil the client's request. • Considering and suggesting additional functions for my navigation tool. • Developing a product idea through annotated sketches. • Placing and manoeuvring 3D objects, using CAD. • Changing the properties of, or combining one or more 3D objects, using CAD.
Make	• Consistently apply safety instructions. • Select appropriate scissors to handle delicate cutting tasks and challenging materials. • Cutting patterns and drawings accurately. • In supervised groups, using hot glue guns safely. • Recognising that hot glue is useful for joining materials that need a strong bond that sets quickly. • Choosing PVA glue over hot glue for its safety when joining materials in less intensive projects.	• Writing an alternative recipe. • Understanding cross-contamination. • Using preparation skills. • Making a developed recipe.	• Creating a 3D stuffed toy from a 2D design. • Measuring, marking and cutting fabric accurately and independently. • Creating strong and secure blanket stitches when joining fabric. • Threading needles independently. • Using appliqué to attach pieces of fabric decoration. • Sewing blanket stitch to join fabric. • Applying blanket stitch so the spaces between the stitches are even and regular. •	• Producing lists of equipment, materials and tools that they need for a task. • Creating a step-by-step plan for making. • Selecting materials, components or ingredients based on research or user needs. • Explaining their choices, referring to their research. • Understanding and explaining the importance of each safety rule. • Applying safety instructions consistently. • Balancing aesthetics and functionality when creating parts of a design. • Considering when best to apply finishing effects.	• Building a range of play apparatus structures drawing upon new and prior knowledge of structures. • Measuring, marking and cutting wood to create a range of structures. • Using a range of materials to reinforce and add decoration to structures. • Producing lists of equipment, materials and tools that they need for a task. • Selecting materials, components or ingredients based on research or user needs. • Assessing risks associated with different tools and equipment. • Understanding and explaining the importance of each safety rule. • Consistently apply safety instructions.	• Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo). • Explaining material choices and why they were chosen as part of a product concept. • Programming an N,E, S, W cardinal compass.

					• Using a ruler to accurately measure and draw lines and marks. • In small groups, cutting harder wood with a saw. • Cutting in a back-and-forth sawing motion where appropriate. • Balancing aesthetics and functionality when creating parts of a design. • Considering when best to apply finishing effects.	
Evaluate	• Reflecting on the usability, aesthetics, innovation and sustainability of products and discussing how design choices impact these aspects. • Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost. • Considering alternative materials, tools or techniques that could enhance the product. • Providing feedback that is helpful, specific, and encouraging. • Incorporating feedback from peers or users improves their product further, explaining the changes they made and the impact they had.	• Explaining the farm to fork process. • Analysing nutritional content.	• Testing and evaluating an end product and giving point for further improvements. •	• Reflecting on the usability, aesthetics, innovation and sustainability of products and discussing how design choices impact these aspects. • Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost. • Considering alternative materials, tools or techniques that could enhance the product. • Providing feedback that is helpful, specific and encouraging. • Incorporating feedback from peers or users to improve their product further, explaining the changes they made and the impact they had.	• Improving a design plan based on peer evaluation. • Testing and adapting a design to improve it as it is developed. • Identifying what makes a successful structure. • Reflecting on the usability, aesthetics, innovation and sustainability of products and discussing how design choices impact these aspects. • Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost. • Considering alternative materials, tools or techniques that could enhance the product.	• Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool. • Developing an awareness of sustainable design. • Identifying key industries that utilise 3D CAD modelling and explaining why. • Describing how the product concept fits the client's request and how it will benefit the customers. • Explaining the key functions in my program, including any additions. • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool. • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch. • Demonstrating a functional program as part of a product concept pitch.
Technical Knowledge	• That mechanical systems that use gears in everyday objects (e.g. bicycle, clock). • That gears and pulleys allow us to transfer movement and force from one part of a mechanical system to another. • That gears allow us to increase the output of a mechanism.	• To know that beef comes from cows reared on farms. • To know that recipes can be adapted to suit nutritional needs and dietary requirements. • To know that nutritional information is found on food packaging. • To know that coloured chopping boards can prevent cross-contamination. • To know that food packaging serves many purposes.	• To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. • To understand that it is easier to finish simpler designs to a high standard. • To know that soft toys are often made by creating appendages separately and then attaching them to the main body. • To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely •	• Beginning to understand that electricity flows around a circuit. • Using different components to produce different results from electrical systems. • Creating working electrical circuits with a wider variety of electrical components. • Deconstructing electrical systems to understand how they work.	• To know that structures can be strengthened by manipulating materials and shapes. • Understanding how to reinforce structures to make them more stable. • Using triangulation to strengthen or stabilise a structure. • To know that constraints are limits or conditions when making a product. • To know that the environmental impact is how the product and making the product might affect the environment. • To know that original and innovative ideas are different	• To know that accelerometers can detect movement. • To understand that sensors can be useful in products as they mean the product can function without human input.

					from what has been made before. • To know drawings and diagrams can be communicated in 3D. • To know that annotations are detailed labels and comments on diagrams. • To know that improving on prototypes can help to improve the final design. • To know that materials and equipment lists help with planning. • To know aesthetics are the way something looks. • To know that risks are things that might go wrong. • To know the shape of an object can affect both its aesthetics and function. • To know aesthetics is how something looks. • To know that the finish can make a product suitable to be used outside.	