

	Autumn	Spring	Summer
Year 1	Constructing a Windmill	Making a moving story book	Fruit and vegetables
Key Concept	Structures	Mechanisms	Cooking and Nutrition
Overview	Inspired by the song, 'Mouse in a windmill', design and construct a windmill for a client (mouse) to live in. Explore various types of windmill, how they work and their key features.	Explore slider mechanisms and the movement they output, to design, make and evaluate a moving storybook from a range of templates.	Learn to distinguish between fruit and vegetables and where they grow. Design a fruit and vegetable smoothie and accompanying packaging.
Key Objectives	<p>To include individual preferences.</p> <p>To make a stable structure.</p> <p>To assemble the components of my structure.</p> <p>To evaluate my project and adapt my design.</p>	<p>To explore making mechanisms.</p> <p>To design a moving story book.</p> <p>To construct a moving picture.</p> <p>To evaluate my finished product.</p>	<p>To identify if a food is a fruit or a vegetable.</p> <p>To identify where plants grow and which parts we eat.</p> <p>To taste and compare fruit and vegetables.</p> <p>To make a fruit and vegetable smoothie.</p>
Key Disciplinary Skills	<ul style="list-style-type: none"> Learning the importance of a clear design criteria. Including individual preferences and requirements in a design. Making stable structures from card, tape and glue. Learning how to turn 2D nets into 3D structures. 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. 	<ul style="list-style-type: none"> Explaining how to adapt mechanisms, using bridges or guides to control the movement. Designing a moving story book for a given audience. Following a design to create moving models that use levers and sliders. 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. 	<ul style="list-style-type: none"> Designing smoothie carton packaging by-hand or on ICT software. Chopping fruit and vegetables safely to make a smoothie. Identifying if a food is a fruit or a vegetable. Learning where and how fruits and vegetables grow. Tasting and evaluating different food combinations. Describing appearance, smell and taste. Suggesting information to be included on packaging.
Key Substantive Knowledge	<ul style="list-style-type: none"> To understand that the shape of materials can be changed to improve the strength and stiffness of structures. To understand that cylinders are a strong type of structure (and, therefore, they are 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> To understand the difference between fruits and vegetables. To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). To know that a blender is a machine which mixes ingredients together into a smooth liquid. To know that a fruit has seeds and a vegetable does not. To know that fruits grow on trees or vines.

	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> To know that vegetables can grow either above or below ground. To know that vegetables can come from different parts of the plant.
Key Vocabulary	axle bridge design design criteria model net packaging structure template unstable stable strong weak	sliders mechanism adapt design criteria design input model template assemble test	fruit vegetable seed leaf root stem smoothie healthy carton design flavour peel slice
Year 2	Making a moving vehicle	Pouches	A balanced diet
Key Concept	Mechanisms	Textiles	Cooking and Nutrition
Overview	Explore levers, linkages and pivots through existing products and experimentation, use this research to construct and assemble a moving vehicle.	Learn how to sew a running stitch ready to design, make and decorate a pouch using a template.	Learn about the food groups (carbohydrates, proteins, fruits and vegetables, dairy, oils and spreads) to understand a balanced diet to develop a healthy wrap.
Key Objectives	To look at objects and understand how they move. To explore different design options. To make a moving monster.	To sew a running stitch. To sew a running stitch. To join fabrics using a running stitch. To decorate a pouch using fabric glue or stitching.	To know what makes a balanced diet. To taste test food combinations. To design a healthy wrap. To make a healthy wrap.
Key Disciplinary Skills	<ul style="list-style-type: none"> Creating a design criteria for a moving monster as a class. Designing a moving monster for a specific audience in accordance with a design criteria. Making linkages using card for levers and split pins for pivots. 	<ul style="list-style-type: none"> Designing a pouch. Selecting and cutting fabrics for sewing. Decorating a pouch using fabric glue or running stitch. Threading a needle. Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. Neatly pinning and cutting fabric using a template. 	<ul style="list-style-type: none"> Designing a healthy wrap based on a food combination which works well together. Slicing food safely using the bridge or claw grip. Constructing a wrap that meets a design brief. Describing the taste, texture and smell of fruit and vegetables.

	<ul style="list-style-type: none"> Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. Cutting and assembling components neatly. Evaluating own designs against design criteria. Using peer feedback to modify a final design. 	<ul style="list-style-type: none"> Troubleshooting scenarios posed by teacher. Evaluating the quality of the stitching on others' work. Discussing as a class, the success of their stitching against the success criteria. Identifying aspects of their peers' work that they particularly like and why. 	<ul style="list-style-type: none"> Taste testing food combinations and final products. Describing the information that should be included on a label. Evaluating which grip was most effective.
Key Substantive Knowledge	<ul style="list-style-type: none"> To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. To know that there is always an input and an output in a mechanism. To know that an input is the energy that is used to start something working. To know that an output is the movement that happens as a result of the input. To know that a lever is something that turns on a pivot. To know that a linkage mechanism is made up of a series of levers. 	<ul style="list-style-type: none"> To know that sewing is a method of joining fabric. To know that different stitches can be used when sewing. To understand the importance of tying a knot after sewing the final stitch. To know that a thimble can be used to protect my fingers when sewing. 	<ul style="list-style-type: none"> To know that 'diet' means the food and drink that a person or animal usually eats. To understand what makes a balanced diet. To know where to find the nutritional information on packaging. To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. To understand that I should eat a range of different foods from each food group, and roughly how much of each food group. To know that nutrients are substances in food that all living things need to make energy, grow and develop. To know that 'ingredients' means the items in a mixture or recipe. To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy. To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.
Key Vocabulary	axle design criteria input linkage mechanical output	decorate fabric fabric glue knot needle needle threader	balanced diet balance carbohydrate dairy fruit ingredients

	pivot wheel	running stitch sew template thread	oils sugar protein vegetable design criteria
Year 3	Eating Seasonally	Buildings	Cushions
Key Concept	Cooking and Nutrition	Structures	Textiles
Overview	Learn about various fruits and vegetables, and when, where and why they are grown in different seasons. Discover the relationship between colour and health benefits.	Identify and learn about geometric shapes needed to create a stable Tudor House, before designing and making a recycled-material structure.	Learn and apply two new sewing techniques – cross-stitch and appliqué. Utilise these new skills to design and make an applique wall hanging.
Key Objectives	<p>To know that climate affects food growth.</p> <p>To understand the advantages of eating seasonal foods grown in the UK.</p> <p>To create a recipe that is healthy and nutritious using seasonal vegetables.</p> <p>To safely follow a recipe when cooking</p>	<p>To recognise how multiple shapes (2D and 3D) are combined to form a strong and stable structure.</p> <p>To design a castle.</p> <p>To construct 3D nets.</p> <p>To construct and evaluate my final product.</p>	<p>To learn how to sew cross-stitch and appliqué.</p> <p>To design a product and its template.</p> <p>To decorate fabric using appliqué and cross stitch.</p> <p>To assemble your cushion.</p>
Key Disciplinary Skills	<ul style="list-style-type: none"> • Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish. • Knowing how to prepare themselves and a workspace to cook safely in, learning the basic rules to avoid food contamination. • Following the instructions within a recipe. • Establishing and using design criteria to help test and review dishes. • Describing the benefits of seasonal fruits and vegetables and the impact on the environment. • Suggesting points for improvement when making a seasonal tart. 	<ul style="list-style-type: none"> • Designing a castle with key features to appeal to a specific person/purpose. • Drawing and labelling a castle design using 2D shapes. • Designing and/or decorating a castle tower on CAD software. • Constructing a range of 3D geometric shapes using nets. • Creating special features for individual designs. • Making facades from a range of recycled materials. • Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. • Suggesting points for modification of the individual designs. 	<ul style="list-style-type: none"> • Designing and making a template from an existing cushion and applying individual design criteria. • Following design criteria to create a cushion. • 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. • Evaluating an end product and thinking of other ways in which to create similar items.

Key Substantive Knowledge	<ul style="list-style-type: none"> To know that not all fruits and vegetables can be grown in the UK. To know that climate affects food growth. To know that vegetables and fruit grow in certain seasons. To know that cooking instructions are known as a 'recipe'. To know that imported food is food that has been brought into the country. 	<ul style="list-style-type: none"> To understand that wide and flat based objects are more stable. To understand the importance of strength and stiffness in structures. To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse – and their purpose. To know that a facade is the front of a structure. To understand that a castle needed to be strong and stable to withstand enemy attack. 	<ul style="list-style-type: none"> To know that appliqué is a way of mending or decorating a textile by applying smaller pieces of fabric. 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.
Key Vocabulary	Climate imported natural reared seasonal diet ingredients processed recipe seasons sugar	2D 3D castle design key features net scoring shape stable stiff strong structure tab	appliqué cross-stitch design equipment fabric patch running stitch thread seam texture knot
Year 4	Torches	Mindful moments timer	Making a slingshot car
Key Concept	Electrical Systems	Digital World	Mechanical Systems
Overview	Identify the difference between electrical and electronic products. Evaluate a range of existing torches and their features, then develop a new functional torch design.	Explore what is meant by mindfulness and write design criteria to fulfil a brief to develop a programmed product for timing a mindful moment.	Using a range of materials, design and make a car with a working slingshot mechanism and house the mechanism using a range of nets.
Key Objectives	<p>To learn about electrical items and how they work.</p> <p>To analyse and evaluate electrical products.</p> <p>To design a product to fit a set of specific user needs.</p>	<p>To create a design criteria for an electronic timer based on analysis of existing products.</p> <p>To apply understanding of computer programming to instruct and control a Micro:bit to function as a timer.</p>	<p>To build a car chassis.</p> <p>To design a shape that reduces air resistance.</p> <p>To make a model based on a chosen design.</p> <p>To assemble and test my completed product.</p>

	To make and evaluate a torch.	To design, make and develop a prototype case for my mindful moment timer. To design a logo for a mindfulness company using computer-aided design.	
Key Disciplinary Skills	<ul style="list-style-type: none"> Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas 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. Evaluating electrical products. Testing and evaluating the success of a final product. 	<ul style="list-style-type: none"> Writing design criteria for a programmed timer (Micro:bit). Exploring different mindfulness strategies and using this research to inform my design criteria. Developing a prototype case for my mindful moment timer. Using and manipulating shapes and clipart and using computer-aided design (CAD) to produce a logo. Following a list of design requirements. Developing a prototype case for my mindful moment timer. Creating a 3D structure using a net. Programming a Micro:bit to time a set number of seconds/minutes upon button press. Analysing a range of timers by comparing their advantages and disadvantages. Evaluating my Micro:bit program against points on my design criteria and amending them to include any changes I made. Documenting and evaluating my project. Understanding what logos are and why they are important in the world of design and business. Testing my program for bugs (errors in the code). Finding and fixing the bugs (debug) in my code. 	<ul style="list-style-type: none"> Designing a shape that reduces air resistance. Drawing a net to create a structure from. Choosing shapes that increase or decrease speed as a result of air resistance. Personalising a design. Measuring, marking, cutting and assembling with increasing accuracy. Making a model based on a chosen design. Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.
Key Substantive Knowledge	<ul style="list-style-type: none"> To understand that electrical conductors are materials which electricity can pass through. 	<ul style="list-style-type: none"> To understand what variables are in programming. To know some of the features of a Micro:bit. 	<ul style="list-style-type: none"> To understand that all moving things have kinetic energy.

	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> To know that an algorithm is a set of instructions to be followed by the computer. To know that it is important to check my code for errors (bugs). To know that a simulator can be used as a way of checking that your code works before installing it onto an electronic device. 	<ul style="list-style-type: none"> To understand that kinetic energy is the energy that something (object/person) has by being in motion. To know that air resistance is the level of drag on an object as it is forced through the air. To understand that the shape of a moving object will affect how it moves due to air resistance
Key Vocabulary	battery bulb buzzer conductor circuit circuit diagram electricity insulator series circuit switch component design design criteria diagram evaluation LED model shape target audience input recyclable theme aesthetics assemble equipment ingredients packaging properties	advantage disadvantage criteria design ergonomic timer program loop coding block variable pause bug debug instructions net template develop join assemble test form function prototype process cheap user	chassis energy kinetic mechanism air resistance design structure graphics research model template
Year 5	Playgrounds	Monitoring devices/ What could be healthier?	Pop-up book

Key Concept	Structures	Digital World (4 weeks) Cooking and Nutrition (4 weeks)		Mechanical Systems
Overview	Design, make and evaluate a climbing frame for an adventure playground at Sherford. During this unit, children will investigate how a frame structure is designed and strengthened and incorporate these ideas into their own designs for a climbing frame	Apply Computing knowledge and understanding to program a Micro: bit animal monitoring device. Develop 3D CAD skills by learning how to navigate the Tinkercad interface and essential tools to combine multiple objects.	Discover the farm to fork process, understand the key welfare issues for rearing cattle. Compare the nutritional value of existing sauces and develop a healthier recipe.	Create a functional four-page pop-up storybook design, using lever, sliders, layers and spacers to create paper-based mechanisms.
Key Objectives	<p>To design a playground with a variety of structures.</p> <p>To build a range of structures.</p> <p>To improve and add detail to structures.</p> <p>To create the surrounding landscape.</p>	<p>To carry out research to develop design criteria.</p> <p>To write a program to monitor the ambient temperature including an alert.</p> <p>To generate creative and unique micro:bit case, stand and/or housing ideas.</p> <p>To learn about and practise 3D CAD skills.</p>	<p>To understand where food comes from.</p> <p>To understand the term 'healthy'.</p> <p>To adapt a traditional recipe.</p> <p>To complete a food product.</p>	<p>To design a pop-up book.</p> <p>To follow my design brief to make my pop-up book.</p> <p>To use layers and spacers to cover the working of mechanisms.</p> <p>To create a high-quality product suitable for a target user.</p>
Key Disciplinary Skills	<ul style="list-style-type: none"> Designing a playground featuring a variety of different structures, giving consideration to how the structures will be used. Considering effective and ineffective designs. 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. 	<ul style="list-style-type: none"> Researching (books, internet) for a particular animal's needs. Developing design criteria based on research. Generating multiple 	<ul style="list-style-type: none"> Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or 	<ul style="list-style-type: none"> Designing a pop-up book which uses a mixture of structures and mechanisms. Naming each mechanism, input and output accurately. Storyboarding ideas for a book. Following a design brief to make a pop-up book, neatly and with focus on accuracy. Making mechanisms and/or structures using sliders, pivots and folds to produce movement.

	<ul style="list-style-type: none"> • Using a range of materials to reinforce and add decoration to structures. • 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. 	<p>housing ideas using building bricks.</p> <ul style="list-style-type: none"> • Understanding what a virtual model is and the pros and cons of traditional and CAD modelling. • Placing and manoeuvring 3D objects, using CAD. • Changing the properties of, or combining one or more, 3D objects using CAD. • Understanding the functional and aesthetic properties of plastics. • Programming to monitor the ambient temperature and coding an (audible or visual) alert when the temperature moves out of a specified range. • Stating an event or fact 	<p>add additional ingredients.</p> <ul style="list-style-type: none"> • Writing an amended method for a recipe to incorporate the relevant changes to ingredients. • Designing appealing packaging to reflect a recipe. • Cutting and preparing recipes safely. • Using equipment safely, including knives, hot pans and hobs. • Knowing how to avoid cross-contamination. • Following a step-by-step method carefully to make a recipe. • Identifying the nutritional differences between different products and recipes. 	<ul style="list-style-type: none"> • Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. • Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement.
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		<p>from the last 100 years of plastic history.</p> <ul style="list-style-type: none"> Explaining how plastic is affecting planet Earth and suggesting ways to make more sustainable choices. Explaining key functions in my program (audible alert, visuals). Explaining how my product's programmed features would be useful for an animal carer. 	<ul style="list-style-type: none"> Identifying and describing healthy benefits of food groups. 	
Key Substantive Knowledge	<ul style="list-style-type: none"> To know that structures can be strengthened by manipulating materials and shapes. To understand what a 'footprint plan' is. To understand that in the real world, design can impact users in positive and negative ways. To know that a prototype is a cheap model to test a design idea. 	<ul style="list-style-type: none"> To know that a 'device' means equipment created for a certain purpose or job and that monitoring devices observe and record. To know that a sensor is a tool or device that is designed to monitor, 	<ul style="list-style-type: none"> To understand where meat comes from – learning that beef is from cattle and how beef is reared and processed, including key welfare issues. To know that I can adapt a recipe to make it healthier by 	<ul style="list-style-type: none"> To know that mechanisms control movement. To understand that mechanisms can be used to change one kind of motion into another. To understand how to use sliders, pivots and folds to create paper-based mechanisms. To know that a design brief is a description of what I am going to design and make. To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.

		<p>detect and respond to changes for a purpose.</p> <ul style="list-style-type: none"> To understand that conditional statements (and, or, if booleans) in programming are a set of rules which are followed if certain conditions are met. 	<p>substituting ingredients.</p> <ul style="list-style-type: none"> To know that I can use a nutritional calculator to see how healthy a food option is. To understand that 'cross-contamination' means that bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects. 	
Key Vocabulary	apparatus design criteria equipment playground landscape features cladding	monitoring device electronic sensor thermoscope thermometer research design brief design criteria development inventor vivarium programming loop programming comment alert ambient duplicate	beef reared processed ethical diet ingredients supermarket farm balanced	design input motion mechanism criteria research reinforce model

		copy value variable model sustainability plastic microplastics decompose plastic pollution man-made synthetic		
Year 6	Waistcoats	Steady hand game	Come dine with me	
Key Concept	Textiles	Electrical Systems	Cooking and Nutrition	
Overview	Using a combination of textiles skills such as attaching fastenings, appliqué and decorative stitches, design, assemble and decorate a waistcoat for a chosen purpose.	Understand what is meant by fit for purpose design and form follows function. Design and develop a steady hand game using a series circuit, including housing and backboard.	Develop a three-course menu focused on three key ingredients, as part of a paired challenge to develop the best class recipes. Explore each key ingredient's farm to fork process.	
Key Objectives	<p>To design a waistcoat</p> <p>To mark and cut fabric according to a design.</p> <p>To assemble a waistcoat</p> <p>To decorate your waistcoat</p>	<p>To research and analyse a range of children's toys.</p> <p>To design a steady hand game.</p> <p>To construct a stable base.</p> <p>To assemble electronics and complete an electronic game.</p>	<p>To research and design a three-course meal</p> <p>To prepare starter using a recipe; To understand where their food comes from; To write up a recipe*</p> <p>To prepare a main meal using a recipe; To understand where their food comes from; To write up a recipe*</p> <p>To prepare a dessert using a recipe; To understand where their food comes from; To write up a recipe*</p>	
Key Disciplinary Skills	<ul style="list-style-type: none"> Designing a waistcoat in accordance with a specification and design criteria to fit a specific theme. Annotating designs. Using a template when pinning panels onto fabric. Marking and cutting fabric accurately, in accordance with a design. 	<ul style="list-style-type: none"> Designing a steady hand game, identifying and naming the components required. Drawing a design from three different perspectives. Generating ideas through sketching and discussion. Modelling ideas through prototypes. Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'. 	<ul style="list-style-type: none"> Writing a recipe, explaining the key steps, method and ingredients. Including facts and drawings from research undertaken. Following a recipe, including using the correct quantities of each ingredient. Adapting a recipe based on research. Working to a given timescale. Working safely and hygienically with independence. 	

	<ul style="list-style-type: none"> • Sewing a strong running stitch, making small, neat stitches and following the edge. • Tying strong knots. • Decorating a waistcoat – attaching objects using thread and adding a secure fastening. • Learning different decorative stitches. • Sewing accurately with even regularity of stitches. • Evaluating work continually as it is created. 	<ul style="list-style-type: none"> • Constructing a stable base for a game. • Accurately cutting, folding and assembling a net. • Decorating the base of the game to a high-quality finish. • Making and testing a circuit. • Incorporating a circuit into a base. • Testing their own and others' finished games, identifying what went well and making suggestions for improvement. • Gathering images and information about existing children's toys. • Analysing a selection of existing children's toys. 	<ul style="list-style-type: none"> • Evaluating a recipe, considering: taste, smell, texture and origin of the food group. • Taste testing and scoring final products. • Suggesting and writing up points of improvements in productions. • Evaluating health and safety in production to minimise cross contamination.
Key Substantive Knowledge	<ul style="list-style-type: none"> • To understand that it is important to design clothing with the client/target customer in mind. • To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric • To understand the importance of consistently sized stitches. 	<ul style="list-style-type: none"> • To know that 'form' means the shape and appearance of an object. • To know the difference between 'form' and 'function'. • To understand that 'fit for purpose' means that a product works how it should and is easy to use. • To know that 'form over purpose' means that a product looks good but does not work very well. • To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. • To understand the diagram perspectives 'top view', 'side view' and 'back'. 	<ul style="list-style-type: none"> • To know that 'flavour' is how a food or drink tastes. • To know that many countries have 'national dishes' which are recipes associated with that country. • To know that 'processed food' means food that has been put through multiple changes in a factory. • To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. • To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).
Key Vocabulary	annotate decorate design criteria fabric target customer waistcoat waterproof	assemble battery battery pack benefit bulb bulb holder buzzer circuit circuit symbol component	equipment flavours ingredients method research recipe bridge method cookbook cross-contamination farm to fork

		conductor copper design design criteria evaluation fine motor skills fit for purpose form function gross motor skills insulator LED user	preparation storyboard
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