Design & Technology Coverage Termly Overview

HYTHE BAY
Church of England Primary School and Children's Centre

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Reception	We have aimed to select the Early Learning Goals that link most closely to the Design and Technology National Curriculum: • **Physical Development (Moving and Handling)** o Children handle equipment and tools effectively, including pencils for writing. • **Expressive Arts and Design (Exploring and Using Media and Materials)** o Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • **Expressive Arts and Design (Being Imaginative)** o Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.					
Yr 1/2 Cycle A Topic	**A Knight's Tale**	**Hythe , Our wonderful town**	**Here come the aliens**	**Fur, feather and scales**	**Name a piece of Art**	**Lighthouses**
	Wheels and Axles	Windmills	Textiles - Puppets	Fruit and Veg		Moving story book
Key Questions	• Do we understand how wheels move? • Can we identify what can stop wheels from turning? • Can you design a moving vehicle? • Can you make a wheel and axle mechanism • Can you evaluate your design to make it even better	• Can you design a suitable structure? • How can you make sure your structure is stable? • Can you assemble the components of a structure? • Can you evaluate your project and adapt your design	• Can you explore different ways to join fabric? • Can you make a template to accurately cut out your felt? • How are you going to join your fabric? • Can you decorate your puppet to match your design?	• How do I know if a food is a fruit or a vegetable? • Can you identify where plants grow and which parts we eat? • Can you taste and compare fruit and vegetables? • Can you make a fruit and vegetable smoothie?		• Do we understand that sliders are mechanisms? • Can we design a moving story book page using a slider? • Can you make a moving picture? • Can we evaluate our design?
Key Skills	• Designing a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move • Creating clearly labelled drawings which illustrate movement. • Adapting mechanisms • Testing mechanisms, identifying what stops	• 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	• Using a template to create a design for a puppet • Cutting fabric neatly with scissors • Using joining methods to decorate a puppet • Sequencing steps for construction	• 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		• 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

	wheels from turning, knowing that a wheel needs an axle in order to move	windmill • Making functioning turbines and axles which are assembled into a main supporting structure	• Reflecting on a finished product, explaining likes and dislikes	• Tasting and evaluating different food combinations • Describing appearance, smell and taste • Suggesting information to be included on packaging.		• 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
Key knowledge	• 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. • To know some real-life items that use wheels such as wheelbarrows, hamster wheels and Vehicles.	• 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 (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 a client is the person I am designing for • To know that design criteria is a list of points to ensure the product meets the clients needs and wants • To know that a windmill harnesses the power of wind for a purpose like	• 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	• Understanding 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 • To know that vegetables can grow either above or below ground • To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber)		• 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.

		grinding grain, pumping water or generating electricity • To know that windmill turbines use wind to turn and make the machines inside work • To know that a windmill is a structure with sails that are moved by the wind • To know the three main parts of a windmill are the turbine, axle and structure				
Yr 1/2 – Cycle B	**People who help us**	**Once upon a tale….**	**Curiosity and Exploration**	**Animals**	**Growing**	**'Oh I do like to be beside the Seaside'**
	Mechanisms – Moving Monster	**Structures – Baby Bear Chairs**		**Mechanisms- Creating a moving enrichment for a Zoo animal**	**Food: A balanced Diet**	Textiles - Pouches

Key Questions	• Can you look at objects and understand how they move ? • Can we explore making different linkage mechanisms? • Can you explore different design options for your monster? • Can you make a moving monster?	• Can you explore the concept and features of structures and the stability of different shapes? • Do you understand that the shape of the structure affects its strength? • Can you follow your design and make your chair? • To produce a finished structure and evaluate its strength, stiffness and stability		• Can you design a wheel mechanism? • Can you select the appropriate materials? • Can you build and test your moving wheels? • Can you evaluate and adapt a design?	• Do you know what makes a balanced diet? • Are you confident to try a variety of different foods? • Can you design a tasty wrap? • Can you make and evaluate your health wraps?	• Can you sew with a running stitch? • Can you create a template for a pouch and cut out fabric, beginning to think of who the pouch could belong to and what it should look like. • Can you join your fabric using a running stitch? • Can you add decoration to your pouches using your design ideas from the previous lesson.
Key Skills	• Creating a class design criteria for a moving monster • Designing a moving monster for a specific	• Generating and communicating ideas using sketching and modelling • Learning about different types of structures, found in		• Selecting a suitable linkage system to produce the desired motions	• Designing a healthy wrap based on a food combination which work well together.	• Designing a pouch • Selecting and cutting fabrics for sewing

	audience in accordance with a design criteria • Making linkages using card for levers and split pins for pivots • Experimenting with linkages adjusting the widths, lengths and thicknesses of card used • Cutting an assembling components neatly. • Evaluating own designs against design criteria • Using peer feedback to modify a final design	the natural world and in everyday objects • Making a structure according to design criteria • Creating joints and structures from paper/card and tape . • Building a strong and stiff structure by folding paper. • Exploring the features of structures • Comparing the stability of different shapes • Testing the strength of own structures • Identifying the weakest part of a structure • Evaluating the strength, stiffness and stability of own structure		• Designing a wheel Selecting appropriate materials based on their properties • Selecting materials according to their characteristics • Following a design brief	• 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 • Taste testing food combinations and final products. • Describing the information that should be included on a label. • Evaluating which grip was most effective.	• 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 • 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
Key knowledge	• 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 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 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 different materials have different properties and are therefore suitable for different uses. • To know the features of a ferris wheel include the wheel, frame, pods, a base an axle and an axle holder • To know that it is important to test my design as I go along so that I can solve any problems that may occur.	• 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	• 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

	• To know that a linkage mechanism is made up of a series of levers. • To know some real-life objects that contain mechanisms.	• 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 • To know that natural structures are those found in nature. • To know that man-made structures are those made by people			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'.	
Yr 3/4 Cycle A	Term 1 Body Works	Term 2 Smashing Saxons	Term 3 Dragonology Shang Dynasty	Term 4 Vikings	Term 5 Rainforest Riches	Term 6 Our Ever changing world!
	Food – Eating Seasonally		Textiles: Cushions	Structures: Constructing a castle	Mechanical Systems: Pneumatic Toys	Electrical Systems: Static Electricity
Key Questions	• How does climate affect food growth? • What are the benefits of eating seasonal foods grown in the UK? • How can we create a healthy and nutritious recipe using seasonal ingredients? • How can we use, store and wash a knife safely?		• What is cross stitch and appliqué? • How does your image affect which fabric choice you make? • What must you remember to do when sewing? • How can we create a seam?	• Why are the properties stability, strength and stiffness important for structures? • What difficulties might you run into when creating a castle? • What net can we use to make part of the castle? • What will make a good quality castle?	• How do pneumatic systems work? • What are the three different types of pneumatic systems? • How can you use pneumatic systems with linkage systems to create motion? • How can you use pivots to create motion?	• What is information design? • How does information design help the public in a museum? • What are the design criteria used for? • What is an electrical product?

Key Skills	• 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 work space 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		• 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	• Designing a castle with key features to appeal to a specific person/purpose • Drawing and labelling a castle design using 2D shapes, labelling: - the 3D shapes that will create the features - materials needed and colours • 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	• 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 • 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, weaving • Using the views of others to improve designs • Testing and modifying the outcome, suggesting improvements • Understanding the purpose of exploded-diagrams through the	• Carry out research based on a given topic (e.g. The Romans) to develop a range of initial ideas • Generate a final design for the electric poster with consideration to the client's needs and design criteria • Design an electric poster that fits the requirements of a given brief • Plan the positioning of the bulb (circuit component) and its purpose • Create a final design for the electric poster • Mount the poster onto corrugated card to improve its strength and withstand the weight of the circuit on the rear • Measure and mark materials out using a template or ruler • Fit an electrical component (bulb) • Learn ways to give the final product a higher quality finish (e.g. framing to conceal a roughly cut edge) • Learning to give and accept constructive

					eyes of a designer and their client	criticism on own work and the work of others • Testing the success of initial ideas against the design criteria and justifying opinions • Revisiting the requirements of the client to review developing design ideas and check that they fulfil their needs
Key Knowledge	• 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 which has been brought into the country • To know that exported food is food which has been sent to another country. • To understand that imported foods travel from far away and this can negatively impact the environment. • To know that each fruit and vegetable gives us nutritional benefits		•To know that applique 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	• 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 façade is the front of a structure • To understand that a castle needed to be strong and stable to withstand enemy attack • To know that a paper net is a flat 2D shape	• 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 • To understand how sketches, drawings and diagrams can be used to communicate design ideas • To know that exploded-diagrams are used to show how different parts of a product fit together • To know that thumbnail sketches are small drawings to get ideas down on paper quickly	• To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit • To understand common features of an electric product (switch, battery or plug, dials, buttons etc.) • To list examples of common electric products (kettle, remote control etc.) • To understand that an electric product uses an electrical system to work (function) • To know the name and appearance of a bulb, battery, battery holder and

	because they contain vitamins, minerals and fibre. • To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health • To know safety rules for using, storing and cleaning a knife safely • To know that similar coloured fruits and vegetables often have similar nutritional benefits			that can become a 3D shape once assembled • To know that a design specification is a list of success criteria for a product		crocodile wire to build simple circuits • To understand the importance and purpose of information design • To understand how material choices (such as mounting paper to corrugated card) can improve a product to serve its purpose (remain rigid without bending when the electrical circuit is attached).
Yr 3/4 Cycle B	Term 1 Stone Age to Iron Age	Term 2 The Romans	Term 3 Around the World	Term 4 Shake, Rock and Roll	Term 5 Shakespeare	Term 6 Migration
	Textiles: Fastenings	Structures: Pavilions	Mechanical Systems: Slingshot Cars		Food: Adapting a recipe	Electrical systems: Torches
Key Questions	• What different ways are there to fasten the two pieces of fabric? • Why is it useful to have a list of design criteria? • Why is it useful to create a prototype? • What must you consider when sewing?	• What is a frame structure? • What are the properties of stable structures? • What does a well-made structure look like? • What is cladding and what does it do?	• What is air resistance? • Why might larger objects move more slowly through the air than smaller ones? • Why is accurate measuring important?		• What do we need to do before we start to cook? • How will baking change the taste/smell/texture/ appearance? • What is a budget?	• What is electricity? • How can we make sure we are safe around electrical items? • How does a torch work? • How does the user affect our design?
Key Skills	• Writing design criteria for a product, articulating decisions made • Designing a personalised sleeve • Making and testing a paper template with accuracy and in keeping with the design criteria	• Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect • Building frame structures designed to support weight	• 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,		• Designing a biscuit within a given budget, drawing upon previous taste testing • Following a baking recipe • Cooking safely, following basic hygiene rules	• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas

	• Measuring, marking and cutting fabric using a paper template • Selecting a stitch style to join fabric, working neatly sewing small neat stitches • Incorporating fastening to a design • Testing and evaluating an end product against the original design criteria • Deciding how many of the criteria should be met for the product to be considered successful • Suggesting modifications for improvement • Articulating the advantages and disadvantages of different fastening types	• Creating a range of different shaped frame structures • Making a variety of free standing frame structures of different shapes and sizes • Selecting appropriate materials to build a strong structure and for the cladding • Reinforcing corners to strengthen a structure • Creating a design in accordance with a plan • Learning to create different textural effects with materials • Evaluating structures made by the class • Describing what characteristics of a design and construction made it the most effective • Considering effective and ineffective designs	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		• Adapting a recipe • Evaluating a recipe, considering: taste, smell, texture and appearance • Describing the impact of the budget on the selection of ingredients • Evaluating and comparing a range of products • Suggesting modifications	• 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
Key Knowledge	• To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and velcro • To know that different fastening types are useful for different purposes • To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions	• To understand what a frame structure is • To know that a 'free-standing' structure is one which can stand on its own • To know that a pavilion is a decorative building or structure for leisure activities • To know that cladding can be applied to structures for different effects. • To know that aesthetics are how a product looks • To know that a product's function means its purpose	• To understand that all moving things have kinetic energy • 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.		• To know that the amount of an ingredient in a recipe is known as the 'quantity' • To know that it is important to use oven gloves when removing hot food from an oven • To know the following cooking techniques: sieving, creaming, rubbing method, cooling •To understand the importance of budgeting	• 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

		• To understand that the target audience means the person or group of people a product is designed for • To know that architects consider light, shadow and patterns when designing	• To understand that products change and evolve over time • To know that aesthetics means how an object or product looks in design and technology • To know that a template is a stencil you can use to help you draw the same shape accurately • To know that a birds-eye view means a view from a high angle (as if a bird in flight) • To know that graphics are images which are designed to explain or advertise something •To know that it is important to assess and evaluate design ideas and models against a list of design criteria.		while planning ingredients for biscuits	be complete for electricity to flow • To know that a switch can be used to complete and break an electrical circuit • To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens • To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison
Year 5/6 Cycle A	Term 1 Mayan Civilisation	Term 2 'Twas the night before Christmas	Term 3 Out of this World	Term 4 Conservation	Term 5 Great Inventions Greeks	Term 6 Survival
	Structures: Bridges	Mechanical Systems: Pop-up book	Electrical Systems: Doodlers	Textiles: Stuffed Toys		Food: What could be healthier?
Key Questions	• How can we make a bridge stronger and/or stiffer? • What is the difference between a beam, arch and truss bridge?	• Which mechanisms will be useful for a pop-up book? • What are the safety points when using equipment?	• How are motors used in electrical products? • What factors affect a product's form and function? • What happens if you change the position	• Why is it important to ensure that our template is proportional? • How do we create strong and secure stitches		• What are the ethical issues around the way in which cattle should be farmed?

	• What methods will create a strong wooden structure? • What are the two main types of wood and what are the differences?	• How will layers and spacers enhance our design? • How do the preferences and needs of the user affect our design?	of the motor on the Doodler? • How do we build and integrate an electrical system as part of our product?	• What is the difference between a blanket stitch and cross stitch? • How do we ensure our product is similar to the design?		• What does the term 'healthy' actually mean? • In a nutritional table, which figures should be kept low and which can be higher? • What techniques do we need to how to chop an onion?
Key Skills	• Designing a stable structure that is able to support weight • Creating frame structure with focus on triangulation • Making a range of different shaped beam bridges • Using triangles to create truss bridges that span a given distance and supports a load • Building a wooden bridge structure • Independently measuring and marking wood accurately • Selecting appropriate tools and equipment for particular tasks • Using the correct techniques to saws safely • Identifying where a structure needs reinforcement and using card corners for support	• Designing a pop-up book which uses a mixture of structures and mechanisms • Naming each mechanism, input and output accurately • 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 • 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	• Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product • Developing design criteria based on finding from investigating existing products • Developing design criteria that clarifies the target user • Altering a product's form and function by tinkering with its configuration. • Making a functional series circuit, incorporating a motor • Constructing a product with consideration for the design criteria • Breaking down the construction process into steps so that others can make	• Designing a stuffed toy considering the main component shapes required and creating an appropriate template • Considering the proportions of individual components • 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 applique to attach pieces of fabric decoration • Sewing blanket stitch to join fabric • Applying blanket stitch so the space between the stitches are even and regular.		• Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients • Writing an amended method for a recipe to incorporate the relevant changes to ingredients • Designing appealing packaging to reflect a recipe • Cutting and preparing vegetables safely • Using equipment safely, including knives, hot pans and hobs • Knowing how to avoid cross-contamination

	• Explaining why selecting appropriating materials is an important part of the design process • Understanding basic wood functional properties • Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary • Suggesting points for improvements for own bridges and those designed by others		the product • Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses • Determining which parts of a product affect its function and which parts affect its form • Analysing whether changes in configuration positively or negatively affect an existing product • Peer evaluating a set of instructions to build a product			• Following a step by step method carefully to make a recipe • Identifying the nutritional differences between different products and recipes • Identifying and describing healthy benefits of food groups
Key Knowledge	• To understand some different ways to reinforce structures • To understand how triangles can be used to reinforce bridges • To know that properties are words that describe the form and function of materials • To understand why material selection is important based on their properties • To understand the material (functional and aesthetic) properties of wood • To understand the difference between arch, beam, truss and suspension	• To know that mechanisms control movement • To understand that mechanisms that 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	• To know series circuits only have one direction for the electricity to flow • To know when there is a break in a series circuit, all components turn off • To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin • To know a motorised product is one which uses a motor to function • To know that product analysis is critiquing the strengths and weaknesses of a product	• 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		• 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 substituting ingredients • 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

	bridges • To understand how to carry and use a saw safely		• To know that 'configuration' means how the parts of a product are arranged			have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects
Year 5/ 6 Cycle B	Term 1 Ancient Egypt	Term 2 What on Earth	Term 3 Have you tried turning it on and off?	Term 4 Who dun it?	Term 5 WWII	Term 6 What will your future hold?
Suggested Activities	**Structures: 'Playgrounds'**		**Electrical Systems - Steady Hand Games**	**Mechanical Systems: Automota toys**	**Food: Come Dine With Me**	**Textiles: Waistcoats**
Key Questions	• Can you identify the different types of structures that could be used to protect a Pharos' tomb? • Which tools are best to cut, shape or join the materials? • How do you make a good reinforcement of corners or a frame? • Why is it important to consider the landscape design for these indoor spaces?		• Why is it essential that form follows function? • What are the main components in a steady hand game? • What would a good quality base look like? • How can the shape of the wire affect the difficulty of the game?	• Do we still see toys that operate without electricity today? • What is a list of design criteria? • What is a cam? Cam profile? Follower? • Can you suggest a way that the automata could be used as a shop display window?	• How will the flavours work together in the recipe? • How should we cut safely? • What does 'Farm to 'Fork' mean? • What health and safety considerations are there when preparing food?	• How can we make the outfit suitable for its wearer? • Why is accuracy so important? • What must you do when you finish sewing a section? • What method can we use to secure buttons and beads
Key Skills	• Designing a tomb featuring a variety of different structures, giving consideration to how the structures will be used to prevent intruders. • Considering effective and ineffective designs. • Building a range of apparatus structures drawing upon new and prior knowledge of structures.		• 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	• Experimenting with a range of cams, creating a design for an automata toy based • on a choice of cam to create a desired movement Understanding how linkages change the direction of a force • Making things move at the same time	• 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.	• Designing a waistcoat in accordance to specification linked to set of design criteria • to fit a specific theme • Annotating designs Using a template when pinning panels onto fabric • Marking and cutting fabric accurately, in

	• Measuring, marking and cutting wood to create a range of structures. • 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.		(toys), including what is meant by 'fit for purpose' and 'form over function' • 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 own and others finished games, identifying what went well and making suggestions for improvement	• Understanding and drawing cross-sectional diagrams to show the inner-working • Measuring, marking and checking the accuracy of the jelutong and dowel pieces required • Measuring, marking and cutting components accurately using a ruler and scissors • Assembling components accurately to make a stable frame • Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set • Evaluating the work of others and receiving feedback on own work • Applying points of improvements • Describing changes they would make/do if they were to do the project again	• Working safely and hygienically with independence. • 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.	accordance with a design • 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

Key Knowledge	• 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.		• To know that batteries contain acid, which can be dangerous if they leak • To know the names of the components in a basic series circuit including a buzzer •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'	• To understand that the mechanism in an automata uses a system of cams, axles and followers • To understand that different shaped cams produce different outputs • To know that an automata is a hand powered mechanical toy • To know that a cross-sectional diagram shows the inner workings of a product • To understand how to use a bench hook and saw safely • To know that a set square can be used to help mark 90° angles	• 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)	• 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