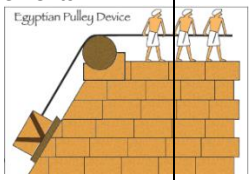
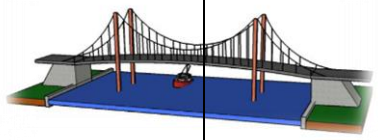
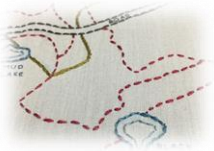
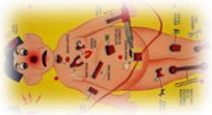
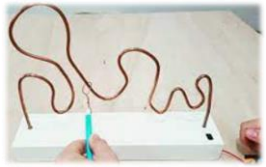
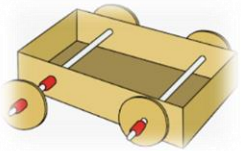
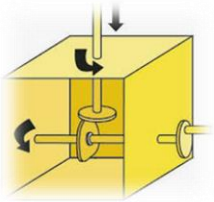
Conflict Autumn	Engages with debate	Vocabulary	Technical Knowledge	Research	Design	Make	Evaluate
KS1 **Materials**	**How can we build a durable castle?** 	Durable Materials Safety/ly Tools Measure Mark Fold Tear Cut Curl	Know how to cut materials safely using tools. Know how to measure and mark out to the nearest centimetre. Know how to use a range of cutting, folding and joining techniques	Establish the necessary features of a castle Research different models of castles Discuss and agree the qualities a castle needs to be durable British Culture	Design a castle that can withstand water, vibrations and wind Sustainability	Make a product, refining the design as work progresses. Technological change	Evaluate their design against a success criteria. Legacy 
LKS2 **Materials and Mechanics**	**How can we honour the WW2 veterans?** 	Transfer (of forces) Forces Mechanisms Product Shape Join Finish (eg. the finish of a product) Function Appearance	Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product How to use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. How to use a wider range of materials according to their functional properties and aesthetic qualities.	Research, investigate and analyse a range of existing pop up cards. 	Design a product for a purpose and audience. Legacy British Culture 	Make a product by carefully selecting materials. Refine work and techniques as work progresses, continually evaluating the product design	Evaluate their product against the design criteria Sustainability
UKS2 **Materials and Mechanics**	**How can we use mechanics to simplify manual labour?**	Convert Rotary motion Linear motion Cams Transference of forces Mechanisms Levers Winding mechanisms Pulleys Gears	Know how to convert rotary motion to linear using cams. Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears). How to use a wider range of tools and equipment to perform practical tasks [for example: cutting, shaping, joining and finishing] accurately.	Compare a range of simple mechanical stems used throughout history  Technological change Legacy	Design with the user in mind, a functional product that is fit for purpose (a device to simplify manual labour) Create a set of design criteria for a mechanical implement	Make a product through stages of prototypes, making continual refinements 	Evaluate their product against the set design criteria.

Planet Earth Spring	Engages with debate	Vocabulary	Technical Knowledge	Research	Design	Make	Evaluate
KS1 **Food**	**What does a healthy meal look like to you?**	Cut Peel Grate Ingredients Safely Hygienic Healthy Varied diet Measure Weigh Electronic scales	Know how to cut, peel or grate ingredients safely and hygienically. Know the basic principles of a healthy and varied diet to prepare dishes. Know how to measure or weigh using measuring cups or electronic scales.	Identify a range of meals enjoyed by children Discuss the healthy food groups Sort meals/ ingredients into healthy and unhealthy groups	Design and plan a healthy meal British Culture Sustainability 	Make a meal by assembling or cooking ingredients. . Technological change	Evaluate their meal against a design criteria.
LKS2 **Construction**	**Can your design withstand a natural disaster?** 	Techniques (different) Construct Product Repair Strengthen Materials	Use suitable techniques to construct products Use suitable techniques to repair items. Know how to strengthen materials using suitable techniques. 	Research a range of bridges Identify the features of bridges that make them strong	From research into bridges create a design criteria for your product Design and make a prototype using research Technological change Sustainability	Make a product by carefully selecting materials .	Evaluate their own and their peers' designs against a design criteria. Legacy
UKS2 **Food**	**How does sustainability impact a human diet?**	Sustainable Microorganisms Ratios Scale Variety Processed Savoury Aesthetic Environmental Accurate Ingredients recipe.	Know where and how a variety of ingredients are grown, reared, caught and processed. Understand the importance of correct storage and handling of ingredients (using knowledge of microorganisms). Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. Sustainability	Understand what sustainability means in relation to food. Sustainability 	Design a savoury dish with sustainable ingredients, Sustainability	Make and refine a recipe for a sustainable savoury dish. Sustainability Technological change	Evaluate the savoury dish so as to suggest improvements to taste and aesthetic qualities.

Britain Summer	Engages with debate	Vocabulary	Technical Knowledge	Research	Design	Make	Evaluate
KS1 **Textiles**	**What clothes would be fit for a Queen?**	Thread Needle Decorate Textiles Templates Stitch Running stitch Technique Purpose Join	Children know: how to shape textiles using templates. How to thread a needle. How to join textiles using running stitch. How to colour and decorate textiles using a number of techniques. Leadership	Research clothing items discussing designs and simple construction (The Queen's Knickers) British Culture 	Design clothing for a purpose and specific user. Sustainability	Make a product, refining the design as work progresses.	Evaluate their product against, a given design criteria. Sustainability Technological change Equality Legacy
LKS2 **Textiles**	**How would you commemorate the life of Boudica?**	*Join* Textiles *Stitching* *Running stitch* Seam Seam allowance. *Techniques* *Decorate*	Children can independently thread a needle. Children know how and when to use a range of basic stitches. How to over-stitch to produce a finished cross-stitch.	Research contents of cross stitch kits and how instructions are used to support the user Research the effectiveness and impact of simple designs	Design a Cross stitch kit for a purpose and with a specific audience in mind. Leadership 	Make a product using all the elements of a Cross Stitch kit Demonstrate a range of sewing techniques using a variation of stitches Sustainability	Evaluate the quality of the design and the instructions giving reasons for success or the need for improvement Legacy
UKS2 **Food**	**What is a traditional British meal?**	Sustainable Microorganisms Ratios Scale Processed Savoury Aesthetic Environmental Accurate Calculate Ingredients Recipe Variety	Children know what sustainability means in relation to food. Children Understand the importance of correct storage and handling of ingredients Children measure accurately and calculate ratios of ingredients to scale up or down from a recipe. British Culture Technological change Sustainability	Children use their geographical knowledge to investigate how a variety of ingredients are grown, reared, caught and processed. Children research meals from a range of cultures in Britain British Culture Sustainability	Design a savoury dish with consideration of sustainable ingredients. Design a dish that reflects British traditions Sustainability Equality	Make and refine a recipe for a sustainable, savoury, traditional British dish. Sustainability Equality 	Evaluate the savoury dish so as to suggest improvements to taste and aesthetic qualities. Sustainability Technological change Equality Legacy

Autumn Humankind	Engages with debate	Vocabulary	Technical Knowledge	Research	Design	Make	Evaluate
KS1 Construction	**What instrument would Mr Noisy play?**	Drill Screw Glue Cut Nail Safely Strengthen Tools Product Designs User	Know how to drill, screw, glue and nail materials to make and strengthen products. Know how to cut materials safely using tools. Technological change	Research a range of instruments recognising how volume can be changed Technological change	Design a product that has a clear purpose and an intended user. 	Make a product, refining the design as work progresses. Sustainability	Evaluate existing designs, saying what they like and dislike before designing their own. Sustainability
LKS2 Textiles	**How can we use different stitches to create a map of Dunwich ?** 	*Join* Textiles *Stitching* *Running stitch* Seam Seam allowance. *Techniques* *Decorate*	Know how to join textiles with appropriate stitching including a running stitch. Know why it's important to leave a seam allowance. How to select the most appropriate techniques to decorate textiles.	Research examples of embroidery stitches and maps Research methods of joining material to create a seam (including use of machines)	Develop design criteria to inform the design of a functional, appealing product aimed at a particular individual or group. British culture Legacy	Make a product by carefully selecting materials. i.e. small embroidered panel on a cushion Sustainability	Evaluate their own and their peers' designs against a design criteria. 
UKS2 Construction & Materials	**What is the most effective way to save the islander?** 	Aesthetic qualities Functional properties Innovative Durable Construction Materials Components shaping Joining Finishing Accurate	Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding) Choose suitable techniques to construct products or to repair items. Know how to build models using a range of materials that can be manipulated.	Research a range of rafts built using a variety of materials Technological change Sustainability 	Design, with the user in mind, a functional product that is fit for purpose i.e build a raft for the "man" in *The Island* Sustainability Technological change	Make a product that is effective for the purpose intended (i.e a raft that floats) 	Evaluate their own and their peers' designs against a design criteria and say how the design could be improved.

Spring Inventions	Engages with debate	Vocabulary	Technical Knowledge	Research	Design	Make	Evaluate
KS1 **Electricity**	**How can electricity be used to help us?**	Circuit Electricity Faults Batteries Design Wire Component	Know what a series circuit is. Know that the cell or battery provides the power. How to find faults in circuits and battery operated devices	Invent a battery powered product to help people in everyday life 	Design a functional product based on a design criteria. Sustainability Technological change Equality	Make a product, selecting and using a range of materials and components. 	Evaluate their product against a design criteria.
LKS2 **Electricity**	**How do toys use electricity to entertain children?** 	Switches Buzzers Bulbs Motors Circuits Series circuit Parallel circuit Wires System Electrical Disassemble	The difference between a series and parallel circuit. How to use electrical systems in their products [such as switches, bulbs, buzzers and motors] How to test if a circuit will work or not.	Research existing products with circuits by disassembling and investigating how they work. Sustainability Technological change	Design their own product and circuit. 	Make a product including a circuit. Sustainability Technological change Equality Legacy	Refine work and techniques as work progresses, continually evaluating the product design. Sustainability Technological change Equality Legacy
UKS2 **Electricity**	**Why are torches all different shapes and sizes?**	*Series circuit* *Parallel circuit* Symbols *Circuits* Components Exploded diagram Prototypes Continual refinements Electronic kits	Know how series and parallel circuits work. Draw circuits in designs using the correct symbols. Know to draw an exploded diagram.	Research a variety of torches and understand why they are constructed differently 	Design with the user in mind, a functional product that is fit for purpose I.e. a reading light that is compact or a general torch that is bright	Make a product through stages of prototypes, making continual refinements. Sustainability Technological change Equality Legacy	Evaluate the design of products, to improve the user experience 

Summer Civilisations	Engages with debate	Vocabulary	Technical Knowledge	Research	Design	Make	Evaluate
KS1 **Mechanics**	**How can we improve the speed of a vehicle?**	Levers Sliders Wheels Axles Mechanisms Design criteria Product	How to create products using mechanisms, such as levers, sliders, wheels, axles. 	Research a range of wheeled vehicles Identify which what makes a vehicle fast and reliable British Culture	Design a product that has a clear purpose and an intended user. Sustainability Technological change Equality Legacy	Make a product, refining the design as work progresses. 	Evaluate their product against a design criteria. Sustainability Technological change Equality Legacy
LKS2 **Food**	**Does where you live affect the foods you eat?** 	Seasonality Ingredients Processed Hygienic Utensils Recipes Reared Gram Accurate Assemble Temperature Oven Hob	Know how to prepare ingredients hygienically using appropriate utensils. Know how to measure ingredients to the nearest gram accurately. Know how to assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).	Research where and how a variety of ingredients are grown, reared, caught and processed and understand seasonality British Culture 	Design a recipe using seasonal ingredients related to a specific country or region. Sustainability Technological change Equality Legacy	Make a recipe using seasonal ingredients. 	Identify and evaluate existing seasonal recipes from around the world. Sustainability Technological change Equality Legacy
UKS2 **Construction/ Materials**	**What uses do cams and cranks have?** 	Aesthetic qualities Functional properties Innovative Durable Cams Cranks Moving element Construction Materials Components	How to strengthen materials using suitable techniques. How to use a wider range of materials and components, including construction materials according to their functional properties and aesthetic qualities.	Research existing cam and crank products and toys. Sustainability Technological change Equality Legacy	Design a product with a moving element. 	Make a product using innovative designs that use cams and cranks to create movement. Refine the design as work progresses Sustainability Technological change Equality Legacy	Evaluate the design of the product in relation to movement and durability. Sustainability Technological change Equality Legacy