

Subject Planning Grid Subject: Design and Technology

Year	Skills as a design and technologist.	Substantive Knowledge	Key Vocabulary
1A Fire, fire! Food - Bread	<u>Food - Bread</u> Risk assessment - see Mr Wood <u>Explore</u> <ul style="list-style-type: none"> I can think of ideas and recognise characteristics of familiar products (bread). I understand where food comes from (bread). <u>Design</u> <ul style="list-style-type: none"> My plans show that, with help, I can put my ideas into practice. I can use pictures and words to describe what I want to do. <u>Make</u> <ul style="list-style-type: none"> I can explain what I am making and which tools I am using. I can use tools to cut, mix, shape ingredients safely and hygienically with help. I can use tools to measure or weigh using measuring cups or electronic scales. I can be hygienic when preparing food. I can use the basic principles of a healthy and varied diet to prepare dishes <u>Evaluation</u> <ul style="list-style-type: none"> I can talk about my own and other people's work in simple terms. I can describe how a product works. 	<u>Explore</u> <ul style="list-style-type: none"> I know bread comes in different forms and tastes differently. I know the names of different types of bread. For example, Pitta, Naan, Baguette I know why we knead bread. I know what a recipe is and why we need it. <u>Design</u> <ul style="list-style-type: none"> I know what ingredients are needed to make bread. I know what tools I need to make bread. I can design what my bread with look like. For example, roll, baguette, spiral. <u>Make</u> <ul style="list-style-type: none"> I know and understand that clean hands prevent the spread of germs. I know what the role of different ingredients are in bread and the effects they have on each other. I know what tools I need to carry out tasks. For example, a spoon to stir, a knife to cut, hands to kneads. I know how to measure ingredients. <u>Evaluation</u> <ul style="list-style-type: none"> I know what I like about my product. I know how my product changed when it was cooked. I know what skills I used to make the bread. 	Cut Measure Weigh Scales Ingredients Recipe Knead Wholemeal Pitta Naan Baguette Grain flour
1B The Victorians Textiles - Puppets	<u>Textiles - Puppets</u> <u>Explore</u> <ul style="list-style-type: none"> I can think of ideas and recognise characteristics of familiar products (puppets). I can practice joining materials using running stitch. I can explore how to join fabric. 	<u>Explore</u> <ul style="list-style-type: none"> I know what a puppet is, what forms they take and how they work. I know which the best ways are to combine fabric. <u>Design</u> <ul style="list-style-type: none"> I know what I am making and which tools I am using. 	Needle Wool Decorating Textiles Thread Stitch Marionette

	<p><u>Design</u></p> <ul style="list-style-type: none"> I can use pictures and words to describe what I want to do. I can label my drawing I can use a template to create a design. <p><u>Make</u></p> <ul style="list-style-type: none"> I can use several techniques to enhance my design (adding sequins, buttons, wool). I can use a thread and needle to join materials. I can add detail to my puppet by joining materials with glue. I can select appropriate tools to join materials using running stitch, with support. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> I can talk about my own and other people's work in simple terms. I can describe how a product works. 	<ul style="list-style-type: none"> I know what tools and equipment are used when sewing (a thread, needle, and fabric). <p><u>Make</u></p> <ul style="list-style-type: none"> I know what running stitch is and how to do it. I know how to use a needle safely. I know I need to look at my design to help make my puppet. I know how to add detail to my puppet <p><u>Evaluate</u></p> <ul style="list-style-type: none"> I know what I like about my product. I know what I would change. I know what I like about another person's puppet. I know what skills I used to make the puppet. 	<p>Rod Hand Shadow</p>
<p>1C Fighting Fit</p> <p>Food – Fruit Kebabs</p>	<p><u>Food – Fruit Kebabs</u></p> <p>Risk assessment – see Mr Wood</p> <p><u>Explore</u></p> <ul style="list-style-type: none"> I can think of ideas and recognise characteristics of familiar products (fruit). I understand where food comes from (where to buy fruit and where fruits originate). <p><u>Design</u></p> <ul style="list-style-type: none"> I can use pictures and words to describe what I want to do. I can label my drawing. I can use a template to create a design. <p><u>Make</u></p> <ul style="list-style-type: none"> I can explain what I am making and which tools I am using. I can use tools to cut, peel, skewer ingredients safely and hygienically with help. I can be hygienic when preparing food. I can use the basic principles of a healthy and varied diet to prepare dishes 	<p><u>Explore</u></p> <ul style="list-style-type: none"> I know the names of different types of fruit and their tastes. I know how to prepare fruit before it is used and eaten. I know where different fruits originate. I know what a fruit kebab is. I know what a recipe is and why we need it. <p><u>Design</u></p> <ul style="list-style-type: none"> I know what ingredients are needed to make a fruit kebab. I know what tools I need to make a fruit kebab. I can design what my fruit kebab with look like. For example, size of pieces, order of fruit. <p><u>Make</u></p> <ul style="list-style-type: none"> I know and understand that clean hands prevent the spread of germs. I know what using tools safely looks like. 	<p>Cut Measure Chop Ingredients Recipe Peel Skewer Grease-proof paper Kitchen foil Knife Chopping board Preparation Assemble</p>

	<u>Evaluate</u> <ul style="list-style-type: none"> I can talk about my own and other people's work in simple terms. I can describe how a product works. 	<ul style="list-style-type: none"> I know what tools I need to carry out tasks. For example, a skewer, a knife to cut, chopping board, hands to peel. I know how to prepare fruit. I know how to assemble a fruit kebab. <u>Evaluate</u> <ul style="list-style-type: none"> I know what I like about my product. I know what I would change. I know what I like about another person's fruit kebab. I know what skills I used to make the fruit kebab. 	
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2A Once Upon a Time Mechanisms - Pop-up Books	<u>Mechanisms - Pop-up Books</u> <u>Explore</u> <ul style="list-style-type: none"> I can think of ideas and recognise characteristics of familiar products (pop-up books). I can practice joining materials to create mechanisms. <u>Design</u> <ul style="list-style-type: none"> I can think of ideas and plan what to do next, based on my experience of working with materials and components. I can use pictures and labels to describe my designs. I can write a list of materials and tools. <u>Make</u> <ul style="list-style-type: none"> I can use cutting tools to safely cut materials (scissors). I can select and use appropriate techniques and resources to join materials, such as masking tape, gluing, split-pin, card, paper. I can assemble materials to create a product with a variety of mechanisms. <u>Evaluate</u> <ul style="list-style-type: none"> I can recognise what I have done well as my work progresses and suggest things I could do better in the future. 	<u>Explore</u> <ul style="list-style-type: none"> I know that there are different joining techniques - glue, masking tape, split pin. I can name and make different mechanism I know which mechanism works the best. <u>Design</u> <ul style="list-style-type: none"> I know that it is important to plan and design my ideas. I know what I am making and which tools I am using. I know my design mission. <u>Make</u> <ul style="list-style-type: none"> I know procedures to use tools safely. (Scissors, split pin) I know how to use my design to create my final product. I know what tools and materials I need to carry out tasks. <u>Evaluate</u> <ul style="list-style-type: none"> I know what I like about my product. I know what problems I had and how I overcome them. I know how I would improve my product. I know what I like about another person's pop-up book. I know what skills I used to make the pop-up book. 	Joining Gluing Mechanism - slide, split pin, fold, spring, hinge. Cutting Attach Moving T:\STAFF HANDBOOK 2021 - 22\Curriculum\DT Resources from DT Website\Year 2\lqp_sliders_and levers201391144355.zip
2B Amazing adventure	<u>Structures - Zoo enclosures</u> <u>Explore</u>	<u>Explore</u> <ul style="list-style-type: none"> I know that using different materials strengthens the structure. 	Structures Strengthen Stiffer

<p>Structures - Zoo enclosures</p>	<ul style="list-style-type: none"> I can think of ideas and recognise characteristics of familiar products (zoo enclosures/cages, different structures, with gates/doors). I can explore patterns in strong structures. (a picket fence) I can practice joining materials to test strength (paper straw, plastic straws, lollipop sticks, fabric). I can explore how materials can be made stronger stiffer and more stable. <p><u>Design</u></p> <ul style="list-style-type: none"> I can think of ideas and plan what to do next, based on my experience of working with materials and components. I can use pictures and labels to describe my designs. I can write a list of materials and tools. <p><u>Make</u></p> <ul style="list-style-type: none"> I can use cutting tools to safely cut materials (scissors). I can select and use appropriate techniques and resources to join materials, such as masking tape, gluing, card, paper straws, plastic straws, lollipop sticks. I can assemble materials to create a product with strength. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> I can recognise what I have done well as my work progresses and suggest things I could do better in the future. 	<ul style="list-style-type: none"> I know where, when and how zoo enclosures are used for different animals. I know different enclosures are stronger than others. I know which materials work the best to create a strong structure. I know which joining techniques work the best to create a strong structure. <p><u>Design</u></p> <ul style="list-style-type: none"> I know that it is important to plan and design my ideas. I know what I am making and which tools I am using. I know my design mission. <p><u>Make</u></p> <ul style="list-style-type: none"> I know procedures to use tools safely. (scissors) I know how to use my design to create my final product. I know what tools and materials I need to carry out tasks. I know how to measure to the nearest centimetre. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> I know what I like about my product. I know what problems I had and how I overcome them. I know how I would improve my product. I know what I like about another person's zoo enclosure. I know what skills I used to make the zoo enclosure. 	<p>Stronger Enclosure Patterns Gluing</p>
<p>2C All at Sea</p> <p>Mechanical systems - pulleys - Lighthouses</p>	<p><u>Mechanical systems - pulleys - Lighthouses</u> Risk assessment - see Mr Wood</p> <p><u>Explore</u></p> <ul style="list-style-type: none"> I can think of ideas and recognise characteristics of familiar products (different building structures, shapes of building and purpose, Research lighthouses: purpose. Base on the story: by sharing a letter from the Lighthouse Keeper. I can explore a pulley moving mechanism. 	<p><u>Explore</u> Mechanical Systems - Lighthouses</p> <ul style="list-style-type: none"> I know what lighthouses are for and how they are used. I know some of the history of lighthouses I know the effect on winding when you change the size of the wheel. I know what a pulley is. I know how a winding mechanism works using a lever is. 	<p>Hacksaw Bench hook Clamp Dowel Joining Strengthen Winding Pulley</p>

	<p><u>Design</u></p> <ul style="list-style-type: none"> • I can think of ideas and plan what to do next, based on my experience of working with materials and components. • I can use pictures and labels to describe my designs. • I can write a list of materials and tools. <p><u>Make</u></p> <ul style="list-style-type: none"> • I can use cutting tools to safely cut materials (scissors, saw). • I can select and use appropriate techniques and resources to join materials, such as masking tape, gluing, card, cardboard tube, plastic cup, dowel, string, Pulley: cotton reel/plastic lid). • I can assemble materials to create a product with strength and movement. • I can assemble materials to create a product with winding mechanisms. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> • I can recognise what I have done well as my work progresses and suggest things I could do better in the future. 	<p><u>Design</u></p> <ul style="list-style-type: none"> - I know that it is important to plan and design my ideas. - I know what I am making and which tools I am using. - I know my design mission/criteria. <p><u>Make</u></p> <ul style="list-style-type: none"> - I know procedures to use tools safely. (Saw, ruler, scissors) - I know how to use my design to create my final product. - I know what tools and materials I need to carry out tasks. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> - I know what I like about my product. - I know what problems I had and how I overcome them. - I know how I would improve my product. - I know what I like about another person's lighthouse. - I know what skills I used to make the lighthouse. 	
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By the end of Key Stage One:

Design - I can design purposeful, functional, appealing products for myself and other users based on design criteria

I can generate, develop, model, and communicate my ideas through talking, drawing, templates, mock-ups and, where appropriate, ICT

Make - I can select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining, and finishing]

I can select from and use a wide range of materials and components, including construction materials, textiles, and ingredients, according to their characteristics

Evaluate - I can explore and evaluate a range of existing products

I can evaluate my ideas and products against design criteria

Technical knowledge - I can build structures, exploring how they can be made stronger, stiffer, and more stable

I can explore and use mechanisms [for example, levers, sliders, wheels, and axles], in my products.

Cooking and Nutrition - I can use the basic principles of a healthy and varied diet to prepare dishes

I understand where food comes from.

Key Stage Two

<p>3A Moorhill miners</p> <p>Food - Pasties</p>	<p><u>Food - Pasties</u></p> <p>Risk assessment - see Mr Wood</p> <p><u>Explore</u></p> <ul style="list-style-type: none"> I can explore, taste, and evaluate different types of pasties. I can apply the principles of a healthy and varied diet (link to Science Year 2). <p><u>Design</u></p> <ul style="list-style-type: none"> I can think of ideas and plan what to do next, based on my experience of ingredients, balanced diet. I can use pictures and labels to describe my designs. I can write a list of ingredients and tools. I can use a design criterion when creating my own design. <p><u>Make</u></p> <ul style="list-style-type: none"> I can select appropriate use tools to cut, peel or grate ingredients safely and hygienically. I can measure or weigh using electronic scales. I can prepare ingredients hygienically using appropriate utensils. I can measure and mark out to the nearest gram. I can follow a recipe. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> I can comment on similarities and differences between my own and others' work. I can identify what skills I have used. I can identify how I can improve my own work. I can test their product against the original design criteria. I can evaluate the ongoing work and the final product with reference to the design criteria. 	<p><u>Explore</u></p> <ul style="list-style-type: none"> I know the origin of pasties. I know what a pasty is. I know how to measure in grams. I have knowledge of a healthy and varied diet. I know what a balanced diet is. I know the steps in a recipe to make a pasty. <p><u>Design</u></p> <ul style="list-style-type: none"> I know what ingredients are needed to make a pasty. I know what tools I need to make a pasty. I can design what my pasties with look like. <p><u>Make</u></p> <ul style="list-style-type: none"> I know and understand that clean hands prevent the spread of germs. I know what using tools safely looks like. I know what tools I need to carry out tasks. For example, a knife to cut, chopping board, hands to peel. I know how to prepare different types of food. I know how to assemble pasties. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> I know what the design criteria is. 	<p>Cut Peel Grate Ingredients Measure Weigh Prepare Hygiene Electronic scales Gram Utensils Crimp Healthy</p>
<p>3B Tomb Raiders</p> <p>Mechanical Systems - Pneumatics</p>	<p><u>Mechanical Systems - Pneumatics - Sarcophagus</u></p> <p><u>Explore</u></p> <ul style="list-style-type: none"> I can explore products that use pneumatics (For example toys). I can explore different processes for a pneumatic system. (Syringe, balloon). 	<p><u>Explore</u></p> <ul style="list-style-type: none"> I know what a pneumatic system is and how it can be used. I know that there is more than one type of pneumatic system. 	<p>Accurate Appropriate Design Purpose Pneumatics Mechanism</p>

<p>- Sarcophagus</p>	<ul style="list-style-type: none"> I can investigate different materials and joining techniques to create a pneumatic system (masking tape, Sellotape, tubes, straws, balloons, syringes). I can make a hinge. https://www.bbc.co.uk/bitesize/articles/z247wnb How hinges work: T:\STAFF HANDBOOK 2021 - 22\Curriculum\DT Resources from DT Website\Year 3\door hinges helpsheet2017121814274.pdf <p><u>Design</u></p> <ul style="list-style-type: none"> I can use a design criterion when creating my own design. I can use pictures to describe my designs. I can use labels to show materials used and how the different parts will be joined I can use scientific knowledge of the transference of forces for the mechanisms. I can write a list of materials and tools. <p><u>Make</u></p> <ul style="list-style-type: none"> I can use cutting tools to safely cut materials (scissors). I can select and use appropriate techniques and resources to join materials, such as masking tape, card, plastic tube, balloon, syringe). I can assemble and measure materials to create a product with strength and movement. I can assemble materials to create a product with pneumatic mechanisms. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> I can comment on similarities and differences between my own and others' work. I can identify what skills I have used. I can identify how I can improve my own work. I can test their product against the original design criteria. I can evaluate the ongoing work and the final product with reference to the design criteria. 	<ul style="list-style-type: none"> I know the effect of different size syringes has on speed and height of movement. I know which materials work the best for a pneumatic system. I know what a hinge is and what it is used for. <p><u>Design</u></p> <ul style="list-style-type: none"> I know my design criteria. I know which pneumatic system is fit for purpose. I know that it is important to plan and design my ideas. I know what I am making and which tools I am using. <p><u>Make</u></p> <ul style="list-style-type: none"> I know procedures to use tools safely. (Ruler, scissors) I know how to use my design to create my final product. I know what tools and materials I need to carry out tasks. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> I know what the design criteria is. 	<p>Syringe Hinge</p>
<p>3C</p>	<p><u>Catapult - Mechanisms with levers</u></p>	<p><u>Explore</u></p> <ul style="list-style-type: none"> I know what a catapult is and how it is used. 	<p>Trajectory Frame</p>

<p>Rotten Romans</p> <p>Catapult - Mechanisms with levers</p>	<p><u>Explore</u></p> <ul style="list-style-type: none"> • I can explore ideas and collect visual and other information for my work. • I can explore products that use levers. • I can research catapults. • I can investigate different materials and joining techniques to create a catapult <p><u>Design</u></p> <ul style="list-style-type: none"> • I can use a design criterion when creating my own design. • I can use labelled diagram to describe my designs. • I can use scientific knowledge of the transference of forces for the mechanisms. <p><u>Make</u></p> <ul style="list-style-type: none"> • I can cut materials accurately and safely by selecting appropriate tools. • I can assemble and measure materials to create a product with strength and movement. • I can assemble materials to create a product with lever mechanism. • I can develop a range of practical skills to create products with increasing precision. • I can make on-going changes to my product through continuous tests. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> • I can comment on similarities and differences between my own and others' work. • I can identify what skills I have used. • I can identify how I can improve my own work. • I can test their product against the original design criteria. • I can evaluate the ongoing work and the final product with reference to the design criteria. 	<ul style="list-style-type: none"> - I know the different types of catapult designs. - I know how a catapult works. - I know the effect of tension on the speed and distance of movement. <p><u>Design</u></p> <ul style="list-style-type: none"> - I know my design criteria. - I know how use my understanding from exploring catapults to design a product which is fit for purpose. - I know that it is important to plan and design my ideas. - I know what I am making and which tools I am using. <p><u>Make</u></p> <ul style="list-style-type: none"> - I know procedures to use tools safely. - I know how to use my design to create my final product. - I know what tools and materials I need to carry out tasks. - I know how to change and strengthen my product to improve its function. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> - I know what the design criteria is. - I know how to test my product and make changes. 	<p>Catapult Pivot Cantilever spring levers</p>
<p>4A Groovy Greeks</p>	<p><u>Textiles - Greek sandals/shoes</u></p> <p><u>Explore</u></p> <ul style="list-style-type: none"> • I can explore ideas and collect visual and other information for my work. 	<p><u>Explore</u></p> <ul style="list-style-type: none"> - I know about different shoes and different purposes - I know which material is best for a flip-flop. 	<p>Needle Decorating Textiles Thread</p>

Textiles: Greek sandals/shoes	<ul style="list-style-type: none"> • I can explore different shoe products. • I can practice joining materials using running stitch and cross stitch. • I can create a pattern as a prototype. <u>Design</u> <ul style="list-style-type: none"> • I can use a design criterion when creating my own design. • I can use diagrams to show my designs. • I can use labels to show materials used and how the different parts will be joined • I can say the step-by-step process of making my product. • I can use my explorer knowledge to inform my design decisions. <u>Make</u> <ul style="list-style-type: none"> • I can choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper). • I can create objects (such as a shoe) that employ a seam allowance. • I can join textiles with a combination of stitching techniques (cross stitch and running stitch.) • I can create suitable visual and tactile effects in decoration of textiles. (Such as a soft decoration for comfort on a cushion). <u>Evaluate</u> <ul style="list-style-type: none"> • I can refine work and techniques as work progresses. • I can comment on similarities and differences between my own and others' work. • I can identify what skills I have used. • I can identify what was difficult and why? • I can identify how I can improve my own work. • I can evaluate the final product with reference to the design criteria. 	<ul style="list-style-type: none"> - I know different constituent parts of a flip-flop and its purpose. <u>Design</u> <ul style="list-style-type: none"> - I know my design criteria. - I know how use my understanding from exploring catapults to design a product which is fit for purpose. - I know that it is important to plan and design my ideas. - I know what I am making and which tools I am using. - I know that prototypes can help inform design decisions. - I know who the product is for. <u>Make</u> <ul style="list-style-type: none"> - I know joining techniques including running stitch and cross stitch. - I know how patterns can be created with cross-stitch. - I know procedures to use tools safely. - I know how to use my design to create my final product. - I know what tools and materials I need to carry out tasks. <u>Evaluate</u> <ul style="list-style-type: none"> - I know what the design criteria is. 	Stitch Glue Sew Cut Measure Join Seam Prototype Durable Refine Running stitch Cross stitch Pattern
4B Marvellous Mayans	<u>Structures - Mayan temples</u> <u>Explore</u>	<u>Explore</u> <ul style="list-style-type: none"> - I know pyramids exist throughout the world and what they are for (purpose). 	Mm Cm Measure

<p>Structures</p> <p>-</p> <p>Mayan temples</p>	<ul style="list-style-type: none"> I can explore different structures: temples. (What they are made from, how they are constructed, shapes, size etc.) I can explore different techniques to strengthen structures. I can investigate different joins using straws. <p>T:\STAFF HANDBOOK 2021 - 22\Curriculum\DT Resources from DT Website\Year 4\poster_lgp_working_with_paper_straws20142412548.pdf</p> <ul style="list-style-type: none"> I can investigate different materials and joining techniques to create a strong frame structure (masking tape, Sellotape, plastic straws, paper straws, card, glue). <p><u>Design</u></p> <ul style="list-style-type: none"> I can use a design criterion when creating my own design. I can use diagrams to show my designs. I can use labels to show materials used and how the different parts will be joined I can say a step-by-step process of making my product. I can use my explorer knowledge to inform my design decisions. <p><u>Make</u></p> <ul style="list-style-type: none"> I can use nets for prototypes. I can select appropriate joining techniques. I can develop a range of practical skills to create products with increasing precision. I can make on-going changes to my design to enable me to a successful product. I can measure, mark out, cut and shape materials and components with some accuracy to create a structure. I can apply a range of finishing techniques, including those from art and design, with some accuracy. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> I can refine work and techniques as work progresses. I can comment on similarities and differences between my own and others' work. 	<ul style="list-style-type: none"> I know about square based pyramids (3D shapes) and their properties (including nets). I know how to measures to nearest mm. I know how to estimate. I know different ways to join paper materials. <p><u>Design</u></p> <ul style="list-style-type: none"> I know my design criteria. I know how use my understanding from exploring temples and joins to design a product which is fit for purpose. I know that it is important to plan and design my ideas. I know what I am making and which tools I am using. I know that prototypes can help inform design decisions. <p><u>Make</u></p> <ul style="list-style-type: none"> I know a range of joining techniques. I know procedures to use tools safely. I know how to use my design to create my final product. I know what tools and materials I need to carry out tasks. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> I know what the design criteria is. 	<p>Estimate</p> <p>Join</p> <p>purpose</p> <p>Cutting</p> <p>Shaping</p> <p>Joining</p> <p>Strengthen</p> <p>Net</p> <p>Prototype</p> <p>Sturdy</p> <p>Pyramid</p> <p>Layer</p> <p>3D</p>
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	<ul style="list-style-type: none"> • I can identify what skills I have used. • I can identify what was difficult and why? • I can identify how I can improve my own work. • I can evaluate the final product with reference to the design criteria. 		
4C On Safari Electrical systems - Safari Cars	Electrical systems - Safari Cars Risk assessment - see Mr Wood <u>Explore</u> <ul style="list-style-type: none"> • I can explore different vehicles and how they work. • I can explore the components of a car. <u>Design</u> <ul style="list-style-type: none"> • I can apply my scientific knowledge of circuits and decide how it can be used in my design. • I can use a design criterion when creating my own design. • I can use diagrams to show my designs. • I can use labels to show materials used and how the different parts will be joined. • I can say a step-by-step process of making my product. • I can use my explorer knowledge to inform my design decisions. <u>Make</u> <ul style="list-style-type: none"> • I can cut materials accurately and safely by selecting appropriate tools. • I can saw wooden dowel to make an axle. • I can select appropriate joining techniques. • I can develop a range of practical skills to create products (such as cutting, gluing, sawing, filling, and sanding). • I can diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage). • I can create series and parallel circuits. <u>Evaluate</u> <ul style="list-style-type: none"> • I can refine work and techniques as work progresses. • I can comment on similarities and differences between my own and others' work. 	<u>Explore</u> <ul style="list-style-type: none"> - I know how to use a circuit. - I know the components of a car - axle, wheel - I know what the job of each electrical component. - I know why vehicles are used on safari. - I know adaptations of these vehicles (camouflage) - I know a variety of joining techniques. <u>Design</u> <ul style="list-style-type: none"> - I know my design criteria. - I know how use my understanding from exploring vehicles and circuits to design a product which is fit for purpose. - I know that it is important to plan and design my ideas. - I know what I am making and which tools I am using. <u>Make</u> <ul style="list-style-type: none"> - I know a range of joining techniques. - I know procedures to use tools safely. - I know how to use my design to create my final product. - I know what tools and materials I need to carry out tasks. <u>Evaluate</u> <ul style="list-style-type: none"> - I know what the design criteria is. 	Select Rotate Move Join Cut Measure Connection Refine camouflage Axle Mechanism Adapt Bodywork Wheel Battery Terminal Diagnose Bulb Wire Motor Connection Circuit Motor Switch Safari lamp

	<ul style="list-style-type: none"> • I can identify what skills I have used. • I can identify what was difficult and why? • I can identify how I can improve my own work. • I can evaluate the final product with reference to the design criteria. 		
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5A Earth and space Food – Burgers (Meat or/and Veggie)	Food – Burgers (Meat or/and Veggie) Risk assessment – see Mr Wood <u>Explore</u> <ul style="list-style-type: none"> • I understand seasonality and know where and how a variety of ingredients are grown, reared, caught, and processed. • I can apply the principles of a healthy and varied diet to a particular design criterion. (I can make a savoury lunch - Make a burger with topping). • I can taste, explore, and evaluate different food products, collect ideas and information to help me develop my work. • I can use my ideas to develop my work, considering the purpose. <u>Design</u> <ul style="list-style-type: none"> • I can use my knowledge and processes to communicate ideas and meanings using a step-by-step plan. • I can prepare ingredients hygienically using appropriate utensils. • I understand the importance of correct storage and handling of ingredients. • I can assemble or cook ingredients (controlling the temperature of the oven or hob). • I can measure accurately and calculate ratios of ingredients to scale up or down from a recipe. • I can create and refine recipes, including ingredients, methods, cooking times and temperatures. <u>Make</u> <ul style="list-style-type: none"> • I can select appropriate tools to cut, mix, peel, or grate ingredients safely and hygienically. • I can measure or weigh using electronic/balance scales. • I can prepare ingredients hygienically using appropriate utensils. 	<u>Explore</u> <ul style="list-style-type: none"> - I know what a burger is. - I know constituents' ingredients. - I know that there are different types of burgers. - I know what makes a good burger and that this is subjective. <u>Design</u> <ul style="list-style-type: none"> - I know which seasonal food products are available. - I know which food products go well together to create a tasty product. - I know what ingredients are needed to make a burger. - I know what tools I need to make a burger. <u>Make</u> <ul style="list-style-type: none"> - I know how to measure accurately to nearest gram. - I know that cooking changes materials. - Understand the constituent parts of a recipe. - I know how to create a hygienic environment. - I know how to scale ingredients to make more or less. - I know what using tools safely looks like. - I know what tools I need to carry out tasks. For example, a knife to cut, chopping board, hands to peel, hob). - I know how to prepare different types of food. - I know how to assemble burger. <u>Evaluate</u> <ul style="list-style-type: none"> - I know what the design criteria is. - I know how to make this lunch into a family evening meal. 	Storage Handling Ingredients Recipe Hygiene Product Scale utensils Hob Temperature Calculate Ratio Proportion Duration Consistency combine
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	<ul style="list-style-type: none"> • I can measure and mark out to the nearest gram. • I can follow my recipe. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> • I can analyse and comment on ideas, methods and approaches used in my own and others' work, relating these to its context. • I can compare and comment on ideas, methods and approaches used in my own and others' work, relating these to the design criteria. <p><u>Example recipe:</u> https://www.flavourstreat.com/chickpea-veggie-patties-kid-friendly-vegetable-patties/</p> <p>ICT link - Lego technic</p> <ul style="list-style-type: none"> • I can program a computer to control a product. • I can program a computer to monitor changes in the environment and control their products. 		
<p>5B</p> <p>Anglo Saxons and Vikings</p> <p>Construction - Viking Long Boats</p>	<p><u>Construction - Viking Long Boats</u></p> <p>Risk assessment - see Mr Wood</p> <p><u>Design</u></p> <ul style="list-style-type: none"> • I can use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas. • I can write/draw a step-by-step process of making my product. • I can use my explorer knowledge to inform my design decisions. • I can select suitable tools, equipment, materials, and components and explain their choices. <p><u>Make</u></p> <ul style="list-style-type: none"> • I can cut materials accurately and safely by selecting appropriate tools. • I can select appropriate joining techniques, fit for purpose. • I can improve a range of practical skills to create products (such as cutting, gluing). • I can ensure my product is aesthetically pleasing. <p><u>Evaluate</u></p>	<p><u>Explore</u></p> <ul style="list-style-type: none"> - I know what Viking Long boats were and how they worked. - I know constituent parts of primitive boats. - I know how cross-sectional drawings and prototypes inform and refine final design. - I know efficient ways to join precisely. - I know about best materials to use. - I know how the aesthetics of a Viking boat has symbolic significance. <p><u>Design</u></p> <ul style="list-style-type: none"> - I know my design criteria and how to match my product to it. - I know that it is important to plan the steps of my design. - I know what I am making and which components I am using. - I know which materials and design works for my design. <p><u>Make</u></p> <ul style="list-style-type: none"> - I know how to adapt my design to create my final product. - I know how to accurately construct my product to improve its function. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> - I know what the design criteria is. 	<p>Precision</p> <p>Refine</p> <p>Prototype</p> <p>Cross-section</p> <p>Symbolic</p> <p>Watertight</p> <p>Repellent</p> <p>Impermeable</p> <p>Viking</p> <p>Longboat</p> <p>Hull</p> <p>Fore/bow</p> <p>Aft</p> <p>Mast</p> <p>Deck</p> <p>Sail</p> <p>Figurehead</p> <p>Durable</p>

	<ul style="list-style-type: none"> I can analyse and comment on ideas, methods and approaches used in my own and others' work, relating these to its context. I can compare and comment on ideas, methods and approaches used in my own and others' work, relating these to the design criteria. 		
5C Journeys Knex - Pulleys, Gears & levers - explore invention	<p><u>Knex - Pulleys, Gears & levers - explorer invention</u></p> <p><u>Explore</u></p> <ul style="list-style-type: none"> I can create my own design criteria for an invention to support an explorer on a mission - link to Explorers reaching the North Pole. I can explore what pulleys and gears are and how they are used in everyday life. I can practically use and test gear construction materials to see how they work. I can research products that use levers, pulleys, and gears. <p><u>Design</u></p> <ul style="list-style-type: none"> I can design with the user in mind, motivated by the service a product will offer (rather than simply for profit). I can design an invention to support an explorer on a mission - link to Explorers reaching the North Pole. I can use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas. I can write/draw a step-by-step process of making my product. I can use my explorer knowledge to inform my design decisions. I can select suitable tools, equipment, materials, and components and explain their choices. <p><u>Make</u></p> <ul style="list-style-type: none"> I can use construction materials (Knex) to make my invention. I can accurately assemble, join, and combine components. I can use techniques that involve several steps. I can demonstrate resourcefulness when tackling practical problems. <p><u>Evaluate</u></p>	<p><u>Explore</u></p> <ul style="list-style-type: none"> I know what lever, pulleys and gears are and how they work. I know when and where they are used and how. I know how to use planning tools - design boards, graphic organisers to show cause and effect. I can use cross-sectional drawings to show cause and effect. <p><u>Design</u></p> <ul style="list-style-type: none"> I know my design criteria and how to match my product to it. I know that it is important to plan the steps of my design. I know what I am making and which components I am using. I know which pulley, gear and lever system works for my design. <p><u>Make</u></p> <ul style="list-style-type: none"> I know how to adapt my design to create my final product. I know how to accurately construct my product to improve its function. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> I know what the design criteria is. 	<p>Clockwork</p> <p>Cross section</p> <p>Graphic</p> <p>Design</p> <p>Join</p> <p>Cut</p> <p>measure</p> <p>Cause and effect</p> <p>Mechanism</p> <p>Gear</p> <p>Axle</p> <p>Pulleys</p> <p>Levers</p>

	<ul style="list-style-type: none"> I can analyse and comment on ideas, methods and approaches used in my own and others' work, relating these to its context. I can compare and comment on ideas, methods and approaches used in my own and others' work, relating these to the design criteria. 		
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6A Into the woods Moving Mechanism toy - Cams	<u>Moving Mechanism toy - Cams</u> Risk assessment - see Mick <u>Explore</u> <ul style="list-style-type: none"> I can research products that use cams. I can research moving mechanism toys. I can investigate different materials and joining techniques to create a toy. <u>Design</u> <ul style="list-style-type: none"> I can choose the right cam for the movement I want in my toy. I can choose one movement or a sequence of movements. I can break down the process into steps. I can design a product to be aesthetically pleasing. I can select suitable tools, equipment, materials, and components and explain their choices. <u>Make</u> <ul style="list-style-type: none"> I can cut materials accurately and safely by selecting appropriate tools. I can select appropriate joining techniques, fit for purpose. I can improve a range of practical skills to create products (such as cutting, gluing). I can accurately construct the cam system for the toy to move (Follower, cam). I can ensure my product is aesthetically pleasing. <u>Evaluate</u> <ul style="list-style-type: none"> I can continually evaluate and modify the working features of the product to match the initial design specification. I can critically evaluate their products against their design specification, intended user and purpose, identifying 	<u>Explore</u> <ul style="list-style-type: none"> I know what cams are and how they work. I know different cams create different movements. I know what these words mean: linear, reciprocating, rotary, oscillating to describe the movement, follower, slider, axle I know how a toy moves using a cam and be able to explain the movement and how it is made. I know how different cams produce a different movement (pear, snail, circular) <u>Design</u> <ul style="list-style-type: none"> I know my design criteria and how to match my product to it. I know that it is important to plan the steps of my design. I know what I am making and which tools I am using. I know which cam system works for my design. <u>Make</u> <ul style="list-style-type: none"> I know procedures to use tools safely and accurately. I know how to adapt my design to create my final product. I know what tools and materials I need to carry out tasks. I know how to accurately construct my product to improve its function. <u>Evaluate</u> <ul style="list-style-type: none"> I know ways to modify my product to improve it. 	Cam CAM Shaft Linear Reciprocating Rotary Oscillating Follower Slider Axle Component Graphic Design Join Cut measure Cause and effect Mechanism Hacksaw Bench hook Clamp Dowel Measure Estimate Join purpose Cutting Sawing Joining
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	<p>strengths and areas for development, and carrying out appropriate tests.</p> <ul style="list-style-type: none"> I can test the product to demonstrate its effectiveness for the intended user and purpose. 		
<p>6B World War Two</p> <p>Textiles - Make do and mend</p>	<p><u>Textiles - Make do and mend (cushion)</u></p> <p><u>Explore</u></p> <ul style="list-style-type: none"> I can use my ideas to develop my work, considering the purpose. I can carry out research (surveys, interviews, questionnaires, and web-based resources). Identify the needs, wants, preferences and values of individuals and groups. I can develop a simple design specification to guide my thinking. <p><u>Design</u></p> <ul style="list-style-type: none"> I can share and clarify ideas through discussion. I can model their ideas using prototypes and pattern pieces. I can use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas. I can make design decisions, taking account of constraints such as time, resources, and cost. I can select suitable tools, equipment, materials, and components and explain their choices. <p><u>Make</u></p> <ul style="list-style-type: none"> I can create objects that employ a seam allowance. I can join textiles with a combination of stitching techniques (cross, back, over, and running stitch.) I can create suitable visual and tactile effects in decoration of textiles. (Such as a soft decoration for comfort on a cushion). I can accurately measure, mark out and cut materials. I can use techniques that involve several steps. I can demonstrate resourcefulness when tackling practical problems. <p><u>Evaluate</u></p>	<p><u>Explore</u></p> <ul style="list-style-type: none"> I know backstitch, cross, running, overstitch. I know how to cast on/off. I know how pattern pieces fit together to create a product. Know what the Make Do and Mend Campaign is and its purpose Know that different materials can be used to stuff cushions. <p><u>Design</u></p> <ul style="list-style-type: none"> I know my design criteria and how to match my product to it. I know that it is important to plan the steps of my design. I know what I am making and which tools I am using. I know which sewing stitch and skills I will need for my design. <p><u>Make</u></p> <ul style="list-style-type: none"> I know procedures to use tools safely and accurately. I know how to adapt my design to create my final product. I know what tools and materials I need to carry out tasks. I know how to accurately construct my product to improve its aesthetics. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> I know ways to modify my product to improve it. 	<p>Seam Prototype Durable Refine Fabric Denim Cotton Stuff Cast on/off Pattern pieces Running stitch Cross stitch Pattern Back stitch Over stitch Refine consolidate</p>

	<ul style="list-style-type: none"> • I can continually evaluate and modify the working features of the product to match the initial design specification. • I can critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. • I can test the product to demonstrate its effectiveness for the intended user and purpose. 		
6C Origin of the Species Structures - Bird feeder	<p>Structures - Bird feeder</p> <p>Risk assessment - see Mick</p> <p><u>Explore</u></p> <ul style="list-style-type: none"> • I can use my ideas to develop my work, considering the purpose. • I can carry out research (surveys, interviews, questionnaires, and web-based resources). • Identify the needs, wants, preferences and values of individuals and groups. • I can develop a simple design specification to guide my thinking. <p><u>Design</u></p> <ul style="list-style-type: none"> • I can share and clarify ideas through discussion. • I can model their ideas using prototype. • I can use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas. • I can make design decisions, taking account of constraints such as time, resources, and cost. • I can select suitable tools, equipment, materials, and components and explain their choices. <p><u>Make</u></p> <ul style="list-style-type: none"> • I can cut, measure, and mark out materials accurately and safely by selecting appropriate tools. • I can accurately assemble, join, and combine materials and components to create a bird feeder. • I can ensure my product is aesthetically pleasing. • I can use techniques that involve several steps. • I can demonstrate resourcefulness when tackling practical problems. 	<p><u>Explore</u></p> <ul style="list-style-type: none"> - I know what attracts animals to gardens and what they eat I know the animals need for shelter and their habitat requirements - I know what materials are sustainable and animal friendly. - I know what products are already on the market and why are they are successful <p><u>Design</u></p> <ul style="list-style-type: none"> - I know my design criteria and how to match my product to it. - I know that it is important to plan the steps of my design. - I know what I am making and which tools I am using. - I know which sewing stitch and skills I will need for my design. <p><u>Make</u></p> <ul style="list-style-type: none"> - I know how to join different materials: wire, plastic, hammers, hacksaw, mitre, and a triangle card join, glue, metal tacks. - I know how to measure accurately - I know procedures to use tools safely and accurately. - I know how to adapt my design to create my final product. - I know what tools and materials I need to carry out tasks. - I know how to accurately construct my product to improve its aesthetics. <p><u>Evaluate</u></p> <ul style="list-style-type: none"> - I know ways to modify my product to improve it. 	<p>Join</p> <p>Glue</p> <p>Saw</p> <p>Attach</p> <p>Hammer</p> <p>Drill</p> <p>Wire</p> <p>Conservation</p> <p>Sustainable</p> <p>Durable</p> <p>Environmentally friendly</p> <p>Animal friendly</p> <p>Chicken wire</p>

	<u>Evaluate</u> <ul style="list-style-type: none"> • I can continually evaluate and modify the working features of the product to match the initial design specification. • I can critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. • I can test the product to demonstrate its effectiveness for the intended user and purpose. 		
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By the end of Key Stage Two:

Design

I can use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at individuals or groups

I can generate, develop, model, and communicate my ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

I can select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining, and finishing], accurately

I can select from and use a wider range of materials and components, including construction materials, textiles, and ingredients, according to their functional properties and aesthetic qualities

Evaluate

I can investigate and analyse a range of existing products

I can evaluate my ideas and products against my own design criteria and consider the views of others to improve their work

I can understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

I can apply my understanding of how to strengthen, stiffen and reinforce more complex structures

I understand and can use mechanical systems in my products [for example, gears, pulleys, cams, levers, and linkages]

I understand and can use electrical systems in my products [for example, series circuits incorporating switches, bulbs, buzzers, and motors]

I can apply my understanding of computing to program, monitor and control my products.

Cooking and Nutrition

I understand and apply the principles of a healthy and varied diet

I can prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques

I understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.

Word Key

Clear - Familiar words

Yellow - Teaching words

Green - Technical words topic related