

		Year 3	Year 4	Year 5
<p>Design use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</p>	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment describe the purpose of their products indicate the design features of their products that will appeal to intended users explain how particular parts of their products work <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> gather information about the needs and wants of particular individuals and groups develop their own design criteria and use these to inform their ideas <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> carry out research, using surveys, interviews, questionnaires and web-based resources identify the needs, wants, preferences and values of particular individuals and groups develop a simple design specification to guide their thinking 	<p>Surviving in the Stone Age/Rolls Royce Designers /An American Adventure/ Discovering China</p> <ul style="list-style-type: none"> I can prove that my design meets some set criteria. I can design a product and make sure that it looks attractive. describe the purpose of their products <p>Rolls Royce Designers</p> <ul style="list-style-type: none"> gather information about the needs and wants of particular individuals and groups <p>Surviving in the Stone Age</p> <ul style="list-style-type: none"> I can choose a textile for both its suitability and appearance. 	<p>Roman Rulers Britain from the Air Anglo Saxon Settlers World Kitchen</p> <ul style="list-style-type: none"> I can use ideas from other people when I am designing. I can produce a plan and explain it. <p>Roman Rulers Britain from the Air</p> <ul style="list-style-type: none"> I can evaluate products for both their purpose and appearance. describe the purpose of their products 	<ul style="list-style-type: none"> I can come up with a range of ideas after collecting information from different sources. I can explain how a product will appeal to a specific audience. describe the purpose of their products
<p>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p>	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> share and clarify ideas through discussion model their ideas using prototypes and pattern pieces use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas use computer-aided design to develop and communicate their ideas <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> generate realistic ideas, focusing on the needs of the user make design decisions that take account of the availability of resources <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> generate innovative ideas, drawing on research make design decisions, taking account of constraints such as time, resources and cost 	<p>Surviving in the Stone Age/Rolls Royce Designers /An American Adventure/ Discovering China</p> <ul style="list-style-type: none"> I can design a product and make sure that it looks attractive. I can prove that my design meets some set criteria. Annotated sketches (car) Cross sectional diagrams (Pavilions) Exploded diagram (Morgan car components) Computer aided design (Slingshot car) 	<p>Roman Rulers Britain from the Air Anglo Saxon Settlers World Kitchen</p> <ul style="list-style-type: none"> I can produce a plan and explain it. I can present a product in an interesting way. Annotated sketches (cushions, Circuits, cushions) Cross sectional diagrams (Volcanos) Computer aided design. (Castle) Exploded diagram (Torch) 	<p>Mexico and the Mayans</p> <p>Mexico and the Mayans/Wild Water I can suggest alternative plans; outlining the positive features and draw backs.</p> <p>Wild Water I can make a prototype before make a final version.</p> <p>Cross Sectional diagrams (river) Exploded diagrams (moving toy) computer aided design. (Moon buggy tyre and coffee packaging)</p> <p>I can explain how a product will appeal to a specific audience.</p> <ul style="list-style-type: none"> I can produce a detailed, step-by-step plan.
<p>Make</p> <ul style="list-style-type: none"> select from and use a wider range of tools and equipment to perform 	<p>Planning Across KS2 pupils should:</p> <ul style="list-style-type: none"> select tools and equipment suitable for the task 	<p>An American Adventure/Discovering China/Rolls Royce Designers I can work accurately to measure, make cuts and make holes</p>	<p>Britain from above I can measure accurately.</p>	<p>Mexico and the Mayans I can suggest alternative plans; outlining the positive features and draw backs.</p>

<p>practical tasks [for example, cutting, shaping, joining and finishing], accurately</p>	<ul style="list-style-type: none"> • <i>explain their choice of tools and equipment in relation to the skills and techniques they will be using</i> • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities <p>In early KS2 pupils should also:</p>	<p>Discovering China/Surviving in the Stone Age/Rolls Royce Designers/An American Adventure</p> <p>I can select the most appropriate tools and techniques for a given task.</p> <p>An American Adventure/Discovering China/Rolls Royce Designers</p> <ul style="list-style-type: none"> • I can work accurately to measure, make cuts and make holes. 	<p><i>select from and use a wider range of tools and equipment to perform practical tasks – cutting joining and finishing</i></p>	<p>I can use a range of tools and equipment competently.</p>
<p>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</p>	<ul style="list-style-type: none"> • <i>order the main stages of making</i> • <i>produce appropriate lists of tools, equipment and materials that they need</i> • <i>formulate step-by-step plans as a guide to making</i> <p>Practical skills and techniques Across KS2 pupils should:</p> <ul style="list-style-type: none"> • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • <i>use techniques that involve a number of steps</i> • demonstrate resourcefulness when tackling practical problems 	<p>Surviving in the Stone Age/Rolls Royce Designers /An American Adventure/ Discovering China</p> <ul style="list-style-type: none"> • I can follow a step-by-step plan, choosing the right equipment and materials. <p>Surviving in the Stone Age Dyeing and weaving fabric.</p> <ul style="list-style-type: none"> • I can choose a textile for both its suitability and appearance <p>Surviving in the Stone Age /An American Adventure/ Discovering China/ Extreme Survival</p> <ul style="list-style-type: none"> • Healthy meals • Egyptian cuisine • Chinese Cuisine • Native American cuisine • <i>Follow procedures for safety and hygiene</i> <p>Surviving in the Stone Age/Rolls Royce Designers /An American Adventure/ Discovering China</p> <ul style="list-style-type: none"> • I can design a product and make sure that it looks attractive. 	<p><i>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</i></p> <p>I know how to be both hygienic and safe when using food.</p> <ul style="list-style-type: none"> • I can make a product which uses both electrical and mechanical components 	<p>I know how to be both hygienic and safe when using food.</p>
<p>Evaluate</p> <ul style="list-style-type: none"> ▪ investigate and analyse a range of existing products 	<p>Across KS2 pupils should investigate and analyse:</p> <ul style="list-style-type: none"> • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes 	<p><i>investigate and analyse a range of existing products: Cars/pavilions/dyed materials/totem poles/flashings signs/terracotta army/cuisines/stone age axes</i></p>	<p>Rampaging Romans I can use ideas from other people when I am designing.</p> <p>Roman Rulers Britain from the Air Anglo Saxon Settlers World Kitchen</p>	<p>I can come up with a range of ideas after collecting information from different sources.</p>

	<ul style="list-style-type: none"> • how well products meet user needs and wants <p>In early KS2 pupils should also investigate and analyse:</p> <ul style="list-style-type: none"> • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused <p>In late KS2 pupils should also investigate and analyse:</p> <ul style="list-style-type: none"> • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose 		I can evaluate products for both their purpose and appearance.	
<ul style="list-style-type: none"> ▪ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work 	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> • critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make • <i>evaluate their ideas and products against their original design specification</i> 	<p>Surviving in the Stone Age/Rolls Royce Designers /An American Adventure/ Discovering China</p> <p>I can prove my design meets some set criteria</p> <p>Rolls Royce Designers/ Discovering China</p> <p>I can explain how I have improved my original design.</p>	<p>Roman Rulers Britain from the Air I can evaluate and suggest improvements for my designs.</p> <p>Britain From Above I can persevere and adapt my work when my original ideas do not work.</p> <p>Roman Rulers Britain from the Air Anglo Saxon Settlers World Kitchen I can evaluate products for both their purpose and appearance. I can evaluate and suggest improvements for my designs.</p>	<p>Out of this World/Wild Water I can evaluate appearance and function against original criteria.</p>
<p>understand how key events and individuals in design and technology have helped shape the world</p>	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> • about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products 	<p>Discovering China/Stone Age/Rolls Royce Designers/The First Civilisations</p> <p><i>understand how key events and individuals in design and technology have helped shape the world</i></p> <p>(Ancient Chinese inventions, Ancient Egyptian inventions and Stone Age-iron Age inventions and innovations, Inventions and designers in transport, Percy Shaw, Frank Whittle, American designers and inventors and Inventions linked to survival.</p>	<p>Rampaging Romans/World's Kitchen/Britain from above/Beware the Invaders</p> <p><i>understand how key events and individuals in design and technology have helped shape the world</i></p> <p>(Roman and Anglo-Saxon inventions and innovations, Changes in food production, Designers, sculptors and architects in Britain, Inventions linked to disasters, inventions and key events in crime and punishment)</p>	<p>Invaders/Modern Britain/Wild Waters</p> <p><i>understand how key events and individuals in design and technology have helped shape the world</i></p> <p>(Inventions and key events in space travel and astronomy, Changes in Britain design and invention, Viking and Mayan inventions and influence, design and inventions linked to rivers)</p>
<p>Technical knowledge</p> <p>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p>	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities 	<p>An American Adventure/Discovering China/Rolls Royce Designers</p> <p>I can work accurately to measure, make cuts and make holes.</p> <p>Discovering China/Rolls Royce Designers Creating structures Pavilions Slingshot Car shells</p>	<p>Britain from Above Creating structures Castles</p>	<p>Wild Waters Create a stable structure through reinforcing its design Bridges</p>

<ul style="list-style-type: none"> understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] 	<ul style="list-style-type: none"> <i>that materials can be combined and mixed to create more useful characteristics</i> that mechanical and electrical systems have an input, process and output <i>the correct technical vocabulary for the projects they are undertaking</i> <p>In early KS2 pupils should also know:</p>	<p>Rolls Royce Designers <i>understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</i> Create sling shot cars</p>	<p><i>Beware the Invaders</i> <i>Create a model using levers and linkages</i> (Anglo Saxon boat)</p>	<p>Mexico and Mayans <i>Create a moving model using pulleys</i></p> <p>A Viking Voyage <i>Create a moving model using cams.</i> <i>Understand and use mechanical systems in their products (Cams)</i></p>
<ul style="list-style-type: none"> understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] 	<ul style="list-style-type: none"> how mechanical systems such as levers and linkages or pneumatic systems create movement how simple electrical circuits and components can be used to create functional products how to program a computer to control their products how to make strong, stiff shell structures <i>that a single fabric shape can be used to make a 3D textiles product</i> <i>that food ingredients can be fresh, pre-cooked and processed</i> 	<p>Rolls Royce Designers Creating a Flashing sign through crumble kit and CAD</p>	<p><i>Crime and Punishment</i></p> <ul style="list-style-type: none"> I can make a product which uses both electrical and mechanical components. <p><i>Understand and use computing to program and control products containing electrical systems, such as series circuits incorporating switches, bulbs and buzzers (torch)</i></p>	<p>Out of this World/ Battle of Evesham I can use a range of tools and equipment competently. (Space Buggy and Security Alarm)</p>
<ul style="list-style-type: none"> apply their understanding of computing to program, monitor and control their products. 	<p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> how mechanical systems such as cams or pulleys or gears create movement how more complex electrical circuits and components can be used to create functional products how to program a computer to monitor changes in the environment and control their products how to reinforce and strengthen a 3D framework <i>that a 3D textiles product can be made from a combination of fabric shapes</i> <i>that a recipe can be adapted by adding or substituting one or more ingredients</i> 	<p>Rolls Royce Designers Creating a Flashing sign through crumble kit and CAD</p>	<ul style="list-style-type: none"> <i>Connect simple electrical components and a battery in a series circuit to achieve a functional outcome.</i> <i>Program a standalone control box, microcontroller or interface box to enhance the way the product works.</i> <i>Understand and use computing to program and control products containing electrical systems, such as series circuits incorporating switches, bulbs and buzzers</i> <p><i>Using Crumble Kit to complete simple programming and control.</i></p>	<p>Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.</p> <ul style="list-style-type: none"> Create and modify a computer control program to enable their electrical product to respond to changes in the environment. <p>Understand the use of computer control systems in products.</p> <ul style="list-style-type: none"> Apply their understanding of computing to program, monitor and control their products. <p><i>Using Crumble kit to complete programming and control</i></p>
<p>understand and apply the principles of a healthy and varied diet</p>	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking <p>In early KS2 pupils should also know:</p>	<p>Extreme Survival <i>Understand and apply the principles of a healthy and varied diet – healthy meal</i> <i>that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate</i></p>	<p>World's Kitchen I know how to be both hygienic and safe when using food.</p>	<p>Mexico and the Mayans I show that I can be both hygienic and safe in the kitchen.</p>
<p>prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</p>	<ul style="list-style-type: none"> that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate that to be active and healthy, food and drink are needed to provide energy for the body <p>In late KS2 pupils should also know:</p>	<p>Discovering China/Surviving in the Stone Age/Extreme Survival/The First Civilisations/An American Adventure I can describe how food ingredients come together</p>	<p>World's Kitchen <i>prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</i></p>	<p>Britain at Play</p>

	<ul style="list-style-type: none"> • <i>that recipes can be adapted to change the appearance, taste, texture and aroma</i> • that different food and drink contain different substances – nutrients, water and fibre – that are needed for health 	<p><i>prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</i></p>		
<p>Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> • that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking 	<p>Discovering China/Surviving in the Stone Age/Extreme Survival/The First Civilisations</p> <p>understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>	<p>World's Kitchen</p> <p><i>understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</i></p>	<p>Britain at Play</p> <p>understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>