

William Leech CofE Primary – Design Technology Overview



<p>By the end of the EYFS we would like our children to be able to:</p>	<ul style="list-style-type: none"> ● Begin to plan how/ what they are going to build. ● Construct and create with purposeful intent. ● Join materials in different ways. ● Refine their ideas to improve them ● Talk about what they have made and how they made it. ● Begin to select appropriate materials / tools to use. ● Talk about other’s work and what they like about it. ● Be aware of safety when using different tools. ● Understand why some things may float or sink. ● Understand what different things are made out of. ● Talk about changing states of matter. ● Understand simple forces e.g push and pull
<p>Enquiry</p>	<p>Y1/2 and Y2/3 – Year A</p>
<p>Local Study: Where do I live and what is my past?</p>	<p>No DT</p>
<p>Plants and Leaves: Does everything change when the seasons change?</p>	<p>No DT</p>
<p>Food: Where does our food come from?</p>	<p>Powerful Knowledge</p> <p>Farm to Fork – explore where common foods come from.</p> <p>Recall –Can you identify and classify different foods into the correct food group?</p> <p>Research – How are different foods produced? (grown, farmed, caught)</p> <p>Reasoning – What types of foods should we eat more of and what types of foods should we eat less of. Why?</p> <p>End points Food and Nutrition</p> <ul style="list-style-type: none"> ● To be able to sort foods into the basic groups (meat, vegetables, fruit etc.) ● To understand that a diet should be healthy. ● Understand where food comes from, that all food comes from plants or animals.

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	<ul style="list-style-type: none"> ● Prepare simple dishes safely and hygienically, without using a heat source. ● How to use basic food preparation techniques such as combining foods and ingredients. <p>Vocabulary</p> <p>Farming, agriculture, crops, livestock, processed foods, fishing, greenhouse,</p>	
Assessment	WTS	GDS
<p>Toys: Which toys would I find in my Grandparents Attic?</p>	<p>Powerful Knowledge Design and make a moving toy exploring the use of wheels, axles and how to attach them to a vehicle.</p> <p>Recall –What are the different types of wheeled vehicles?</p> <p>Research – to investigate different types of wheeled vehicles and how are they configured?</p> <p>Reasoning – What helps vehicles move easily, what slows them down?</p> <p>End points</p> <p>Designing</p> <ul style="list-style-type: none"> ● Be able to describe what they are making and come up with an idea which could meet the design brief ● To effectively communicate a range of different ideas through talking and drawing, saying what materials were used. <p>Making</p> <ul style="list-style-type: none"> ● Can say how they have made their product. ● Can use tools and equipment with help or supervision. ● Can select, shape and join and use a variety of suitable materials. ● Work safely and hygienically. <p>Evaluating</p> <ul style="list-style-type: none"> ● To explore existing products. ● Can talk about what they have made, explain what it does and how it works and suggest how their product could be improved. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ● Explore how their products can be made stronger. ● Use simple mechanisms in their products. ● Use the correct names for materials and tools. 	

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	<p>Vocabulary</p> <p>Wheel, axle, vehicle movement, circle, axle mount</p>	
<p>Assessment</p>	<p>WTS</p>	<p>GDS</p>
<p>The Northumberland Coast: Why is Grace Darling admired by Northumbrians? What treasures can be found on our coastline?</p>	<p>Powerful Knowledge</p> <p>Design and make a functional boat which uses wind power to move. The task could focus on the design of the hull and the sail in order to produce the fastest boat which could then be tested/raced to find the best design.</p> <p>Recall –What are the different types of watercraft?.</p> <p>Research – How are different types of watercraft powered?</p> <p>Reasoning – Will a bigger sail make a boat move faster?</p> <p>Reasoning – What shape of hull will help the boat cut through the water?</p> <p>End points</p> <p>Designing</p> <ul style="list-style-type: none"> ● Be able to describe what they are making and what their products do. ● To come up with an idea which could meet the design brief and suggest materials that could be used. ● To effectively communicate a range of different ideas through talking and drawing, <p>Making</p> <ul style="list-style-type: none"> ● Can say how they have made their product. ● Can use tools and equipment with help or supervision. ● To be able to shape and join materials and consider how to make their product stronger or more stable. ● Work safely and hygienically. <p>Evaluating</p> <ul style="list-style-type: none"> ● Can talk about what they have made, explain what it does and how it works. ● Can suggest how their product could be improved. 	

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	<p>Technical Knowledge</p> <ul style="list-style-type: none"> ● Explore how their products can be made stronger. ● Use the correct names for materials and tools. <p>Vocabulary Yacht, boat, ship, submarine, Float, sink, buoyant, sail, hull.</p>	
Assessment	WTS	GDS

Enquiry	Y1/2 and Y2/3 – Year B	
Do polar bears and penguins ever meet?	No DT	
The Great Fire of London: What happened in Pudding Lane?	No DT	
<p>Health: How do I live a healthy life?</p>	<p>Powerful Knowledge</p> <p>Explore healthy foods and design a healthy smoothie.</p> <p>Recall – Can you name a variety of ingredients that could be used in a smoothie?.</p> <p>Research – Research existing products and describe taste, texture and appearance using sensory words.</p> <p>Reasoning – Justify why your design is suitable for you.</p> <p>End points</p> <p>Food and Nutrition</p> <ul style="list-style-type: none"> ● Understand the sensory characteristics of different foods. ● To understand the basic principles of a varied diet. ● Understand where food comes from, that all food comes from plants or animals and that it has to be farmed, grown or caught. ● To understand some food groups. 	

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	<ul style="list-style-type: none"> ● Prepare simple dishes safely and hygienically, without using a heat source. ● How to use basic food preparation techniques such as peeling, grating, mixing etc <p>Vocabulary</p> <p>Vitamins, Minerals, Fibre, Vitamin C, Calcium, Antioxidants</p>	
Assessment	WTS	GDS
Plants: How does your garden grow?	No DT	
Explorers: Who was the best explorer - Columbus or Armstrong?	<p>Powerful Knowledge</p> <p>How can we keep things in the air – Design challenge to design and make a spacecraft which will return the astronauts (an egg) back to earth safely. This can then be tested to identify the successful designs</p> <p>Recall – What are the different modes of air transport?</p> <p>Research – What could be different methods of slowing the descent of an object? (wings, rotors, parachute, airbags etc.)</p> <p>Reasoning – Which designs were the most successful and why did they work?</p> <p>End points</p> <p>Designing</p> <ul style="list-style-type: none"> ● To develop different ideas which could meet the design brief. ● To communicate a range of different ideas through talking and drawing. ● To explore different materials that could be used. <p>Making</p> <ul style="list-style-type: none"> ● Can plan by suggesting what they will do next. ● Select and use a range of tools, equipment and suitable materials. ● To be able to cut, shape and join materials and components, considering what makes their product stronger or more stable. 	

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	<ul style="list-style-type: none">• Work safely and hygienically. <p>Evaluating</p> <ul style="list-style-type: none">• Can talk about what they have made, explain what it does and how it works• To judge whether they have met the design brief and suggest improvements. <p>Technical Knowledge</p> <ul style="list-style-type: none">• Explore how their products can be made stronger, stiffer and more stable• Use the correct names for materials and tools. <p>Vocabulary</p> <p>Plane (jet, propeller), helicopter, rocket, hot air balloon, airship, parachute, air resistance.</p>	
Assessment	WTS	GDS

Enquiry	Y1/2 and Y2/3 – Year C
<p>Ancient Greece What were the wonders of Ancient Greece? <i>Key concept: Civilisation</i></p>	<p>Powerful Knowledge The Ancient Greeks invented the crane – use structures and mechanisms to design a machine to lift and move a given weight.</p> <p>Recall – How do levers and pulleys work?</p> <p>Research –Which different types of lifting devices are used in construction and industry? (Cranes, tele-handlers, forklifts)</p> <p>Reason – How can cranes be made strong and stable? (explain the structures of cranes)</p> <p>Reason - Explain how lifting devices work against gravity?</p> <p>End points</p> <p>Designing</p> <ul style="list-style-type: none"> ● Can consider the intended user of their product and consider relevant design criteria ● Can clarify their ideas through discussion and sketches, generating several appropriate design solutions. ● Make design decisions based on availability of resources. <p>Making</p> <ul style="list-style-type: none"> ● To select tools, equipment materials, components and mechanical components suitable for the task. ● To mark out, shape and join materials and components with some accuracy. ● To be able to adapt their practical work during the making process if necessary. ● Follow procedures for safety and hygiene. <p>Evaluating</p> <ul style="list-style-type: none"> ● Investigate existing products and explain the function and suitability.

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	<ul style="list-style-type: none"> ● Critically evaluate, Identifying the strengths of their completed products and suggesting improvements. Understand how some key products have helped to shape the world. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ● To use electronic components in their products. ● Can demonstrate how mechanical systems create movement . ● Describe how they have made their products and structures stronger, stiffer and stable. ● Use the correct terms for materials and equipment. <p>Vocabulary Lifting devices - tower and mobile cranes, tele-handler, engine hoist, scissor lift etc. Pulley, lever, axle, cable.</p>	
Assessment	WTS	GDS
<p>Volcanoes <i>Could you live near a volcano?</i></p>	No DT	
<p>George Stephenson: How did transport change because of George Stephenson?</p>	<p>Powerful Knowledge Design and test a vehicle which will be used in the proposed mass transport system “The Hyperloop”</p> <p>Recall – What are the different types of mass transport system?.</p> <p>Research – How are large groups of people transported and how each type of transport functions?. (Train, bus, plane, ship.) What features do each vehicle have?</p> <p>Reasoning - Evaluate your hyper-loop vehicle design. What were the strengths and problems? Suggest improvements.</p> <p>End points Designing</p> <ul style="list-style-type: none"> ● Describe what they are making and develop different ideas which could meet the design brief. ● To explore different materials that could be used. <p>Making</p>	

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	<ul style="list-style-type: none"> ● Can plan by suggesting what they will do next and select suitable tools, materials and components for each aspect of production. (Using correct technical vocabulary.) ● To be able to cut, shape and join materials and components, thinking about the appearance of their product and how to make the product more stable. ● Work safely and hygienically. <p>Evaluating</p> <ul style="list-style-type: none"> ● To explore existing products and explain what they do ● Can talk about what they have made, explain what it does and how it works, judging whether they have met the design brief and suggest improvements <p>Technical Knowledge</p> <ul style="list-style-type: none"> ● Explain how their products work, how they are used and what materials they are made from. ● Use mechanisms such as wheels, axles and levers in their products. <p>Vocabulary Transport, Train, bus, aeroplane, ship, ferry, hyper-loop. Friction, mechanism</p>	
Assessment	WTS	GDS
<p style="text-align: center;">Plants</p> <p><i>How do plants adapt to their surroundings?</i></p>	<p>Powerful Knowledge Cooking with meat alternatives and vegetables.</p> <p>Recall – Can you Identify a variety of different plant based ingredients and identify where/when they are grown?.</p> <p>Research – What is the journey of different ingredients from Farm to fork?. (ie Wheat, tomatoes, carrots)</p> <p>Reasoning - Explain why vegetables are an important part of your diet and how they help your body.</p> <p>End points Food and Nutrition</p> <ul style="list-style-type: none"> ● That food is grown, reared and caught in the UK, Europe and the wider world. ● How to prepare and cook a variety of predominantly savoury dishes safely and hygienically and where appropriate using a heat source. ● How to use a range of food preparation techniques including cutting, peeling, grating, mixing and chopping ● That a balanced, healthy diet is made up from a variety of different foods and drinks. <p>Vocabulary</p>	

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	Vegetarian, vegan, protein, Vitamins, minerals	
Assessment	WTS	GDS
<p style="text-align: center;">Local Study</p> <p><i>Why are fishing/coal at the heart of our community: now and in the past?</i></p>	<p>Powerful Knowledge</p> <p><i>D&T skills based project to design and make an item of safety wear for children in the community which can be worn to allow children to be more visible at night.</i></p> <p>Recall – What are the Technical vocabulary for equipment and processes used in the manufacture of their project?.</p> <p>Research How can different hi-vis products help people to be seen more easily?</p> <p>Reasoning – Explain the advantages and disadvantages of plastics in products and everyday life.</p> <p>End points</p> <p>Designing</p> <ul style="list-style-type: none"> ● Can consider the intended user of their product and develop some design criteria to guide their ideas. ● Can clarify their ideas through discussion and sketches, generating several appropriate design solutions that meet the design criteria. ● Make design decisions based on availability of resources. <p>Making</p> <ul style="list-style-type: none"> ● To select suitable materials and components, marking out, shaping and joining materials and components with some accuracy ● To be able to adapt their practical work during the making process if necessary. ● Follow procedures for safety and hygiene. <p>Evaluating</p> <ul style="list-style-type: none"> ● Investigate existing products and explain the function and suitability ● Critically evaluate the quality of the design; describing strengths and improvements and how they have adapted their designs. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ● To understand the different qualities of materials. ● To use electronic components in their products explaining how electrical circuits work. ● Use the correct terms for materials and equipment. <p>Vocabulary</p>	

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	Safety, Adornment, jewellery, Reflective, light, L.E.D., plastic vacuum forming, pattern, mould.	
Assessment	WTS	GDS

Enquiry	Y4/5 and Y5/6 – Year A
<p>Stone Age to Iron Age: <i>How did people survive in the prehistoric ages?</i></p>	No DT
<p>Ancient Egypt: What are the secrets of Ancient Egypt as an early civilisation? <i>Key concept: Rich and Poor (Peasantry)</i></p>	<p>Powerful Knowledge</p> <p>D&T Unit - Buildings and Structures- Design and make a Shaduf</p> <p>Recall: What makes a strong structure?</p> <p>Research:What types of mechanical systems are there? (levers)</p> <p>Reasoning - Explain how different classes of levers can be used for mechanical advantage.</p> <p>Reasoning - Evaluate your design, describing strengths and suggesting improvements. Justify answers.</p> <p>End points</p> <p>Designing</p> <ul style="list-style-type: none"> ● Can think about the user and what is required from the product and develop their own design criteria.

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	<ul style="list-style-type: none"> ● Can produce annotated sketches to communicate their ideas generating several appropriate design solutions. ● Make design decisions based on suitability and availability of resources. <p>Making</p> <ul style="list-style-type: none"> ● To select and use basic hand tools safely and accurately with some independence. ● Use a broader range of resistant and compliant materials and components explaining why they have chosen them, using correct technical vocabulary. ● To measure, mark out, cut, shape and join materials and components with some accuracy, following procedures for safety. <p>Evaluating</p> <ul style="list-style-type: none"> ● Critically evaluate the quality of the design and manufacture, Identifying strengths and areas for development of their ideas and products. ● Can refer to the design criteria during the making process. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ● To understand that different materials have different qualities and identify which are useful for their task. ● To understand how mechanical systems work to create a functional moving product. ● Describe how they have made their products and structures stronger, stiffer and stable. <p>Vocabulary</p> <p>Lever, irrigate, crossbeam, counterweight, pivot, fulcrum, load, weight, supports, shaduf.</p>	
Assessment	WTS	GDS
<p>Electricity and sound: In a world of powering up, how can we power down?</p>	<p>Powerful Knowledge</p> <p>Design a moving jitterbug using an electronic circuit and a motor.</p> <p>Recall – What are the different components of a circuit?</p> <p>Research – Which moving toys for children, contain an electronic circuit?</p>	

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	<p>Reason – Evaluate how successful your finished product is and explain how you could improve it.</p> <p>End points</p> <p>Designing</p> <ul style="list-style-type: none"> ● Can think about the user and what is required from the product and develop their own design criteria. ● Can produce annotated sketches to communicate their ideas, generating several appropriate design solutions. ● Make design decisions based on suitability and availability of resources. <p>Making</p> <ul style="list-style-type: none"> ● To select materials and components and explain why they have chosen them . ● To select and use basic hand tools safely and accurately with some independence. ● Use a broader range of resistant and compliant materials and components. ● To measure, mark out, cut, shape and join materials and components with some accuracy. <p>Evaluating</p> <ul style="list-style-type: none"> ● Critically evaluate their product, Identifying strengths and areas for development of their ideas and products. ● Use design criteria to evaluate their completed products. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ● To understand that different materials have different qualities and identify which are useful for their task. ● To understand how mechanical systems and electrical circuits work to create functional products. ● To explain the function of electrical components in their products and how mechanical and electrical systems can create movement. ● Use the correct technical vocabulary for materials and equipment. <p>Vocabulary</p> <p>Motor, Wire, Battery, Switch, conductor, circuit.</p>	
Assessment	WTS	GDS

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<p>Romans: How did the Roman Empire develop, grow and fall?</p> <p><i>Key concept: Empire</i></p>	<p>Powerful Knowledge</p> <p>Explore Roman Foods.</p> <p>Recall -Which foods were eaten in Roman times?.</p> <p>Research -How did the Romans catch, grow and process food? How do they differ from modern methods?</p> <p>Reasoning Do you think that the Roman diet was healthy? Compare and contrast the Roman diet to a modern diet. (could use food diary to compare)</p> <p>End points</p> <p>Food and Nutrition</p> <ul style="list-style-type: none"> ● That food is grown, reared and caught in the UK, Europe and the wider world. ● How to prepare and cook a variety of predominantly savoury dishes safely and hygienically and where appropriate using a heat source. ● How to use a range of food preparation techniques including cutting, peeling, grating, mixing and chopping ● That a healthy diet is made up from a variety and balance of different food and drink, as depicted in <i>The Eat Well Plate</i> ● To understand that to be active & healthy, different food & drink are needed to provide nutrients for the body <p>Vocabulary</p> <p>Dependent on recipes chosen.</p>	
<p>Assessment</p>	<p>WTS</p>	<p>GDS</p>
<p>Habitats: What makes a home habitable?</p>	<p>Powerful Knowledge</p> <p>Design & make a plush toy that can be sold to raise money for endangered animals.</p>	

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	<p>Recall –What are the requirements of making a soft toy for children?.</p> <p>Research – What are the properties of materials used for children's toys?.</p> <p>Reason – Give reasons for choice of materials in your design.</p> <p>End points</p> <p>Designing</p> <ul style="list-style-type: none"> ● Can think about the user and what is required from the product. ● Can produce annotated sketches to communicate their ideas. ● Generate several appropriate design solutions, making design decisions based on suitability and availability of resources. <p>Making</p> <ul style="list-style-type: none"> ● To select materials, components and tools and explain why they have chosen them ● To select and use basic hand tools safely, accurately and with some independence. ● Use a broader range of materials and components, joining and combining with some accuracy. ● To measure, mark out, cut, shape, join (sew) materials and components with some accuracy (producing pattern pieces where appropriate.) <p>Evaluating</p> <ul style="list-style-type: none"> ● Explore how well existing products meet their intended purpose ● Critically evaluate their product, Identify strengths and areas for development of their ideas and products. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ● To understand that different materials have different qualities and identify which are useful for their task. ● Describe how they have made their products stronger and stiffer. ● Use the correct technical vocabulary for materials and equipment. <p>Vocabulary</p> <p>Felt, embroidery, embellishments, running stitch, back stitch, blanket stitch, needle</p>	
<p>Assessment</p>	<p>WTS</p>	<p>GDS</p>

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<p>Britain's Settlement by the Anglo-Saxons and Scots: Raid, abandon, settle and convert?</p> <p><i>Key concept: Christian Conversion</i></p>	<p>No DT</p>	

Enquiry	Y4/5 and Y5/6 – Year B	
<p>The Viking and Anglo-Saxon struggle for the Kingdom of England to the time of Edward the Confessor</p> <p>How did the Kingdom of England come to be?</p> <p><i>Key concept: Rich and Poor (Peasantry)</i></p>	<p>No DT</p>	
<p>European Country Study: Who are our European neighbours?</p>	<p>Powerful Knowledge Cook dishes from different European countries. (Could make a themed meal to share with parents.)</p> <p>Recall: Can you name traditional and signature dishes of specific European countries?</p> <p>Research: Which ingredients of chosen dishes can you describe the taste, texture and appearance of?.</p> <p>Reasoning: How do the flavours of foods differ from country to country?.</p> <p>End points Food and Nutrition</p>	

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	<ul style="list-style-type: none"> ● That food is grown, reared and caught in the UK, Europe and the wider world. ● How to prepare and cook a variety of predominantly savoury dishes using a heat source. ● How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking ● That a healthy diet is made up from a variety and balance of different food and drink, as depicted in The Eat Well Plate. ● To describe how ingredients change the appearance, taste, texture and aroma. ● That different food and drinks contain different substances – nutrients, water and fibre – that are needed for health. ● To understand that recipes can be adapted by adding or substituting 1 or more ingredients. <p>Vocabulary Dependent on countries chosen.</p>	
Assessment	WTS	GDS
<p>Plastic Materials Has Leo Baekeland’s invention become a climate disaster?</p>	<p>Powerful Knowledge <i>Junk Car Challenge – Top Gear style competition to design and make an electric powered vehicle from recycled materials and race over a set distance</i></p> <p>Recall: What are the different parts of a mechanism? (ie wheels, axels, gears and power source ie batteries)</p> <p>Research: What are the qualities of different types of recycled materials? (ie how shape can make it stronger, fit for purpose and investigate types of recycled materials)</p> <p>Reasoning: what are the factors which will influence how fast your vehicle will travel? (weight, shape, power source.)</p> <p>End points</p> <p>Designing</p> <ul style="list-style-type: none"> ● Carry out research of existing vehicles, (i.e configuration, aerodynamics, power source) ● Can use discussion, annotated sketches to communicate different ideas using age appropriate design skills including 2D, & 3D drawings and different views of their design, using accurate technical vocabulary. ● Make design decisions based on availability of resources and consider possible constraints. <p>Making</p> <ul style="list-style-type: none"> ● Select materials, components, tools and equipment appropriate for the task and how they add to the functional quality of their products. ● To measure, mark out, cut, shape and join materials with accuracy. ● Can follow procedures for safety and hygiene. <p>Evaluating</p> <ul style="list-style-type: none"> ● Identify the strengths and areas for development of their ideas and products, critically evaluate whether the product is fit for purpose and explain problems they encountered and how they change their ideas accordingly. 	

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	<ul style="list-style-type: none"> ● Consider the financial and environmental cost of their products ● Understand the role of innovators and engineers in manufacturing. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ● Understand how maths and science can help to make products that work. ● To apply their understanding of how to strengthen, stiffen and reinforce more complex structures. ● To understand the different properties of materials (Function) <p>Vocabulary</p> <p>Vehicle, chassis, wheel, axle, motor gears, worm gear, battery switch, speed, average time, aerodynamics Polystyrene, acrylic,</p>	
Assessment	WTS	GDS
<p>Women’s Impact on British History: How have women shaped and influenced our nation and beyond? <i>Key concept: Empire</i></p>	<p>Powerful Knowledge Research: <i>Investigate main inventions in history, linked to the women in History and how modern equivalents can be adapted or improved upon. – Design & Make challenge</i></p> <p>Research – how have some of the main inventions in history, linked to women, improved life over the years?</p> <p>Reasoning - How can we solve real life problems for people in developing countries.</p> <p>See link for project idea and resources. https://practicalaction.org/schools/smoky-homes/</p> <p>End points Designing</p> <ul style="list-style-type: none"> ● Can describe the purpose of products and who will use it. ● Carry out research on past inventions. ● Can use discussion, annotated sketches to communicate different ideas and produce prototypes (using accurate vocabulary.) ● Generate realistic ideas – focussing on chosen users. <p>Making</p> <ul style="list-style-type: none"> ● Select materials, components, tools and equipment appropriate for the task and describe how they add to the function of their products. 	

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	<ul style="list-style-type: none"> ● To be able to identify problems during practical work and change their ideas accordingly. ● To measure, mark out, cut, shape and join a variety of materials with accuracy. ● Can follow procedures for safety and hygiene <p>Evaluating</p> <ul style="list-style-type: none"> ● Analyse existing products and comment on materials, construction methods and how well they work ● Critically evaluate the quality of the design, Identify the strengths and areas for development of their ideas and products and describe whether it is first for purpose. ● Understand about inventors, key events, designers, engineers, chefs and manufacturers who have developed ground-breaking products and have helped to shape the world. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ● Understand how maths and science can help to make products that work. ● To apply their understanding of how to strengthen, stiffen and reinforce more complex structures. ● To understand the different properties of materials (function) ● To understand how mechanical and electrical systems can be combined to create functional products <p>Vocabulary Dependent on inventions chosen (STEM inventors can be found @ www.inventorsandmakers.com)</p>	
Assessment	WTS	GDS
SRE Should I be the same or unique?	No DT	
Rivers: Does a river always travel from source to sea?	No DT	

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Enquiry	Y4/5 and Y5/6 – Year C
<p>Power, Law, Crime and Punishment: What are the key trends and changes to laws and the impact of parliament since 1066?</p> <p><i>Key concept: Parliament</i></p>	<p>No DT</p>
<p>Mayans Why are they ‘written’ into our History books?</p> <p><i>Key concept: Civilisation</i></p>	<p>No DT</p>
<p>Extreme Earth Is our Earth Extreme?</p>	<p>Powerful Knowledge <i>Structures: Designing different structures for a natural disaster zone. How can structures be made to withstand extreme events?</i></p> <p>Recall: <i>Which events can cause natural disasters and the parts of the world where they most commonly occur?.</i></p> <p>Research: <i>How do temporary structures such as tents, inflatable domes, traditional indigenous dwellings differ? (see links in PK, resources and links document)</i></p> <p>Reasoning: <i>How can structures be made stiffer, stronger and more stable?.</i></p> <p>Reasoning: <i>Explain how the properties of the materials chosen for the structure are suitable. (Waterproof, windproof, shatterproof and</i></p>

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	<p><i>shockproof.)</i></p> <p><i>Link for resources - https://practicalaction.org/schools/beat-the-flood/</i></p> <p>End points</p> <p>Designing</p> <ul style="list-style-type: none"> ● Can research and describe the purpose of their product, how it will be used, who will use it and the needs of the target user. ● Develop their own design criteria. ● Can use discussion, annotated sketches to communicate different ideas and produce models and prototypes, Use age appropriate design skills including 2D, & 3D drawings, in order to communicate designs. ● Make design decisions based on availability of resources and consider constraints such as time, resources, cost and environmental issues. <p>Making</p> <ul style="list-style-type: none"> ● Select materials, components, tools and equipment appropriate for the task and explain why these materials are suitable and how they add to the functional quality of their products. ● Can use a wide range of resistant and compliant materials and components. ● To measure, mark out, cut, shape and join materials and apply finishing techniques, with greater accuracy and independence. ● Can follow procedures for safety and hygiene. <p>Evaluating</p> <ul style="list-style-type: none"> ● Identify the strengths and areas for development of their ideas and products. ● Critically evaluate and test the quality of the design, manufacture and fitness for the purpose of their products and explain how they adapted their work during manufacture. ● Consider the financial, environmental and ethical impact of their products. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ● Understand how maths and science can help to make products that work and apply their understanding of how to strengthen, stiffen and reinforce 3D structures. ● To understand the different properties of materials and how to enhance and combine them (function.) ● Use the correct technical vocabulary for materials, tools, concepts and processes. <p>Vocabulary</p> <p>Tent, igloo, bivouac, Evac shelters, Fire shields, air raid shelter, Anderson shelter</p>	
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<p>Working Scientifically: Why do we need to experiment and test as a scientist?</p>	<p>Powerful Knowledge Make your own Cheese /bread /instant ice cream/butter.</p> <p>Recall: Which ingredients cause chemical reactions/changes in food? . (ie yeast in bread making)</p> <p>Research: Explore different recipes and ingredients which need chemical reactions.</p> <p>Reasoning: Explain the chemical reaction that takes place in different recipes and how it changes the food.</p> <p>Reasoning - Can you explain and justify how you adapt a bread recipe to change its flavour? (You could use the Food A Fact Life, Primary Food Project -Get Baking https://www.foodafactoflife.org.uk/search-results/?q=primary+project+resources)</p> <p>End points Food and Nutrition</p> <ul style="list-style-type: none"> ● That food is grown, reared and caught in UK, Europe and wider world and that this is affected by seasonal changes ● How to prepare and cook a variety of predominantly savoury dishes safely and hygienically and, where appropriate, using different heat sources ● How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking ● To describe the function of ingredients in different recipes and explain the changes that occur through cooking or combining ingredients. ● How to adapt the Eat Well Plate to produce a balanced diet. ● That different food and drinks contain different substances – nutrients, water and fibre – that are needed for health. ● That recipes can be adapted by adding or substituting 1 or more ingredients. <p>Vocabulary</p> <p>Reaction, ingredient, catalyst, measures</p>	
<p>Assessment</p>	<p>WTS</p>	<p>GDS</p>

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<p>RSHE/PHSCE/Transition</p> <p>Is it good to be different?</p>	<p>Powerful Knowledge</p> <p>Squashed Tomatoes Challenge - Mechanisms project to design and make a machine/mechanism to solve a particular problem in building or manufacturing e.g. lifting, sorting, transporting. (Resources found at https://practicalaction.org/schools/squashed-tomato-challenge/)</p> <p>Recall - Can you name the main types of mechanism? (lever, cam, Pulley, gear)</p> <p>Research – How are mechanisms used in manufacturing and construction?.</p> <p>Reasoning - How do pulleys, provide a mechanical advantage?.</p> <p>End points</p> <p>Designing</p> <ul style="list-style-type: none"> ● Can describe the purpose of their product and how it will be used and who will use it and develop their own design criteria ● Carry out research to identify the needs and wants of target groups. ● Can use discussion, annotated sketches to communicate different ideas and produce models and prototypes. ● Use research to generate realistic ideas – focussing on chosen users, making design decisions based on availability of resources and considering constraints such as time, resources, cost and environmental issues. <p>Making</p> <ul style="list-style-type: none"> ● Select materials and components appropriate for the task and explain why these materials are suitable and how they add to the functional quality of their products. ● Select suitable tools & equipment and use a wide range of resistant and compliant materials and components ● To measure, mark out, cut, shape and join materials with greater accuracy and independence. ● Can follow procedures for safety and hygiene. <p>Evaluating</p> <ul style="list-style-type: none"> ● Critically evaluate the quality of the design, manufacture and fitness for the purpose of their product and explain how they have adapted their work in order to be able to solve problems when they encounter difficulties. ● Consider the financial, environmental and ethical impact of their products. <p>Technical Knowledge</p> <ul style="list-style-type: none"> ● To understand the different properties of materials and mechanisms and how to enhance and combine them.(function) ● To understand how mechanical systems can be combined to create functional products (e.g. cams or pulleys, cranks) ● Can explain how the different parts of their product work and use correct technical vocabulary. <p>Vocabulary</p> <p>Mechanism, lever, cam, pulley, gear, efficient, ascending, descending,</p>
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