Design and Technology			
Base 1 – Year R/1			
Whole School Theme	**Around the World**	**Wild Isles**	**Peering into the Past**
What does this mean to me? Why does this matter?			
Unit of Work	YR – Junk Modelling (Mechanisms) Y1 – Mechanisms – wheels and axels	YR – Food Y1 – Food	YR – Textiles Y1 – Textiles
National Curriculum	**YR** - Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. **<u>Y1</u>** **Designing** • Generate initial ideas and simple design criteria through talking and using own experiences. • Develop and communicate ideas through drawings and mock-ups. **Making** • Select from and use a range of tools and equipment to perform practical tasks such as	**YR** - Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. **<u>Y1</u>** **Cooking and nutrition:** • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from.	**YR** - Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. **<u>ELG - Creating with Materials</u>** Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. CM - Share their creations, explaining the process they have used. **<u>Y1</u>** **Designing** • Design a functional and appealing product for a chosen user and purpose based on a simple design criteria. • Generate, develop, model and communicate ideas as appropriate through talking, templates and mock-ups. **Making**

	cutting and joining to allow movement and finishing. • Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics. **Evaluating** • Explore and evaluate a range of products with wheels and axles. • Evaluate their ideas throughout and their products against original criteria. **Technical knowledge and understanding** • Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project.		• Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. • Select from and use textiles according to their characteristics. **Evaluating** • Explore and evaluate a range of existing textile products relevant to the project being undertaken. • Evaluate their ideas throughout and their final products against original design criteria. **Technical knowledge and understanding** • Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. • Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. • Know and use technical vocabulary relevant to the project.
Prior Learning	New learning for YR (Some previously LWs). In 2022/23 as Yr R students will have returned to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. ELG - Creating with Materials	New learning for YR (Some previously LWs). In 2022/23 as Yr R students had some experience of food preparation. They created turnip soup, in which they chopped and prepared the vegetable	New learning for YR (Some previously LWs). In 2022/23 as Yr R, students will have had experience of using a range of materials to create a felt puppet. They will have developed how to use basic tools e.g. scissors, hole punches. They also developed different joining skills such as gluing and taping.

	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.	and used a soup maker. They also made chocolate fairy cakes. ELG - Managing Self Understanding the importance of healthy food choices.	ELG - Creating with Materials Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.
Why this, why now?	The children are focusing this term on 'flight'. In History this term the children will be learning about Amelia Earhart - events beyond living memory that are significant nationally or globally.	The children are focusing this term on 'dinosaurs' and 'growing'. R The children will explore the natural world around them. Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them. Y1 In Science the children will be learning about the natural world around them including plants and animals. In RE the children will be learning about Easter, with a focus on 'new life'.	R In Understanding of the World, the children will be describing what they see, hear and feel whilst outside. Along with this looking at Shadows – Objects casting shadows. Y1 The children will learn new joining techniques linked to fabric and material such as pinning and sewing, building on what they have developed previously in EYFS and taking this a step further. In Science the children will be learning about Everyday Materials which supports them in their design and making within this DT textiles unit. In the Autumn term in Art the children will have used drawing and collage skills to make birds.
Core Learning	**Concept:** Mechanisms – wheels and axels **Enquiry Question:** Can you design, make and evaluate an aeroplane? I can explain that wheels move because they are attached to an axle.	**Concept:** Cooking and nutrition – preparing food **Enquiry Question:** Can you design, make and evaluate a vegetable salad? I can talk, draw, write lists, and Generate a design criteria for a salad.	**Concept:** Textiles – Templates and joining **Rec Enquiry Question:** Can you design and make a shadow puppet? **Y1 Enquiry Question:** Can you design, make and evaluate a simple bag? I can generate ideas through talking and drawing based on own experiences with bags.

	I can recognise that wheels and axles are used in everyday life, not just in cars. I can identify and explain vehicle design flaws using the correct vocabulary. I can design a vehicle (aeroplane) that includes functioning wheels, axles and axle holders. I can make a moving vehicle with working wheels and axles. I can explain what must be changed if there are any operational issues. https://www.bbc.co.uk/teach/class-clips-video/design-and-technology-ks2-axles/zmhfvk7 https://www.designtechnology.org.uk/shop-products/lets-look-at-vehicles/ https://www.designtechnology.org.uk/resource-shop/primary/9-to-11-years/wheels-working-with-wheels-and-axles/	I can use different tools and practise using different food-processing skills, e.g. cutting, slicing, grating. I can discuss and comparing different effects, e.g. make juice. I can try the different effects out and evaluate. I can negotiate, develop and agree a plan of action, evaluating actions. I can discuss, try out and modifying the design. I can evaluate the product with the intended user and against the design criteria. https://www.bbc.co.uk/teach/class-clips-video/design-and-technology-ks2--ks3-salad/znwc8xs www.foodafactoflife.org.uk Are you Teaching Food in Primary D&T - D&T Association (designtechnology.org.uk)	I can develop ideas using templates or pattern pieces to create mock ups. I can explore and evaluate joining techniques such as gluing, stapling, pinning and sewing. I can explore and evaluate media and materials such as dipryl, felt, reclaimed fabric. I can select from a range of tools, techniques and materials to create a simple bag. I can evaluate the bag with the intended user and against original design criteria. https://www.bbc.co.uk/teach/class-clips-video/design-and-technology-ks1-ks2-how-to-make-a-mobile-phone-cover/z47yhbk https://www.bbc.co.uk/teach/class-clips-video/design-challenge-make-swimming-bag/zvdrkmn https://www.designtechnology.org.uk/shop-products/joining-and-fastening-fabrics-powerpoints-yr12/ https://www.designtechnology.org.uk/resource-shop/bendy-bags-yr234/

Opportunities for deepening learning ... *Know more and remember more.*	In History the children are learning about Amelia Earhart - events beyond living memory that are significant nationally or globally.	In Science the children are learning about plants and animals.	In Science the children are learning about everyday materials. In Geography the children are learning about simple fieldwork and observational skills to study the geography of their school and its grounds and the key physical features of its surrounding environment. In mathematics the children will have learnt about appropriate standard and non-standard measures. To recognise and name common 2-D and 3-D shapes.
Opportunities for oracy and reading...	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on Amelia Earhart. Discussion on the enquiry question before and after.	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on Mary Anning, growing, healthy eating. Discussion on the enquiry question before and after.	The class story will lead this unit. First session – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on fashion. Discussion on the enquiry question before and after.
Key Figure / Artist	Amelia Earhart – aviation pioneer	Mary Anning	
Vocabulary	vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used design, make, evaluate, purpose, user, criteria, functional	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning,	YR Names of materials e.g. card, felt., colour, waterproof, transparent, design, plan, create, join, adapt, evaluate Y1 names of existing products, joining and finishing techniques, tools, fabrics and components template, pattern pieces, mark

		investigating tasting, arranging, popular, design, evaluate, criteria	out, join, decorate, finish features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function
Quick Quiz	YR/Y1 How do you think the wheels move? How do you think the wheels are fixed on? Why do you think the product has this number of wheels? Why do you think the wheels are round?	YR What are we cooking? Can you name some of the ingredients we have used? Can you name some of the skills used to prepare the food? Y1 What should we do before we work with food? Why is following instructions important? Can you name some of the skills used to prepare the food? Why is it good to eat fruit and vegetables? How many pieces of fruit/vegetables do you eat per day?	YR What materials were the best for the puppet? How did you stick the parts of the puppet together? What was the process of making a puppet? Y1 Can you tell me what we use a bag for? Why do we create a mock up? What was the best/worse joining techniques? Why? Which material have you chosen? Why? Which tools did you use? Why? Was your bag successful with the intended audience?
Discussion question/point:	YR: Which is your favourite vehicle and why? Y1: Which is the most effective wheel for your aeroplane? Can you explain why you think this?	YR: What did you think of the X? Y1: Which is the most effective food processing skill? Can you explain why you think this?	YR: What is best to protect us from the sun? Y1: Could bags be made with any material? Why, why not?

Design and Technology			
Base 2 – Year 1/2			
Whole School Theme	**Around the World**	**Wild Isles**	**Peering into the Past**
What does this mean to me? Why does this matter?			

Unit of Work	Mechanisms – wheels and axels	Cooking and Nutrition – Preparing food	Structures – Freestanding
National Curriculum	**Designing** • Generate initial ideas and simple design criteria through talking and using own experiences. • Develop and communicate ideas through drawings and mock-ups. **Making** • Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. • Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics. **Evaluating** • Explore and evaluate a range of products with wheels and axles. • Evaluate their ideas throughout and their products against original criteria. **Technical knowledge and understanding** • Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project.	**Cooking and nutrition:** • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from.	**Designing** • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through talking, mock-ups and drawings. **Making** • Plan by suggesting what to do next. • Select and use tools, skills and techniques, explaining their choices. • Select new and reclaimed materials and construction kits to build their structures. • Use simple finishing techniques suitable for the structure they are creating. **Evaluating** • Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings. • Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. **Technical knowledge and understanding**

			• Know how to make freestanding structures stronger, stiffer and more stable. • Know and use technical vocabulary relevant to the project.
Prior Learning	In 2022/23 Y1 as YR students will have returned to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. ELG - Creating with Materials Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used. In 2021/22 Y2 as Yr R, children will have had experience of using construction kits to build vehicles with wheels. They will have developed how to use basic tools e.g. scissors and hole punches. In 2022/23 Y2 as Y1 children will have experienced different joining techniques when creating structures which may be useful when creating aeroplanes.	In 2022/23 Y1 as Yr R students will have students will have returned to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. ELG - Creating with Materials Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used. In 2021/22 Y2 as Yr R, children will have had experience of food prepartaion and tasting. In 2022/23 Y2 as Y1 children as part of Science will have looked at plants, seasonal change and animals including humans.	In 2022/23 Y1 as Yr R students will have will have returned to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. ELG - Creating with Materials Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used. In 2021/22 as Yr R, students will have had experience of using construction kits to build walls, towers and frameworks. They will have developed how to use basic tools e.g. scissors and hole punches. In 2022/23 Y2 as Y1 students will have created playground structures.
Why this, why now?	In science, the children will be learning about everyday objects and during this they will be considering what would be effective materials for a flying machine.	In Science the children are learning about different habitats and how they provide the basic needs of animals and plants. They will also describe how animals obtain their food from	In the Spring term, in Geography the children will have used simple fieldwork and observational skills to study the geography

	In History the children will be learning about the Wright brothers and other aviators.	plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	of their school and its grounds and the key physical features of its surrounding environment. Also in the Spring term, in History the children will have looked at St Margarets Church and other historical events linked to the local area. In the Spring term, in Art the children will have done the theme architecture, drawing, collage, making, 'be an architect', using St Margaret's as a stimulus.
Core Learning	**Concept:** Mechanisms – wheels and axels **Enquiry Question:** Can you design, make and evaluate an aeroplane? I can explain that wheels move because they are attached to an axle. I can recognise that wheels and axles are used in everyday life, not just in cars. I can identify and explain vehicle design flaws using the correct vocabulary. I can design a vehicle (aeroplane) that includes functioning wheels, axles and axle holders. I can make a moving vehicle with working wheels and axles.	**Concept:** Cooking and nutrition – preparing food **Enquiry Question:** Can you design, make and evaluate a vegetable salad? I can talk, draw, write lists, and generate a design criteria for a salad. I can use different tools and practise using different food-processing skills, e.g. cutting, slicing, grating. I can discuss and comparing different effects, e.g. make juice. I can try the different effects out and evaluate. I can negotiate, develop and	**Concept:** Structures – freestanding **Enquiry Question:** Can you design, make and evaluate a canal bridge? I can choose an appropriate bridge to go over the canals. I can generate ideas through talking and drawing based on own experiences. I can develop ideas using construction kits to create mock-ups. I can explore and evaluate joining techniques. I can select from a range of tools, techniques and materials, to create a bridge then explain my choices.

	I can explain what must be changed if there are any operational issues. https://www.bbc.co.uk/teach/class-clips-video/design-and-technology-ks2-axles/zmhfvk7 https://www.designtechnology.org.uk/shop-products/lets-look-at-vehicles/ https://www.designtechnology.org.uk/resource-shop/primary/9-to-11-years/wheels-working-with-wheels-and-axles/	agree a plan of action, evaluating actions. I can discuss, try out and modifying the design. I can evaluate the product with the intended user and against the design criteria. https://www.bbc.co.uk/teach/class-clips-video/design-and-technology-ks2--ks3-salad/znwc8xs www.foodafactoflife.org.uk Are you Teaching Food in Primary D&T - D&T Association (designtechnology.org.uk)	I can evaluate my bridge against a design criteria. Geography KS1: Travelling on a canal boat - BBC Teach collections.canalrivertrust.org.uk/results
Opportunities for deepening learning ... *Know more and remember more.*	In History the children are learning about The Wright Brothers and other female aviators. In Art, the children are learning about sculpture, drawing and collage. They will be making birds. In Geography the children are learning simple compass directions (North, South, East and West) and locational and directional language	In Science the children are learning about different habitats and how they provide the basic needs of animals and plants. They will also describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. Touching on farming within the surrounding areas.	In History the children are learning about Thomas Telford, canals in the UK and abroad. In Geography- A study of part of the United Kingdom, and of a small area in a contrasting non-European country. Canals. Visits to canal and bridges in Wrenbury.

	to describe the location of features and routes on a map.		In Science the children are learning about everyday materials. In mathematics the children will have learnt about appropriate standard and non-standard measures. To recognise and name common 2-D and 3-D shapes.
Opportunities for oracy and reading...	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on The Wright Brothers. Discussion on the enquiry question before and after.	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on healthy eating, fruit and vegetables. Discussion on the enquiry question before and after.	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on Thomas Telford, bridges and structures. Discussion on the enquiry question before and after.
Key Figure / Artist	The Wright Brothers – inventing, building and flying the first motor operated airplane.		Thomas Telford – engineer of road and canal projects as well as harbours and tunnels.
Vocabulary	vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used design, make, evaluate, purpose, user, criteria, functional	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria	cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point,straight,curved metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, design criteria, product, function
Quick Quiz	How do you think the wheels move?	What should we do before we work with food? Why is following instructions important?	Why was your choice of bridge effective?

	How do you think the wheels are fixed on? Why do you think the product has this number of wheels? Why do you think the wheels are round?	Can you name some of the skills used to prepare the food? Why is it good to eat fruit and vegetables? How many pieces of fruit/vegetables do you eat per day?	Can you explain your ideas to me? Can you show me how you improved them? What was the best/ worst joining technique? Why? Which tools did you use? Why did you use them? How effective was your bridge, how do you know?
Discussion question/point:	Which is the most effective wheel for your aeroplane? Can you explain why you think this?	Which is the most effective food processing skill? Can you explain why you think this?	Which is the most effective structure for a canal bridge? Can you explain why?

Design and Technology			
Base 3 – Year 3			
Whole School Theme	**Around the World**	**Wild Isles**	**Peering into the Past**
What does this mean to me? Why does this matter?			
Unit of Work	<u>Mechanical systems</u> Levers and linkages.	<u>Textiles</u> 2D shape to 3D product.	<u>Food</u> Healthy and varied diet (including cooking and nutrition requirements for KS2).
National Curriculum	Design: Generate, develop, model and communicate their ideas through discussion, annotated sketches Make:	Design: Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.	Design: • Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma

	Select from and use a wider range of tools and equipment to perform practical tasks accurately Evaluate: Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work Technical knowledge: Understand and use mechanical systems in their products [for example levers and linkages]	Produce annotated sketches, prototypes, final product sketches and pattern pieces. Make: Plan the main stages of making. • Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. • Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. Evaluate: Investigate a range of 3-D textile products relevant to the project. • Test their product against the original design criteria and with the intended user. • Take into account others' views. • Understand how a key event/individual has influenced the development of the chosen product and/or fabric. Technical knowledge: • Know how to strengthen, stiffen and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project	for an appealing product for a particular user and purpose. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. Make: • Plan the main stages of a recipe, listing ingredients, utensils and equipment. • Select and use appropriate utensils and equipment to prepare and combine ingredients. • Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics. Evaluate: • Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. Technical knowledge: • Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately

Prior Learning	In 22/23 in DT as Y2 the children created a moving 'whale' using the levers and sliders. In 21/22 in Geography as Y1 the children worked on using maps, atlases, globes and google earth to locate the United Kingdom and Jamaica, compared the islands, the human geography of Jamaica/United Kingdom.	In 22/23 in DT as Y2 the children created puppets, developing their sewing skills.	In 21/22 in DT as Y1 the children prepared a fruit salad developing the different skills required. In 21/22 as Y1 and as part of Health and Wellbeing Week the children learnt about healthy eating and the eat well plate. In 22/23 as Y2 in Science the children learnt about plants.
Why this, why now?	In Geography the children will be learning about rivers and their focus will be the river Nile- giving the children a secure understanding of how the Nile supports civilisation. They will also describe and understand key aspects of physical geography, including the water cycle.	In History the children will be learning about Stone Age to Iron Age. In Art in the autumn term the children looked at the mixed media. This included Cloth, Paint, Thread. Using the River Nile as a stimulus.	In Mathematics, in the Spring term, the children will have covered mass - kg/g. This term during Health and Wellbeing Week healthy eating and fitness will be covered.
Core Learning	**Concept: Mechanisms** **Enquiry Question:** *To design and build a working shaduf.* I know what a shaduf is and how it works. I can discuss ideas, draw annotated sketches, and generate a design criteria. I can model a possible lever and linkage mechanisms. I can discuss and evaluate mock-ups and prototypes against a design criteria.	**Concept: Textiles** **Enquiry Question:** *To design and make clothes for the stone age/iron age population.* I can discuss ideas; create a list of likes and dislikes of the user. I can generate a design criteria Investigate a range of templates/patterns and choose the most appropriate one for purpose. I can create initial design ideas.	**Concept: Food** **Enquiry Question:** *To design, make and evaluate a bread-based product with a filling for lunch. (Link to Science/Health & Wellbeing week).* I can discuss and communicate ideas, research existing products, draw annotated sketches and generate a design criteria. I can refer to the sensory evaluations carried out in Investigating and Evaluating Activities.

	I can discuss, explore and trial media and materials. I can build, test, and modify a shaduf. I can evaluate the shaduf against the design criteria. https://www.twinkl.co.uk/resource/how-to-make-a-shaduf-craft-instructions-t2-h-5794 http://chaseviewprimary.co.uk/wp-content/uploads/2020/05/Year-3-Shaduf-KO.pdf https://letsgolivescience.com/activity/diy-shaduf/ https://www.bbc.co.uk/teach/class-clips-video/history-ks2-the-river-nile/zkvmjsg http://teach.files.bbci.co.uk/teach/history/ancient_egypt/shaduf_diagram.jpg https://www.allansonstreetprimary.co.uk/wp-content/uploads/2020/04/DT-Shaduf-PowerPoint.pdf	I can discuss and explore different fabrics suitable for purpose and test fabrics for strength/waterproofness. I can discuss and test out different joining techniques on mock ups. I can evaluate these against the design criteria and test out a range of decorative techniques and decide on the one/s which are appropriate. I can create the holder following the design. I can make suitable adjustments during the making process and develop the plan during the making. I can test out the product and make an evaluation with the user against the initial design criteria and design ideas. https://www.twinkl.co.uk/resource/t2-h-5705-design-a-stone-age-outfit-activity	I can discuss ideas and how the type of food product and way it is eaten will affect the design. I can peel, chop, slice, grate and spread. I can use tools such as round ended knives, vegetable peelers, apple corers, strawberry hullers and graters. I can list the equipment required. I can plan the order of the activity and timescale. I can Act on ongoing evaluation to make appropriate changes. I can evaluate the food product against the design criteria including the user and purpose. I can record the final product through an annotated sketch. https://www.foodafactoflife.org.uk/ https://www.nhs.uk/live-well/eat-well/how-to-eat-a-balanced-diet/eight-tips-for-healthy-eating/ https://www.warburtons.co.uk/our-company/sustainability/teaching-resources/bread-making-project/ https://www.bbcgoodfood.com/howto/guide/sandwich-fillings-kids
Opportunities for deepening learning ...	History: Understanding the achievements of the Ancient Egyptians. DT: Select from and use a wide range of materials and components, including construction	Science – revisit everyday materials and properties.	Science – using and developing skills of observing and questioning. Humans get nutrition from what they eat. In Science revisit - carnivores, herbivores and omnivores.

Know more and remember more.	materials according to their functional properties. Science: Find the balancing point of a lever and understand the basic principles of using a lever.		Geography- Use fieldwork to observe, measure, record and present the human and physical features in the local area. (Link to farming in the local area, previously done in Y1).
Opportunities for oracy and reading...	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on Ancient Egypt, Mechanisms, Levers and Linkages, water transportation. Discussion on the enquiry question before and after.	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on Discussion on the enquiry question before and after.	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on Discussion on the enquiry question before and after.
Vocabulary	mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, process, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated sketch, sensory evaluations
Quick Quiz	Which lever and linkage mechanism is the best/worst? Why? Have you used a fixed or loose pivot on your shaduf?	Which joining technique makes the strongest seam? Why? Which stitch is appropriate for the purpose? Which joining techniques are suitable for the fabric and purpose?	Which food groups do the ingredients belong to? Where and when are the ingredients grown? How and why are they processed?

	Was this the same or different compared to your design? Was your shaduf successful?	What is the purpose of the fastenings? Which one is most suited to the purpose and user?	What should we do before we work with food? Why is following instructions important?
Discussion question/ point:	In what ways were shaduf's effective? In what was weren't they effective?	Would you like to wear the clothing from the stone age/iron age? Discuss.	Has the snack met the needs of the user and achieved its purpose?

Design and Technology			
Base 4 – Year 4/5			
Whole School Theme	**Around the World**	**Wild Isles**	**Peering into the Past**
What does this mean to me? Why does this matter?			
Unit of Work	Textiles - Combining different fabric shapes	Mechanical structures – CAMS	Structures – Shell structures using Computer Aided Design (CAD)
National Curriculum	<u>Design:</u> • Generate innovative ideas by carrying out research including surveys, interviews and questionnaires. • Develop, model and communicate ideas through talking, drawing, templates, mock ups and prototypes and, where appropriate, computer-aided design. • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. <u>Make:</u> • Produce detailed lists of equipment and	Design: Use research and develop a design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. Make: Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately	Design: Generate, develop, model and communicate their ideas through discussion, and computer-aided design Technical knowledge: Apply their understanding of computing to program, monitor and control their products

	fabrics relevant to their tasks. • Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. <u>Evaluate:</u> • Investigate and analyse textile products linked to their final product. • Compare the final product to the original design specification. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work. <u>Technical knowledge and understanding:</u> • A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. • Fabrics can be strengthened, stiffened and reinforced where appropriate.		
Prior Learning	In 21/22 Y4 as Y2 (B3) Textiles- explain why we have chosen specific textiles/ explain what went well and what didn't. In 21/22 Y5 as Y3 (B3) Textiles – Design and making bags for learning journey books.	Y3/4 in 2022/23 Mechanical systems – levers and linkages where they created catapults. As Y2/3 in B3 in 2021/22 for DT the children looked at mechanical systems with a focus on pneumatics creating a volcano.	In 2021/22 Y4 as Y2 (B2) - completed structures of castles using different joining techniques. In 2022 (Spring term) as Y3/4 the children created structures, boxes.

Why this, why now?	In History the children will be studying Benin and will look at the cotton trade. In Science the children will be studying properties and changes of materials.	In History the children are studying railways with a link to the village railway and surroundings in Geography. This will make learning more purposeful, deepening and supporting the mechanical structures focus. Previously the children have learnt about everyday materials which will help the children when they select tools and materials to create their product. Previously the DT topics have heavily been Food Technology and Textiles topics, we now want to introduce a new focus.	In science the children studied the properties and materials topic. This will support the DT unit of structures by determining what the best material for a structure will be. In science the children are covering space. This term will build on the children's DT learning from the spring term where they designed and made a product using cams. They can build on this by now using computer design. In computing in the autumn term of this year, the children learnt about stop frame animation which will support them in this unit where they will also be using computing to design.
Core Learning	**Concept:** Textiles **Enquiry Question:** To design, make and evaluate a belt to hold crafting tools. I can research, investigate, disassemble and evaluating existing products and consulting 'real life' designers. I can investigate and practise using a range of methods to join fabrics together and making judgments about the strength and appropriateness of each technique. I can practise finishing techniques. I can create a 2-D paper pattern with a seam allowance.	**Concept:** CAMS **Enquiry Question:** In what ways can CAMS improve products? To design, make and evaluate a moving toy for children. (Link to railways/trains). I can discuss ideas and draw annotated sketches. I can generate a simple design specification. I can discuss, model and evaluate different systems using mechanical components.	**Concept:** Structures **Enquiry Question:** To design, make and evaluate a moon buggy using CAD. I can research ideas and generate a design criteria using CAD. I can investigate and evaluate possible tools and materials. I can discuss, construct and compare different nets. I can explore strengthening techniques.

	I can develop ideas through research, working drawings, computer-aided design, discussion, paper mock-ups and modelling. I can think about the user and purpose and developing specifications for products. I can formulate a clear plan of work and allocate tasks if appropriate. I can constantly self-evaluate and make changes if the product is not fulfilling the specification. I can test final products with the intended user and making an evaluation of how successful they are.	I can investigate and trial possible materials and components. I can discuss, explore and evaluate prototypes. I can discuss, test and modify the design. I can evaluate the product with the intended user group and against the original design specification.	I can evaluate prototypes against a success criteria. I can explore, trial and evaluate graphic effects. I can evaluate the product with the intended user and against the success criteria.
Opportunities for deepening learning ... *Know more and remember more.*	In History the children are learning about the ways Benin was important. Science – properties and changes of materials. Geography- natural resources and trade. Looking at the cotton trade in Benin today.	In History the children are learning about the railways.	In Science the children will be looking at Space with a focus on shadows, light, Earth, Sun and Moon.
Opportunities for oracy and reading...	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on materials (textiles), sewing, Benin. Discussion on the enquiry question before and after.	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on Cams, mechanisms. Discussion on the enquiry question before and after.	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on CAD, structures. Discussion on the enquiry question before and after.

Vocabulary	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype	cam, snail cam, off-centre cam, peg cam, pear shaped cam follower, axle, shaft, crank, handle, housing, framework rotation, rotary motion, oscillating motion, reciprocating motion annotated sketches, exploded diagrams mechanical system, input movement, process, output movement design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief	hell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype
Quick Quiz	Is the product functional or decorative? What is its purpose? What design decisions have been made? Do the textiles used match the intended purpose?	In what ways is your design effective? Can you draw a system using mechanical components? Which materials and mechanical components work the best? Do you need to make amendments to the prototypes? Does your product meet your design specification?	Can you discuss what you would like your shell structure to be like? How did you find using the computer to design your shell structure? In what ways was your net suitable? If it was not, why not? What strengthening technique was the best? Which was the worst? Why did you choose the graphic?
Discussion question/point:	If you were to make the belt again, would you use the same material or different? Why? Discuss?	CAMS do not improve products. Discuss.	Does CAD packaging make a difference?

Design and Technology			
Base 5 – Year 5/6			
Whole School Theme	**Around the World**	**Wild Isles**	**Peering into the Past**
What does this mean to me? Why does this matter?			
Unit of Work	<u>Electrical Systems</u> Monitoring and control – crumble.	<u>Food</u> Celebrating culture and seasonality.	<u>Mechanical Systems</u> Pulleys and gears.

National Curriculum	Design: • Develop a design specification for a functional product that responds automatically to changes in the environment. • Generate, develop and communicate ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams. Make: • Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. • Create and modify a computer control program to enable their electrical product to respond to changes in the environment. Evaluate: • Continually evaluate and modify the working features of the product to match the initial design specification. • Test the system to demonstrate its effectiveness for the intended user and purpose. Technical knowledge and understanding: • Understand and use electrical systems in their products. • Understand the use of computer control systems in products. • Apply their understanding of computing to program, monitor and control their products. • Know and use technical vocabulary relevant to the project	Design: • Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas. Make: • Write a step-by-step recipe, including a list of ingredients, equipment and utensils • Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. • Make, decorate and present the food product appropriately for the intended user and purpose. Evaluate: • Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/ charts such as star diagrams. • Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements. • Understand how key chefs have influenced eating habits to promote varied and healthy diets. Technical knowledge and understanding: • Know how to use utensils and equipment including heat sources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food	Design: • Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. Make: • Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost. Evaluate: • Compare the final product to the original design specification. • Consider the views of others to improve their work. • Investigate famous manufacturing and engineering companies relevant to the project. Technical knowledge and understanding: • Understand that mechanical and electrical systems have an input, process and an output. • Understand how gears and pulleys can be used to speed up, slow down or change the direction of

		products. • Know and use relevant technical and sensory vocabulary	movement. • Know and use technical vocabulary relevant to the project.
Prior Learning	In 2021/22 as Y4 the children completed the unit on electrical systems – simple circuits and switches. In 2022/23 in Computing, the children learnt how to use a computer programme to animate. In 2022/23 in Base B4, Year 4/5 (Autumn term) learnt about mechanical structures- CAMs. In 2022/23 in Base B4, Year 4/5 (spring term) learnt how to create structures using computer aided design. Initial experience of using computer control software and an interface box, a standalone box or microcontroller, e.g. Crumble. • Some experience of writing and modifying a program to make a light turn on or flash on and off. • Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product	In in 2021/22 as Y3 the children made butter and cheese –Taste testing different cheeses and flavours for butter. Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet. • Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients.	Experience of axles, axle holders and wheels that are fixed or free moving. • Basic understanding of electrical circuits, simple switches and components. • Experience of cutting and joining techniques with a range of materials including card, plastic and wood. • An understanding of how to strengthen and stiffen structures
Why this, why now?	In science the children are focussing on light, this will support and deepen their knowledge in DT as they will also be creating electrical systems through DT. Their previous learning in science on electrical systems will support them in DT as	In History the children are having a joint focus of the Ancient Roman and Greeks. Previous Science learning on properties and changes of materials.	In the spring term for Science the children will have covered the electricity unit which will support and deepen their knowledge and understanding. In History the children are studying the Indus Valley in which they will be looking at excavation sites.

	they have a base knowledge of electrical circuits.		In Geography the children will be looking at ordinary survey maps.
Core Learning	**Concept: Electrical Systems** **Enquiry Question:** *To make a constellation that twinkles.* I can develop innovative ideas through discussion and annotated sketches, generating a design specification. I can discuss ideas, modelling possible electrical circuits. I can record design ideas pictorially or using circuit diagrams. I can develop a step-by-step plan. I can write and test programs and connecting to a microcontroller. I can evaluate the alarm against the original design specification. https://www.designtechnology.org.uk/shop-products/designing-and-making-alarm-circuits-using-inputs-with-computer-control/	**Concept: Food** **Enquiry Question:** *To make and evaluate pitta bread and tzatziki.* I can discuss ideas, researching existing products, drawing annotated sketches, generating a simple design specification. I can discuss ideas and how the type of snack and way it is eaten will affect the design. I can list the ingredients and equipment required. I can plan the order of the activity and timescale. I can prepare, cook and finish and make changes throughout as appropriate. I can evaluate the snack against the original design specification. https://www.twinkl.co.uk/resource/tzatziki-dip-recipe-au-d-29	**Concept: Mechanisms** **Enquiry Question:** *To design and create a tool/machinery that uses pulleys and gears to excavate a historical site.* I can discuss ideas, draw annotated sketches or exploded diagrams. I can generate a simple design specification. I can discuss, model and evaluate different systems using mechanical and electrical components. I can investigate and trial possible materials and components. I can discuss, explore and evaluate prototypes. I can negotiate, develop and agree a step-by-step-plan. I can discuss, test and modify the design. I can evaluate the product with the intended user group and against the original design specification.
Opportunities for deepening learning ... *Know more and remember more.*	In Science the children are learning about Light.	Mathematics – measurement of mass kg/g; understand and use approximate equivalence of metric and imperial units. Science – recognise the impact of diet on the way body's function (previous health and wellbeing week work).	Oracy – to ask relevant questions and give detailed descriptions using relevant vocabulary. Computing – use search technologies for research purposes and be discerning when evaluating digital content. Art – use and apply drawing skills. Mathematics – understand ratios. Apply

			understanding and skill to carry out accurate measuring using standard units i.e. cm/mm.
Opportunities for oracy and reading...	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on electricity, electric circuits. Discussion on the enquiry question before and after.	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on food, seasons, Ancient Romans/Greeks. Discussion on the enquiry question before and after.	The class story will lead this unit. First lesson – revisit and review questions/discussion/sentence starters Texts ordered from ELS inc texts on mechanisms, pulleys and gears. Discussion on the enquiry question before and after.
Key Figure / Artist	Thomas Edison – Light bulb		JCB
Vocabulary	reed switch, toggle switch, push-tomake switch, pushto-break switch, light dependent resistor (LDR), tilt switch light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit function, innovative, design specification, design brief, user, purpose	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble design specification, innovative, research, evaluate, design brief	pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor circuit, switch, circuit diagram annotated drawings, exploded diagrams mechanical system, electrical system, input, process, output design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief
Quick Quiz	Why is a computer control program used to operate the products? What are the advantages of using computer control? What input devices, e.g. switches, and output devices, e.g. bulbs and buzzers, have been used?	What ingredients are sourced locally/in the UK/from overseas? What are the key ingredients needed to make a pitta bread?	What electrical and mechanical components shall I use? What is a pulley? What is a gear?

Discussion question/point:	Did the alarm activate at the correct time? If not, what could you do to make sure it does?	Is the shape of the pitta bread the most appealing? Discuss.	Do pulleys move in the same direction? Discuss.