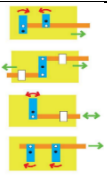


Design and Technology Overview

 				
	Lower Key Stage 2		Upper Key Stage 2	
	Year A	Year B	Year A	Year B
Autumn	Mechanisms Famous Inventions: Children to discover which inventions have had the biggest influence on our lives. Link to Stone Age tools, wheel, hunting tools.	Cooking and Nutrition Roaming all over the world: Children to learn about adapting recipes for a target audience.	Structures Only the brave: Children to investigate the evolution of shelters and how and why Anderson shelters were created.	Textiles Mayans: Children to explore the significance of textiles within Mayan culture and as a way of reflecting societal status and religious beliefs. Children could explore how Mayan style has influenced modern fashion.
Outcome	Year 3: Make a wheel project.  Year 4: Make a slingshot vehicle 	Year 3: Simple biscuit recipe with flavour adaptation.  Year 4: Making an adaptation for a dietary requirement.	 Children to create their own Anderson shelters.	Children to create their own Mayan inspired bag/shopping tote. 
Forest School	Year 4 Engineers- Children to build a device to transport materials over distance with ease.	Year 3 Seed to Fork – Children to plant potatoes, herbs and learn about the origins of their food.	Year 5 Dig for Victory –Children to plant, grow and harvest their own ingredients to create a war time meal.	Year 5 Feed the community: Children to plant, grow and harvest their own ingredients to create food for the community.
Spring	Cooking and Nutrition Going to extremes: Children to learn how food is grown around the world and why. To create their own seasonal savoury dish to be sold in their pop-up farm shop.	Structures Our wonderful world Children to look at different bridges from around the world. What makes them unique? What does the architect need to consider in its construction?	Mechanisms Back to the future: Ancient Greece Children to study early mechanisms for moving objects – levers, pulleys, pivot to create an interactive museum display about the topic incorporating the use of levers.	Electrical Systems Intrepid Explorers: Children to investigate early light devices and how their design has evolved over time and why.
Outcome	Year 3 https://www.stem.org.uk/resources/collection/464905/year-3 Year 4 https://www.stem.org.uk/resources/collection/464911/year-4		 Year 5 -Pop up book  Year 6 – Interactive information display using a variety of levers	 Children to create their own torch using a simple circuit system.
Forest School	Year 3- Children to plant, grow and harvest seasonal foods.	Year 4 Naturally sourced structures.	LKS2	LKS2

Summer	Textiles Survival of the fittest: Children to learn how sewing has been used from early humans (homo sapiens) to clothes and bags adapted to different environments. Children to make their own pouch which could be used for storage.	Electrical Systems Past, present and future Children to learn about information design and the importance of signage, posters and written communication. To create an interactive museum poster using a simple circuit: battery, wires and a bulb	Cooking and Nutrition Come dine with me: Children to create their own pop up dinner party to invite parents/guardians. To develop their own three course meal with complimentary flavours.	Mechanisms -Cams file:///C:/Users/cbennett/Desktop/Y5-6-Project-on-a-Page-Mechanical-Cams.pdf Create their own moving parts display for a brief e.g. Shop display (linked to food festival)
Outcome	 A simple pouch with a fastener for a selected purpose e.g. pencil case, coin purse, book cover.			 
Forest School	UKS2	UKS2	Year 6 – Cooking outside- Children to learn the fire lighting and fire safety alongside cooking a nutritious	Year 6 Transport- Children to create their own one-man vehicle that can be steered.

Prior and Subsequent Coverage		
	Prior Knowledge KS1	Subsequent Knowledge KS3
Substantive Knowledge	- explore and evaluate a range of existing products - evaluate their ideas and products against design criteria	- use research and exploration, such as the study of different cultures, to identify and understand user needs. - identify and solve their own design problems and understand how to reformulate problems given to them. - understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists. - analyse the work of past and present professionals and others to develop and broaden their understanding. - investigate new and emerging technologies. - test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups.
Disciplinary Knowledge	- design purposeful, functional, appealing products for themselves and other users based on design criteria - select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] - select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - build structures, exploring how they can be made stronger, stiffer and more stable. - explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. - generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	- select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture. - select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties. - develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations. - use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses. - develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools.

Sequence of teaching in DT:



Define: Children are posed a problem

Ideate: Children research existing products, discuss their own personal experiences and offer suggestions for design.

Design: Children to create cross sectional, exploded and annotate designs.

Test, evaluate and refine: Children to test their product for suitability against the design criteria and evaluate.

Produce: Children to act upon their feedback and produce their refined finished project.

DT- Sequence of Learning Year A

DT- Sequence of Learning Year A			
		Year 3 and 4	Year 5 and 6
Substantive Knowledge	Design Make Evaluate	- Generate ideas based on their experiences and through discussion. - Understand how key events and individuals in DT have shaped the world of design. - Consider the purpose of the product or its users. - Design and annotate sketches of initial product idea. - Through market research create a success criteria. - Create prototypes to discover suitable materials. - Evaluate product against original success criteria.	- Research existing products for purpose, ensuring the product is fit for purpose. - Design and annotate sketches and prototypes to discover suitable materials and process. - Identify drawbacks within the process and adapt. - Peer assess –identifying strengths and weaknesses. Advise on improvements. - Ask questions about their product evaluating its' success and failures. - Evaluate against the original design criteria considering the view point of others when making improvements to their own work. - Communicate ideas using Computer-Aided-Design (CAD) - Through market research create a success criteria.
Disciplinary Knowledge	Structures	See Year B	- Join materials and components in different ways and sway which is best and why. - Measure and mark out materials to create models/structures accurately. - Build structures, exploring how they can be made stiffer and stronger and compare these to each other. - Select and use tools to perform practical tasks (cutting, shaping, joining, finishing). - Create shell or frame structures, strengthen frames with diagonal struts.
	Mechanisms	- Select appropriate tools considering suitability for the task. - Measure and mark square selection, strip and dowel accordingly - Cut materials carefully with an awareness of personal safety.	- Assemble, join and combine materials and components together to create a product. - Use simple levers and sliders - Use a cam to make an up and down mechanism. - Use increasing accuracy to measure, cut, mark out and assemble materials. - Draw an exploded diagram. - Make precise measurements so that joins, holes and openings are exactly in place.

		- Explore and use mechanisms (levers, sliders, wheels, axels) - Knowing the working characteristics of materials affect the way they are used. - Assemble, join and combine materials and components together to create a product.	- Select the appropriate equipment for the task thinking about the properties of the equipment and suitability of a product. - Understand where levers and linkages are used in commercial products.
	Electrical systems	See Year B	See Year B
	Textiles	- Choose a material for a purpose. - Applique using a simple running stitch. - Explore fastenings and recreate some. - Understand seam allowance. - Disassemble a 3D product to see the 2D shapes needed to create it. - Measure, cut and mark out using standard measures. - Reinforce existing fabrics and join 2 pieces together.	See Art LTP
	Cooking & Nutrition	- know, explain and give examples of food that is grown (such as pears, wheat and potatoes), reared (such as poultry and cattle) and caught (such as fish) in the UK, Europe and the wider world; - use the basic principles of a healthy and varied diet to prepare dishes; - understand about seasonality, how this may affect the food availability and plan recipes according to seasonality; - know how to chop using the claw, bridge grip. - Measure ingredients using simple measures.	- measure accurately and calculate ratios of ingredients to scale up or down from a recipe; - explain that foods contain different substances (and can be grouped), such as protein, that are needed for health and be able to apply these principles when planning and preparing dishes; - Select and prepare food for a particular purpose. - independently follow a recipe. - Evaluate and alter methods, cooking times and/or temperatures; - know advanced methods for mixing ingredients such as rubbing in. - select appropriate utensils for the task - measure and weigh ingredients with increasing accuracy. - Use a variety of cutting techniques -slice, chop, basic, dice, baton cut, quarter slice. - Demonstrate a knowledge of how to use a range of cooking techniques, such as griddling, grilling, frying and boiling;

		Year 3 and 4	Year 5 and 6
Substantive Knowledge		- Generate ideas based on their experiences and through discussion. - Understand how key events and individuals in DT have shaped the world of design. - Consider the purpose of the product or its users. - Design and annotate sketches of initial product idea. - Through market research create a success criteria. - Create prototypes to discover suitable materials. Evaluate product against original success criteria.	- Research existing products for purpose, ensuring the product is fit for purpose. - Design and annotate sketches and prototypes to discover suitable materials and process. - Identify drawbacks within the process and adapt. - Peer assess –identifying strengths and weaknesses. Advise on improvements. - Ask questions about their product evaluating its' success and failures. - Evaluate against the original design criteria considering the view point of others when making improvements to their own work. - Communicate ideas using Computer-Aided-Design (CAD) - Through market research create a success criteria.
Disciplinary Knowledge	Structures	- Construct a 3D shape from a net. - Create shell or frame structures, strengthen frames with diagonal struts. - Investigate how 3D shapes can be strengthened - Use increasingly accurate measurements to cut, mark and score. - Select the appropriate tools and techniques to create a product. - Mark out and measure accurately – understand the need for scale. - Build frameworks using a range of materials e.g. wood, card, corrugated plastic to support mechanism. - Cut materials carefully with an awareness of personal safety.	See Year A
	Mechanisms	See Year B	- Use a cam to make an up and down mechanism. - Use pulleys/gears to speed up, slow down or change direction of a movement. - Assemble, join and combine materials and components together to create a product. - Build frameworks using a range of materials e.g. wood, card, corrugated plastic to support mechanism. - Reflect and make modifications during the process.
	Electrical systems	- create simple circuits - understand how to create a circuit and switch. - Find a fault in a circuit and correct it. - Know how to make simple secure connections e.g. twisting wires together, wrapping ends, taping over, connecting block)	- Know how to incorporate self-made switches into a circuit. - Text components in parallel series circuits. - Assess faults in an electrical system and explain why this has happened. - Text components in series circuits. - Know why materials make good conductors/insulators.

	Textiles	See Art LTP	• Introduce –cross stitch and back stitch. • Compare fabrics based on their properties. • Advance stitches: Basting, Overcast and hemming. • Create 3D products using pattern pieces and seam allowance. • Develop embellishments – applique, sequins etc. • Understand pattern layout. • Reflect and refine textile for aesthetics appeal and durability.
	Cooking & Nutrition	• demonstrate how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source; • understand that food is processed into ingredients that can be eaten or used in cooking; • Use a variety of cutting techniques -slice, chop, basic, dice. • Combine foods using different ingredients. • adapt and refine recipes by adding or substituting one or more ingredients to change the appearance, taste, texture and aroma;	See Year A