DT Year A Learning Overview

EYFS	*We want our children to be able to communicate their ideas and feelings through art and design*
Nursery	Key Learning points: ● Create open ended products to support imaginative play ● Make objects using recycled materials. ● Use tools safely and effectively such as scissors and hole punches. ● Learn ow to fix and join materials together. ● Explore how to make things move, stand up, float and change shape. ● Explore cooking a variety of foods.
	Key Vocabulary: Curve, straight, roll, cut, join, flat, solid, twist, bend, decorate, thread, fix, tear.
Reception	Key Learning points: ● Create open ended products to support imaginative play ● Design and make using recyclable materials ● Use tools safely and effectively such as scissors, hole punches and hammers ● Develop problem solving skills through use of construction toys and classroom resources ● Learn how to fix and join materials such as card, fabric, foil and wood ● Understand and explore how to make things move, stand up, float and change shape. ● Explore cooking a variety of foods
	Key Vocabulary:Curve, straight,Roll, coil, cut, join, flat, 3D, twist, bend, decorate, weave, sew, thread, fix, tear,

KS1	**Mechanisms - Moving Character (Jumping Jack style) - Create a moving puppet of historical person** Link with 'The Lives of Significant Individuals'	
	Prior Vocabulary: Curve, straight,Roll, coil, cut, join, flat, 3D, twist, bend, decorate, weave, sew, thread, fix, tear, **Key vocabulary:** Assemble, design, evaluation, mechanism, model , sliders, stencil , template, test	
	Enquiry questions (sequenced): ● What are levers, linkages and pivot? **[Investigation]** ● Where would I see levers, linkages and pivot? **[Research]** ● What materials are best for making levers, linkages and pivot? **[Trialling and testing]** ● How can I make sure my character moves smoothly? **[Evaluating]**	
	By the end of this unit, pupils will know (substantive knowledge) Identify examples and the uses of levers, linkages and pivots. That split pins can be used to make simple levers, linkages and pivots.	**By the end of this unit, pupils will be able to (procedural and disciplinary knowledge)** Design purposeful, functional, appealing products for themselves and other users based on design criteria Select from and use a wide range of materials and components, including construction materials and textiles according to their characteristics Evaluate their ideas and products against design criteria

KS1	**Structures - Constructing a Windmill - Design and make a moving model of a windmill, deciding on the best materials for each purpose** Link with 'Materials'	
	Prior Vocabulary: Curve, straight,Roll, coil, cut, join, flat, 3D, twist, bend, decorate, weave, sew, thread, fix, tear, **Key vocabulary:** Design, evaluation, net, stable, strong, test, weak, windmill, structure, sail, blade	
	Enquiry questions (sequenced): ● What is a structure? **[Research]** ● Where would I see sails/blades on a structure? **[Research]** ● What materials are best for making sails/blades? **[Trialling and testing]** ● How can I make sure my sails/blades moves smoothly? **[Evaluating]**	

	By the end of this unit, pupils will know (substantive knowledge) That a structure needs to be stable. That functioning sails/blades turn around a central point That functioning sails/blades attach to the supporting structure.	**By the end of this unit, pupils will be able to (procedural and disciplinary knowledge)** Design, generate, develop, model and communicate their ideas through talking, drawing and templates Select from and use a wide range of materials and textiles according to their characteristics Evaluate their ideas and products against design criteria Build structures, exploring how they can be made stronger, stiffer and more stable
LKS2	**Electrical Systems - Torches - Evaluate variety of torches and design own torch** Link with 'Electricity'	
	Prior Vocabulary: Assemble, design, evaluation, mechanism, model **Key vocabulary:** battery, bulb, buzzer, cell, component, conductor, copper, design criteria, electrical item, electronic item, electricity, function, insulator, switch, test, torch, wire	
	Enquiry questions (sequenced): ● What makes a product electrical? **[Investigation]** ● How do different torches work? **[Research]** ● What materials will help my torch shine brighter? **[Trialling and testing]**	

	● What materials can I use to join my components? **[Trialling and testing]**	
	<u>By the end of this unit, pupils will know (substantive knowledge)</u> What electrical products are and why they are useful. To know what a switch is and how it works. Identify the features of a torch and how it works. The features that make a torch successful.	**<u>By the end of this unit, pupils will be able to (procedural and disciplinary knowledge)</u>** Design, generate, develop, model and communicate their ideas through discussion and annotated sketches Select from and use a wider range of materials and components, including construction material and textiles, according to their functional properties and aesthetic qualities Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] apply their understanding of computing to program, monitor and control their products.
LKS2	**Textiles - Fastenings - Evaluate how people fastened clothes before velcro and zips. Design and make purse using a fastening** Link with 'Anglo-Saxons and Vikings'	
	<u>Prior Vocabulary:</u> Decorate, design, fabric, glue, model, hand puppet, safety pin, staple, stencil, template **<u>Key vocabulary:</u>** Aesthetic assemble, design criteria, evaluation, fabric, fastening, mock-up, net, running-stitch, stencil, template	
	<u>Enquiry questions (sequenced):</u> ● What different types of fastenings are there on clothes? **[Research]**	

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- What are the advantages/disadvantages of different fastenings? **[Research]**
- What is a running stitch? **[Research]**
- What materials are best for my design? **[Trialling and testing]**

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<tr><td></td><td><u>**By the end of this unit, pupils will know (substantive knowledge)**</u>
That there are range of fastening types
That each type has benefits and disadvantages.
Templates are made before cutting material
What running stitch is</td><td><u>**By the end of this unit, pupils will be able to (procedural and disciplinary knowledge)**</u>

Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.
Select from and use a wider range of materials and components, including construction material and textiles, according to their functional properties and aesthetic qualities
Understand how key events and individuals in design and technology have helped shape the world</td></tr>
<tr><td>UKS2</td><td colspan="2">Structures - Bridges - Evaluate bridge structures, design and make a lightweight bridge that can hold a specific weight and withstand being shaken
Link with ‘Volcanoes and Earthquakes’</td></tr>
<tr><td></td><td colspan="2"><u>**Prior Vocabulary:**</u> Aesthetic, cladding, design criteria, evaluation, frame structure, function, inspiration, pavilion, reinforce, stable, structure, texture, theme

<u>**Key vocabulary:**</u> accurate, arched bridge, beam bridge, bridge, compression, coping saw, evaluation, file, forces, mark out, measure, predict, reinforce, research, right-angle, sandpaper, set square, shape, strong structure, suspension bridge, tenon saw, tension, test, truss bridge, weak</td></tr>
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	Enquiry questions (sequenced): ● What shapes are strong? **[Trialling and testing]** ● What shapes are weak? **[Trialling and testing]** ● What main types of bridges? **[Research]** ● How can I make my bridge stronger? **[Evaluating]**	
	By the end of this unit, pupils will know (substantive knowledge) To recognise that certain shapes are stronger (triangle) and others are weaker (square). That supporting shapes can help increase the strength of a bridge, allowing it to hold more weight. Identify beam, arch and truss bridges and describe their differences.	**By the end of this unit, pupils will be able to (procedural and disciplinary knowledge)** Design, generate, develop, model and communicate their ideas through discussion, annotated sketches and cross-sectional diagrams Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately select from and use a wider range of materials and Understand how key events and individuals in design and technology have helped shape the world Apply their understanding of how to strengthen, stiffen and reinforce more complex structures .
UKS2	**Electrical Systems - Steady hand Game - Design and make an electrical that use a complete circuit to show forfeit** Link with 'Electricity'	
	Prior Vocabulary: battery, bulb, buzzer, cell, component, conductor, copper, design criteria, electrical item, electronic item, electricity, function, insulator, switch, test, torch, wire **Key vocabulary:** assemble, battery, battery pack, bulb, bulb holder, buzzer, circuit, circuit symbol, component, conductor, copper, design, design criteria, evaluation, function, insulator, LED, magnetic field, net, perspective drawing, plan, pliers, prototype, series circuit, side view, steady hand game, switch, symmetrical, target audience, test, top view, wire cutters	

	<u>Enquiry questions (sequenced):</u> ● What are the components of a steady hand game? **[Research]** ● What toys use electricity? **[Research]** ● How will I attach the electrical component? **[Design]** ● How will I make sure that my steady hand game is stable? **[Evaluating]**	
	<u>By the end of this unit, pupils will know (substantive knowledge)</u> Identify the components of a steady hand game. That breaking the circuit is the aim of the game Completing the circuit is the end of the game	**<u>By the end of this unit, pupils will be able to (procedural and disciplinary knowledge)</u>** Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups Evaluate, investigate and analyse a range of existing products Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]