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,

<table>
<tr><td>KS1</td><td colspan="2">Mechanisms - Wheels and Axles - Make a moving Fire Engine
Link with ‘The Great Fire of London’</td></tr>
<tr><td></td><td colspan="2"><u>Prior Vocabulary:</u> Curve, straight,Roll, coil, cut, join, flat, 3D, twist, bend, decorate, weave, sew, thread, fix, tear,

<u>Key vocabulary:</u> Axle, axle holder, chassis, design, evaluation, fix, mechanic, mechanism, model, test, wheel</td></tr>
<tr><td></td><td colspan="2"><u>Enquiry questions (sequenced):</u>
● How do wheels move? [Research]
● How do I fix broken wheels? [Investigation]
● What will my vehicle look like? [Design]
● How can I improve my design? [Evaluating]</td></tr>
<tr><td></td><td><u>By the end of this unit, pupils will know (substantive knowledge)</u>
● Explain that wheels move because they are attached to an axle.
● Recognise that wheels and axles are used in everyday life, not just in cars.
● Identify and explain vehicle design flaws using the correct vocabulary.
● Design a vehicle that includes functioning wheels, axles and axle holders.
● Make a moving vehicle with working wheels and axles.
● Explain what must be changed if there are any operational issues.</td><td><u>By the end of this unit, pupils will be able to (procedural and disciplinary knowledge)</u>

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]
Evaluate their ideas and products against design criteria
Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</td></tr>
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KS1	**Textiles - Puppets - Make an animal puppet showing main features of their creature** Link with 'Animals and Plants'	
	Prior Vocabulary: Curve, straight,Roll, coil, cut, join, flat, 3D, twist, bend, decorate, weave, sew, thread, fix, tear, **Key vocabulary:** Decorate, design, fabric, glue, model, hand puppet, safety pin, staple, stencil, template	
	Enquiry questions (sequenced): ● How can I join fabrics? **[Investigation]** ● What animal am I going to make? **[Design]** ● What fabrics will I need? **[Trialling and testing]** ● How can I add detail to my puppet? **[Evaluating]**	

	By the end of this unit, pupils will know (substantive knowledge) ● That you can join fabrics together using pins, staples or glue. ● You can use templates to aid your design. ● That joining two puppets' templates together as one creates a glove puppet. ● Different materials will have different effects when decorating a puppet to match their design.	**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 Explore and evaluate a range of existing products
LKS2	**Structures - Pavilions - Make a temple based upon the buildings at Luxor** Link with 'The Egyptians'	
	Prior Vocabulary: Design, evaluation, net, stable, strong, test, weak, windmill, structure, sail, blade **Key vocabulary:** Aesthetic, cladding, design criteria, evaluation, frame structure, function, inspiration, pavilion, reinforce, stable, structure, texture, theme	
	Enquiry questions (sequenced): ● What shapes are strong? **[Research]** ● What materials are best for a stable structure? **[Trialling and testing]** ● How can I join my components together? **[Investigation]**	

	● How can I add cladding? **[Investigation]**	
	<u>By the end of this unit, pupils will know (substantive knowledge)</u> The shapes that produce strong and stable free-standing frame structures of different shapes and sizes. Recognise what are the appropriate materials and construction techniques to create a stable, free-standing frame structure. Recognise what are the appropriate materials and techniques to add cladding to their pavilion.	**<u>By the end of this unit, pupils will be able to (procedural and disciplinary knowledge)</u>** 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], Investigate and analyse a range of existing products Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
LKS2	**Mechanisms - Slingshot Car - Make a vehicle that is powered by stored energy, evaluating the most efficient method** Link with 'Forces and Magnets'	
	<u>Prior Vocabulary:</u> Axle, axle holder, chassis, design, evaluation, fix, mechanic, mechanism, model, test, wheel **<u>Key vocabulary:</u>** Aesthetic, air resistance, chassis, design, design criteria, function, graphics, kinetic energy, mechanism, net, structure	
	<u>Enquiry questions (sequenced):</u> ● What is chassis? **[Research]** ● What shapes are common to car design? **[Research]**	

	● What is air resistance? **[Research]** ● How can I reduce air resistance? **[Evaluating]**	
	By the end of this unit, pupils will know (substantive knowledge) To know what a car chassis is. Recognise common shapes in vehicular design. Recognise that you can reduce air resistance through the design of the shape.	**By the end of this unit, pupils will be able to (procedural and disciplinary knowledge)** 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 Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
UKS2	**Mechanisms - Automata Toys - Design and make a toy with turns circular motion into lateral motion** Link with 'Forces'	
	Prior Vocabulary: Aesthetic, air resistance, chassis, design, design criteria, function, graphics, kinetic energy, mechanism, net, structure **Key vocabulary:** accurate, assembly-diagram, automata, axle, bench hook, cam, clamp, component, cutting list, diagram, dowel, drill bits, exploded-diagram, finish, follower, frame, function, hand drill, jelutong, linkage, mark out, measure, mechanism, model, research, right-angle, set square, tenon saw	

	Enquiry questions (sequenced): ● What is an automata? **[Research]** ● How does circular motion become linear motion? **[Investigation]** ● Does the size of wheels affect the size of the motion? **[Trialling and testing]** ● Does the positioning of the pivoting point affect the size of the motion? **[Trialling and testing]**	
	By the end of this unit, pupils will know (substantive knowledge) That automata uses circular motion to create linear motion That automata need a frame and an axle That size of wheels affects the size of the motion The positioning of the pivoting point affects the size of the motion	**By the end of this unit, pupils will be able to (procedural and disciplinary knowledge)** Develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups Accurately 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 mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
UKS2	**Textiles - Stuffed Toys - Design and make an animal stuffed toy** Link with 'Animals and Plants'	
	Prior Vocabulary: Aesthetic assemble, design criteria, evaluation, fabric, fastening, mock-up, net, running-stitch, stencil, template **Key vocabulary:** accurate, annotate, appendage, blanket-stitch, design criteria, detail, evaluation, fabric, sew, shape, stuffed toy, stuffing, template	

	<u>Enquiry questions (sequenced):</u> ● What are the stages of construction for a stuffed toy? **[Research]** ● What is a blanket stitch? **[Investigation]** ● What is the best material for stuffing a toy? **[Trialling and testing]** ● What is applique and how can it improve my design? **[Evaluate]**	
	<u>By the end of this unit, pupils will know (substantive knowledge)</u> That blanket stitch is another way of joining fabric That appliqué or decorative stitching can be used to decorate the front of their stuffed toy.	**<u>By the end of this unit, pupils will be able to (procedural and disciplinary knowledge)</u>** 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 Accurately select from and use a wider range of materials and components, including construction material and textiles, according to their functional properties and aesthetic qualities Investigate and analyse a range of existing products