

Year 4, 5 and 6 DT Teaching Sequence

Textiles

Food

Mechanisms

Structures

Electrical systems

Year A								
<u>Projects on a Page unit</u>	<u>Design and evaluate - Knowledge</u>	<u>Substantiative knowledge</u>	<u>Disciplinary knowledge</u>	<u>Lesson 1</u> Place the DT lesson in the context of similar past DT learning Review the learning covered in previous lessons	<u>Lesson 2</u> Deliver a design brief, posing a relevant problem to be solved	<u>Lesson 3</u> Children research existing products and possible construction materials, tools and ingredients	<u>Lesson 4</u> Children create their own designs in response to the brief and their own research	<u>Lesson 5 and 6</u> Children make the product, including making and evaluating a technical aspect first or producing and refining a prototype if appropriate
Mechanisms – pulleys and gears (fairground ride for a younger child)	Generate realistic and appropriate ideas and their own design criteria through	Know that mechanical systems have an input, process and an output. (Lesson 1)	Use woodworking skills to measure and cut materials accurately (Lesson 2, 5)	To know the features of mechanisms with pulleys and gears.	To practice the techniques needed for making a pulley or gear mechanism.	To examine and evaluate existing products featuring pulleys and gears.	To design a fairground ride using pulley and gear mechanisms.	To make, evaluate and refine my fairground ride.

	<i>research and discussion, focusing on the needs of the user</i> <i>Develop a simple design specification to guide their thinking, taking account of constraints including time, resources and cost</i> <i>Investigate existing products which have the same or similar features of the product that is being designed. E.g., pulleys.</i>	<i>Know how gears and pulleys can be used to speed up, slow down or change the direction of Movement (Lesson 1)</i> <i>Know that, when attached to a motor, a smaller pulley will rotate much quicker than a larger one. (Lesson 1, 3)</i> <i>Know what a driver and follower is. (Lesson 1, 3)</i> <i>Know how to make two pulleys move in the same direction and know how to</i>	<i>Select from and use appropriate tools with some accuracy to cut and join materials and components (Lesson 2, 5)</i> <i>Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished (Lesson 5)</i> <i>Know how to construct a chassis using wooden strips (Lesson 2, 5)</i>					
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	<i>Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. Use annotated sketches and prototypes to develop, model and communicate ideas.</i>	<i>make two pulleys move in opposite directions (Lesson 1, 3)</i> <i>Know about some key inventors/designers/engineers/manufacturers of ground-breaking products (Lesson 3)</i> <i>)</i>	<i>Work within the constraints of time, resources and cost (Lesson 4)</i>					
Food – celebrating seasons and culture (making soup for members of the community)	<i>Explore and explain a range of initial ideas, and make design decisions to develop mock-ups and a final product</i>	Understand about seasonality in relation to food products and the source of different food (Lesson 1) Explain how to be safe and hygienic	Use utensils and tools accurately and safely to combine, knead, fold, whisk and shape (Lesson 2, 4) Create a step-by-step recipe,	To understand seasonality and culture of food and discuss how food storage has changed over time.	To practice the techniques needed to make soup, ensuring safely and hygiene.	To taste, evaluate and plan ingredients for my soup.	To design a soup recipe.	To make, evaluate and refine soup.

	<i>linked to user and purpose.</i> <i>Test their mock-ups using the iterative design process and make amendments to their design. Then, test their product against the original design criteria and changed design plan with regards to the intended user</i> <i>Produce detailed lists of tools, equipment and</i>	and follow own guidelines. (Lesson 2, 4) Understand how food storage has changed over the course of time (Lesson 1).	including a list of ingredients and utensils (Lesson 4) Work within the constraints of time, resources and cost (Lesson 4) Adapt recipes to change appearance, taste, texture or aroma. (Lesson 6) Prepare and cook a savoury dish safely and hygienically including, where appropriate, the use of a heat source. (Lesson 5, 6)					
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Structures – frame structures (house for wildlife garden – bird house/ hedgehog house/ bug hotel etc)	<i>materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team</i> <i>Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources that they will use to inform their design plans.</i> <i>Evaluate their own products and ideas against criteria and user needs, as they</i>	Know how to join thin sections of wood (Lesson 2) Understand triangulation (Lesson 2) Understand how to strengthen, stiffen and reinforce 3-D frameworks so it is stronger, stiffer and more stable (Lesson 2) Research key events and individuals relevant to frame structures (Lesson 1, 3)	Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join wood and other construction materials to make frameworks (Lesson 2, 5, 6)	To know what a frame structure is and how key events and individuals have influenced this.	To practice the techniques needed to build a frame structure.	To examine and evaluate existing frame structures.	To design my frame structure for wildlife.	To make, evaluate and refine my frame structure.
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	<i>design and make. 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. Consider the views of others to improve their work.</i> <i>Accurately record the evaluations using e.g., tables / graphs / charts such</i>							
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	<i>as star diagrams.</i> <i>Compare the final product to the original design specification</i>							
Year B								
<u>Projects on a Page unit</u>	<u>Design and evaluate - Knowledge</u>	<u>Substantiative knowledge</u>	<u>Disciplinary knowledge</u>	<u>Lesson 1</u> Place the DT lesson in the context of similar past DT learning Review the learning covered in previous lessons	<u>Lesson 2</u> Deliver a design brief, posing a relevant problem to be solved	<u>Lesson 3</u> Children research existing products and possible construction materials, tools and ingredients	<u>Lesson 4</u> Children create their own designs in response to the brief and their own research	<u>Lesson 5 and 6</u> Children make the product, including making and evaluating a technical aspect first or producing and refining a prototype if appropriate
Mechanisms – levers and linkages (story book for Skylark class)	<i>Generate realistic and appropriate ideas and their own design criteria through research and</i>	Understand how lever and linkage Mechanisms work. Distinguish between	Use working lever and linkage mechanisms in their products. Select and use	To know how levers and linkages can make mechanisms work, including the use of fixed and loose pivots.	To practice making lever and linkage mechanisms.	To evaluate existing products which use lever and linkage mechanisms.	To design a story book using lever and linkage mechanisms.	To make, evaluate and refine a story book using lever and linkage mechanisms.

	<i>discussion, focusing on the needs of the user</i> <i>Develop a simple design specification to guide their thinking, taking account of constraints including time, resources and cost</i>	fixed and loose pivots	appropriate utensils and equipment with some accuracy. Select from and use finishing techniques that are suitable.					
Food – varied and healthy diet (making a toasted sandwich for myself)	<i>Investigate existing products which have the same or similar features of the product that is being designed. E.g., pulleys.</i>	Understand how ingredients can be fresh, pre-cooked or processed and whether they are grown, reared or caught (Lesson 1) Know the main stages of a recipe, including how ingredients are listed,	Use appropriate equipment and utensils accurately to prepare and combine food e.g. knives, chopping board, weighing scales, cling film, grater, peeler (Lesson 2) Plan the main stages of a recipe, listing	To differentiate between fresh, pre-cooked, processed sandwich ingredients and identify whether they are grown, reared or caught.	To practice using heat sources, equipment and utensils to prepare and combine food.	To evaluate and sample seasonal ingredients from existing sandwich recipes.	To plan a recipe for a toasted sandwich.	To make, evaluate and refine my toasted sandwich.

	<i>Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. Use annotated sketches and prototypes to develop, model and communicate ideas.</i> <i>Explore and explain a range of initial ideas, and make design decisions to develop mock-ups and a final product</i>	utensils and equipment (Lesson 3) Know and understand about seasonality in relation to food products and the source of different food products (Lesson 3) Learn how to use heat sources safely and appropriately according to the required cooking temperature needed. (Lesson 2) Know when and where fruits and vegetables	ingredients, utensils and equipment Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics (Lesson 1) Use appropriate utensils and equipment accurately to measure and combine appropriate ingredients (Lesson 2, 5) Make, decorate and present the food product					
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	<i>linked to user and purpose.</i> <i>Test their mock-ups using the iterative design process and make amendments to their design. Then, test their product against the original design criteria and changed design plan with regards to the intended user</i> <i>Produce detailed lists of tools, equipment</i>	are grown and learn about seasonality in the UK (Lesson 3) Know how electrical circuits work, that you need a closed circuit and how to achieve this. (Lesson 1) Identify common appliances that run on electricity. (Lesson 3) Know how to construct a simple series electrical circuit, identifying and naming its basic	appropriately for the intended user and purpose (Lesson 5, 6) Use electrical systems in their products such as series circuits with bulbs, switches, buzzers. Apply understanding of computing to program and control their products					
Electrical systems – simple circuits and switches (making a reading light for a family member)				(Link to Science learning) To know what electrical circuits are and what they need to work.	To practice making circuits using lamps and buzzers.	To identify, examine and evaluate common appliances that work on electricity.	To design a reading light for a family member.	To make, refine and evaluate a reading light.

	<i>and materials.</i> <i>Formulate step-by-step plans and, if appropriate, allocate tasks within a team</i> <i>Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources that they will use to inform their design plans.</i> <i>Evaluate their own products and ideas against criteria and</i>	parts including: • Cells • Wires • Bulbs • Switches • Buzzers (Lesson 1) Identify whether a lamp will light, or a buzzer will work in a simple series circuit, based on whether the lamp or buzzer is part of a complete circuit with a battery. (Lesson 2) Recognise that a switch opens and closes a						
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	<i>user needs, as they design and make. 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. Consider the views of others to improve their work.</i>	<i>circuit and associate this with whether a lamp lights (or buzzer works) in a simple series circuit. (Lesson 2)</i>						
		Year C						
Mechanisms - cams and pneumatics (moving toy)	<i>Accurately record the evaluations using e.g.,</i>	Know that mechanical systems have an input, process and an output. (Lesson 1) Know about some key inventors/designers/engineers/manufacturers of ground-breaking products (Lesson 3)	Use woodworking skills to measure and cut materials accurately (Lesson 2, 5) Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and	To know what mechanical systems, pneumatics and cams are.	To practice the techniques needed for making a moving toy.	To examine and evaluate existing moving toys.	To design a moving toy.	To make, evaluate and refine a moving toy.

	<i>tables / graphs / charts such as star diagrams.</i> <i>Compare the final product to the original design specification</i>	Know how pneumatics work to make something move (Lesson 2)	balloons (Lesson 2, 4, 5) Make something move using pneumatics (Lesson 2, 5) Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished (lesson 2, 5, 6) Work within the constraints of time, resources and cost (Lesson 4, 5, 6)					
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Textiles – combining different fabric shapes (making a sustainable shopping bag for a chosen consumer)		A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics (Lesson 1) Fabrics can be strengthened , stiffened and reinforced where appropriate (Lesson 2)	Create a satin stitch and a chain stitch. (Lesson 2, 5, 6) Know how to use a variety of fastenings and selecting the most appropriate. (Lesson 2, 5, 6) Make products that are strengthened, stiffened and reinforced where appropriate. (Lesson 2, 5, 6) Combine patterns to create a 3-D textile product. (Lesson 2, 5, 6)	To understand how textile products are made.	To practice the techniques needed to make a sustainable shopping bag.	To understand the importance of sustainability in design and evaluate existing products.	To design a sustainable shopping bag.	To make, evaluate and refine a sustainable shopping bag.
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			Work within the constraints of time, resources and cost (Lesson 4, 5, 6)					
Food – celebrating culture and seasonality (pizza)		Understand about seasonality in relation to food products and the source of different food Explain how to be safe and hygienic and follow own guidelines. Understand how food storage has changed over the course of time.	Use utensils and tools accurately and safely to combine, knead, fold, whisk and shape Create a step-by-step recipe, including a list of ingredients and utensils Work within the constraints of time, resources and cost	To understand seasonality and culture of food and discuss how food storage has changed over time.	To practice the techniques needed to make pizza, ensuring safely and hygiene.	To taste, evaluate and plan ingredients for my pizza.	To design a pizza recipe.	To make, evaluate and refine a pizza.

			Adapt recipes to change appearance, taste, texture or aroma. Prepare and cook a savoury dish safely and hygienically including, where appropriate, the use of a heat source.					
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