YEAR 1

STRUCTURES: CONSTRUCTING A WINDMILL

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
DESIGNING	**The three Prime ELGS of Communication and Language, PSED and Physical Development provide the foundations of which all other learning is built upon.** **Specific:** **Creating with Materials ELG** 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. **People Culture and Communities ELG** Describe their immediate environment using knowledge from observation, discussion, stories,	Use own ideas to design something Describe how their own idea works Design a product which moves Explain to someone else how they want to make their product Make a simple plan before making.	Think of an idea and plan what to do next Explain why they have chosen specific criteria	Prove that a design meets a set criteria Design a product and make sure that it looks attractive Choose a material for both its suitability and its appearance	Use ideas from other people when designing Produce a plan and explain it Persevere and adapt when original ideas do not work Communicate ideas in a range of ways, including by sketches and drawings which are annotated	Come up with a range of ideas after collecting information from different sources Produce a detailed step-by-step plan Explain how a product will appeal to a specific audience Design a product that requires pulleys or gears	Use market research to inform plans and ideas Follow and refine original plans Justify planning in a convincing way Show that culture and society is considered in plans and designs

	non-fiction texts, and maps.						
MAKING	**The three Prime ELGS of Communication and Language, PSED and Physical Development provide the foundations of which all other learning is built upon.** **Specific:** **Creating with Materials ELG** 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.	Use own ideas to make something Make a product which moves Choose appropriate resources and tools	Choose tools and materials and explain why they have chosen them Join materials and components in different ways Measure materials to use in a model or structure	Follow a step-by-step plan, choosing the right equipment and materials Select the most appropriate tools and techniques for a given task Make a product which uses both electrical and mechanical components Work accurately to measure, make cuts and make holes	Know which tools to use for a particular task and show knowledge of handling the tool Know which material is likely to give the best outcome Measure accurately	Use a range of tools and equipment competently Make a prototype before making a final version Make a product that relies on pulleys or gears	Know which tool to use for a specific practical task Know how to use any tool correctly and safely Know what each tool is used for Explain why a specific tool is best for specific action
EVALUATING	**The three Prime ELGS of Communication and Language, PSED and Physical Development provide the foundations of which all other learning is built upon.** **Specific:**	Describe how something works Explain what works well and not so well in the model they have made	Explain what went well with their work	Explain how to improve a finished model Know why a model has or has not been successful	Evaluate and suggest improvements for designs Evaluate products for both their purpose and appearance Explain how the design has been improved	Suggest alternative plans; outlining the positive features and draw backs Evaluate appearance and function against original criteria	Know how to test and evaluate designed products Explain how products should be stored and give reasons Evaluate product against clear criteria

	Creating with Materials ELG 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.				Use IT where appropriate to add to the quality of the product		
TECHNICAL KNOWLEDGE		Make their own model stronger Make a model stronger and more stable Use wheels and axles, when appropriate to do so		Know how to strengthen a product by stiffening a given part or reinforce a part of the structure Use a simple IT program within the design Know how to be hygienic and safe when using food Bring a creative element to the food product being designed		Link scientific knowledge to design by using pulleys or gears Use more complex IT program to help enhance the quality of the product produced Use electrical systems correctly and accurately to enhance a given product Know which IT product would enhance a specific product Use knowledge to improve a made product by strengthening, stiffening or reinforcing	
FOOD TECHNOLOGY		Cut food safely Weigh ingredients to use in a recipe Describe the ingredients used when making a dish or cake		Describe how food ingredients come together Weigh out ingredients and follow a given recipe to create a dish Talk about which food is healthy and which food is not Know when food is ready for harvesting Describe how food ingredients come together Weigh out ingredients and follow a given recipe to create a dish Talk about which food is healthy and which food is not		Be both hygienic and safe in the kitchen Know how to prepare a meal by collecting the ingredients in the first place Know which season various foods are available for harvesting Explain how food ingredients should be stored and give reasons Work within a budget to create a meal Understand the difference between a savoury dish and sweet dish.	

			Know when food is ready for harvesting			

DESIGN AND MAKE A WINDMILL

COMPOSITES

Generate ideas by drawing on own experiences

Design a windmill

Make a windmill, using tools safely, by joining materials.

Evaluate and test windmill

COMPONENTS

	1	2	3	4	5	End Point
	Can I design the structure of a windmill? **Can I use the right tools and materials safely to create the structure of a windmill?**	**Can I choose the right tools and materials for my structure?** **How can I improve my structure by making it stronger/more stable?**	**Can I choose the right tools and materials for my structure?** **How can I evaluate my structure?**	**Can I evaluate my windmill?**	**Continue to lesson 5 if extra time is needed**	**Children will know about windmills and what they are.** **Children will know the main structural components of a windmill.** **Children will be able to use tools safely to join materials.** **Children can evaluate their design against the design criteria.** **Children will say what went well and what they would improve.**

CONCEPTS **Link to concept map**	Design	Design				Children will have used their understanding and knowledge of joining materials to create a windmill
	Technique	Technique	Technique			Children will use drawings and labels to design a windmill Children will choose and join materials appropriately and use tools correctly.
		Critical Thinking	Critical Thinking	Critical Thinking		Children will make and evaluate their windmill and tit's strength and stability
SKILLS	Design a product which moves Make a simple plan before making. Make a product which moves Choose appropriate resources and tools Describe how something works	Use own ideas to design something Describe how their own idea works Explain to someone else how they want to make their product Make their own model stronger Make a model stronger and more stable Use own ideas to make something Make a product which moves Choose appropriate resources and tools Explain what works well and not so well in the model they have made	Design a product which moves Explain to someone else how they want to make their product Make a simple plan before making. Use own ideas to make something Make a product which moves Choose appropriate resources and tools Explain what works well and not so well in the model they have made	Explain what works well and not so well in the model they have made		Children will know about windmills and what they are. Children will know the main structural components of a windmill. Children will be able to use tools safely to join materials. Children can evaluate their design against the design criteria. Children will say what went well and what they would improve.

KNOWLEDGE **Z:\Hubs\Science and DT\DT\2023-2024\KAPOW\YEAR 1\Constructing a Windmill\Knowledge Organiser.pdf**	Children will learn the main structural parts of a windmill Children will design the structure Children will create the structure using tools appropriately.	Learn and practise how to use tools safely to join materials. Begin to use simple techniques to improve the structure of their product.	Learn and practise how to use tools safely to join materials.	Evaluate their product as it develops and improve it.		Children will be able to use scissors, rulers, glue and chosen materials effectively Children will be able to choose and join appropriate materials to create their design. Children will evaluate their structure
LESSON LINK **Z:\Hubs\Science and DT\DT\2023-2024\KAPOW\YEAR 1\Constructing a Windmill\Knowledge Organiser.pdf**	KAPOW – STRUCTURES – CONSTRUCTING A WINDMILL	KAPOW – STRUCTURES – CONSTRUCTING A WINDMILL	KAPOW – STRUCTURES – CONSTRUCTING A WINDMILL	KAPOW – STRUCTURES – CONSTRUCTING A WINDMILL		
PROGRESSIVE VOCABULARY	axle bridge design design criteria model net packaging structure template	axle bridge design design criteria unstable stable net structure template strong weak	axle bridge design design criteria model net packaging structure template	axle bridge design design criteria model net packaging structure template		Articulate and recognise subject specific vocabulary

CURRICULUM EXPERIENCES	Creating the structure of a windmill	Children will construct a windmill structure template	Children will create and strengthen a windmill structure	Children will evaluate the strength and stability of their windmill.		
END POINT	Children will know the different parts of a windmill and be able to construct them	Children will create and strengthen a windmill structure	Children will evaluate their windmill			