YEAR 5

ELECTRICAL SYSTEMS – DOODLERS

	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**	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	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

	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.				Explain how the design has been improved Use IT where appropriate to add to the quality of the product		Evaluate product against clear criteria
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 Know when food is ready for harvesting	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.

COMPOSITES

ELECTRICAL SYSTEMS – DOODLERS

Design, make and evaluate a functional doodler

COMPONENTS

	1	2	3	4	5	End Point
	What are the parts of a circuit? **What motorised products can I name?**	**What can I learn from taking apart and rebuilding a premade product?** **What is the purpose of each feature and how can I alter them to improve effectiveness?**	**How can a product meet the needs of the consumer?** **How can a produce a detailed design?** **Can I use my understanding of electrical systems to**	**Can I use tools and materials appropriately and safely?** **How can I create my own doodler, following a design?** **How can I evaluate my product?**	**Use lesson time if needed to complete activities**	**Children will know how to apply a variety of knowledge of electrical systems from previous learning.** **Children will be able to choose appropriate materials and create a simple labelled diagram and clear instructions for making a doodler** **Children will be able to explore how the key components of a doodler and vary them to change the output of the product.** **Children will evaluate their design; suggest how they overcome**

			develop my product?			**challenges and consider improvements they can make.**
CONCEPTS **Link to concept map**		Design	Design			Children will have used their understanding and knowledge of electrical systems
	Purpose	Purpose	Purpose	Purpose		Children will design a doodler for use by children, making them strong, effective and aesthetically pleasing.
	Systems	Systems		Systems		Children will understand the systems that are needed to make a doodler
	Techniques	Technique		Technique		Children will have made a doodler using electrical systems
		Critical Thinking		Critical Thinking		Children will evaluate their design and reflect on peer feedback.
SKILLS	Come up with a range of ideas after collecting information from different sources Explain how a product will appeal to a specific audience Use a range of tools and equipment competently Make a prototype before making a final version Evaluate appearance and function against original criteria	Come up with a range of ideas after collecting information from different sources Explain how a product will appeal to a specific audience Use a range of tools and equipment competently Make a prototype before making a final version Suggest alternative plans; outlining the positive features and draw backs	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	Explain how a product will appeal to a specific audience Use a range of tools and equipment competently Make a product Use electrical systems correctly and accurately to enhance a given product Suggest alternative plans; outlining the positive features and draw backs Evaluate appearance and function against original criteria		Children will know how an electrical system works Children will be able to use knowledge of electrical systems to create a doodler Children will create a working doodler and reflect on their design.

KNOWLEDGE **Z:\Hubs\Science and DT\DT\2023-2024\KAPOW\YEAR 5\ELECTRONICAL SYSTEMS - Doodlers\Knowledge Organiser.pdf**	Draw on their previous knowledge and research skills to help generate ideas Investigate different ways to make a series circuit.	Explore existing products by taking them apart and rebuilding them. Focusing on each key feature and altering them to improve outcome.	Discuss and explore a variety of materials and tools and their uses. Consider how to make my doodler aesthetically pleasing. Create a design	Use tools and materials appropriately to create my doodler Evaluate product by discussion and ensure product is fit for purpose. Evaluate my design, identifying strengths and possible changes that could be made.		Children will follow a design, create and evaluate process to make a doodler which incorporates an electrical system
LESSON LINK	KAPOW – ELECTRICAL SYSTEMS – DOODLERS	KAPOW – ELECTRICAL SYSTEMS – DOODLERS	KAPOW – ELECTRICAL SYSTEMS – DOODLERS	KAPOW – ELECTRICAL SYSTEMS – DOODLERS		
PROGRESSIVE VOCABULARY	motor motorised product analysis series circuit circuit component current	investigate product analysis problem-solving configuration	develop stable target user	diy (do it yourself) hobby		Articulate and recognise subject specific vocabulary
CURRICULUM EXPERIENCES	Children make a series circuit. Children evaluate existing products	Children take and rebuild a product.		Children create their own doodlers		

		Children investigate key features				
END POINT	Children make a series circuit.	Children will have explored variables and the impact they have on the product use.	Children will have created a design for their own doodler	Children will have made a working doodler based upon their own designs.		