YEAR 4

ELECTRICAL SYSTEMS –TORCHES

		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, non-fiction texts, and maps.	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 criterion 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
MAKING	**The three Prime ELGS of Communication and Language, PSED and Physical Development provide the foundations of which all other learning is built upon.**	Use own ideas to make something Make a product which moves	Choose tools and materials and explain why they have chosen them	Follow a step-by-step plan, choosing the right equipment and materials Select the most appropriate tools and	Know which tools to use for a particular task and show knowledge of handling the tool	Use a range of tools and equipment competently	Know which tool to use for a specific practical task

	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.	Choose appropriate resources and tools	Join materials and components in different ways Measure materials to use in a model or structure	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 material is likely to give the best outcome Measure accurately	Make a prototype before making a final version Make a product that relies on pulleys or gears	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:** **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.	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 Use IT where appropriate to add to the quality of the product	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
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

ELECTRIAL SYSTEMS - TORCHES

Design, make and evaluate torches

COMPONENTS

	1	2	3	4	5	End Point
	Can I identify electrical products? **Do I know what electrical**	**Can I identify the features of a torch and understand how it works?** **Can I say what is good or bad**	**Can I design a torch for a specific audience?** **Can I design a torch which satisfies both the design and the success criteria?**	**Can I make a working circuit with a switch?** **Can I use appropriate materials to cut**	**Carried over from lesson 4- EVALULATION**	**Children will identify products that use electricity** **Children will understand what electricity is, including its dangers**

	conductors and insulators are? **Do I know that a battery contains stored electricity and can be used to power products?** **REMINDER OF ELECRICITY SAFTEY WARNINGS**	**about different products?** **Do I understand what is important in torch design?**		**and attach materials?** **Can I design and assemble a torch according to my design criteria?** **Can I test my torch to evaluate its success?**		**and how it is used in everyday products.** **Children will know batteries store electrical energy.** **Children will know about insulators and conductors.** **Children will be able to construct a switch.** **Children will be able to identify the key features of a torch and state what is important.** **Children will be able to measure, mark, cut and attach materials.** **Children will be able to plan, design. make, test and evaluate their products against set criterion.**
CONCEPTS **Link to concept map**			Design			Children will design a working torch with a switch
	Purpose	Purpose	Purpose	Purpose		Children will know the key features of a torch
	Systems			Systems		Children will learn how to compete series circuits with a switch
	Techniques			Technique		Children will use tools and materials safely and appropriately

		Critical Thinking		Critical Thinking		Children will evaluate pre-existing torches Children will evaluate their own torches and suggest improvements.
SKILLS	Persevere and adapt when original ideas do not work Communicate ideas in a range of ways, including by sketches and drawings which are annotated Know which material is likely to give the best outcome Evaluate and suggest improvements for designs Explain how the design has been improved	Communicate ideas in a range of ways, including by sketches and drawings which are annotated Evaluate and suggest improvements for designs Evaluate products for both their purpose and 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	Persevere and adapt when original ideas do not work 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 Evaluate and suggest improvements for designs Explain how the design has been improved		Designing a torch giving due consideration to the target audience and creating both design and criteria focusing on features of individual design ideas Making a torch with a working electrical circuit and switch. Using appropriate equipment to cut and attach materials. Assembling a torch according to the design and success criterion. Evaluating electrical products. Testing and evaluating the success of the final product.
KNOWLEDGE **Z:\Hubs\Science and DT\DT\2023-2024\KAPOW\YEAR 4\ELECTRONICAL SYSTEMS - Torches\Knowledge Organiser.pdf**	Know how to make a series circuit Know how to add a switch to a circuit.	Know the key features of a torch. Evaluate pre-existing torch designs	Plan and design my torch using my knowledge switches and electrical circuits	I can make my torch product I can evaluate my torch design and say how I would improve it		To understand that electrical conductors are materials which electricity can pass through. To understand that electrical insulators are materials which

	Understand what insulators and conductors are					electricity cannot pass through To know that a battery contains stored electricity that can be used to power products. To know that an electrical circuit must be complete for electricity to flow. To know that a switch can be used to complete or break an electrical circuit.
LESSON LINK **www.kapowprimary.com/subjects/design-technology/lower-key-stage-2/year-4/electrical-systems-torches/**	KAPOW - ELECTRICAL SYSTEMS – TORCHES	KAPOW - ELECTRICAL SYSTEMS – TORCHES	KAPOW - ELECTRICAL SYSTEMS – TORCHES	KAPOW - ELECTRICAL SYSTEMS – TORCHES		
PROGRESSIVE VOCABULARY	battery bulb buzzer conductor circuit circuit diagram electricity insulator series circuit switch	circuit component design design criterion diagram evaluation led model series circuit shape target audience	circuit component design design criterion diagram input insulator recyclable switch theme	aesthetics assemble equipment evaluation ingredients model packaging properties shape sketch test		Articulate and recognise subject specific vocabulary

CURRICULUM EXPERIENCES	Pupils to brain storm all the electrical items they use in everyday life- offer some images of mixed products- torch, light, hairdryer etc., including. Set as homework? Making series circuits with switches	Pupils explore and evaluate torches		Children making and testing their torches		Children will evaluate pre-existing torches Children will make series circuits with switches. Children will create a working torch. Children will test their torches
END POINT	Children will know what types of products use electricity Children will know electricity is dangerous Children will know about electrical insulators and conductors Children will know that electricity can be stored in batteries.	Children will know the key features of a torch. Children will discuss the positive and negative aspects of a variety of torches	Children will have designed a torch	Children to make working torches. Children to test and evaluate their torches.		Children will evaluate pre-existing torches Children will make series circuits with switches. Children will create a working torch. Children will test their torches