



Design and Technology

Year 4 – Electrical Systems – Torches		
Prior Learning	Year 4	Future Learning
In Year , children will:	In Year 4, children will:	In Year 6, children will:
Design Make Evaluate Technical Knowledge -	Design - Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.	Design - Designing a steady hand game - identifying and naming the components required. - Drawing a design from three different perspectives. - Generating ideas through sketching and discussion. - Modelling ideas through prototypes. - Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'. Make - Constructing a stable base for a game. - Accurately cutting, folding and assembling a net. - Decorating the base of the game to a high quality finish. - Making and testing a circuit. - Incorporating a circuit into a base. Evaluate - Testing own and others finished games, identifying what went well
	Make - 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 criteria.	
	Evaluate - Evaluating electrical products. - Testing and evaluating the success of a final product.	
	Technical Knowledge - To understand that electrical conductors are materials which electricity can pass through. - To understand that electrical insulators are materials which 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 and break an electrical circuit.	- and making suggestions for improvement. - Gathering images and information about existing children's toys. - Analysing a selection of existing children's toys. Technical Knowledge - To know that batteries contain acid, which can be dangerous if they leak. - To know the names of the components in a basic series circuit, including a buzzer.	
	Vocab		
	Battery, bulb, buzzer, circuit diagram, component, conductor, electrical item, electricity, electronic item, insulator, series circuit, switch, target audience, test, torch, wire		
Pupils who are secure will be able to:			
- Identify electrical products and explain why they are useful. - Help to make a working switch. - Identify the features of a torch and how it works. - Describe what makes a torch successful. - Create suitable designs that fit the success criteria and their own design criteria. - Create a functioning torch with a switch according to their design criteria.			
National Curriculum Subject Content			
Design	Make	Evaluate	Technical 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 tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately - Select from and use a wider range of materials	- Investigate and analyse a range of existing products. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.	- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. - Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

- Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.	and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.	- Understand how key events and individuals in design and technology have helped shape the world.	- Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]. - Apply their understanding of computing to program, monitor and control their products.
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