Medium Term Plan **Subject D&T** **Year Group: Year 6** **Term: Autumn**

Topic: Electrical systems – steady hand game

National Curriculum Objectives which are covered in this unit:

Design

Pupils should be taught to:

- Use research to develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.
- Generate, develop, model and communicate their ideas through discussion and annotated sketches
- Model their ideas through prototypes.

Make

Pupils should be taught to:

- Select from and use a wide range of tools and equipment to perform practical tasks.

Evaluate

Pupils should be taught to:

- Investigate and analyse a range of existing products.
- Understand how key events and individuals in design and technology have helped shape the world.
- Evaluate their ideas and products against design criteria and consider the views of others to improve their work.

Technical knowledge

Pupils should be taught to:

- Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

Lesson sequence - include the key concept, L.O. and brief description of lesson

WALT: research and analyse a range of children's toys. Applying fit-for-purpose design to researching and evaluating the form and function of toys. **Success criteria** • I can research images and information about existing children's toys. • I can analyse a selection of existing children's toys. • I can apply my knowledge of form and function.	**WALT: design a steady hand game.** Creating perspective drawings when designing a 'steady hand game'. **Success criteria** • I can identify and name the components in a steady hand game. • I can decide on clear design criteria for my game. • I can design a game and draw it from three different perspectives.	**WALT: construct a stable base.** Using nets to create and decorate the base blocks of a steady hand game in line with the design criteria. **Success criteria** • I can accurately cut and assemble a net. • I can decorate the base and ensure a high-quality finish. • I can ensure that the sides of the base are aligned when glued.	**WALT: assemble electronics and complete their electronic game.** Making and testing a circuit then incorporating it into the base of the game. **Success criteria** • I can make and test a circuit. • I can incorporate a circuit into a base. • I can name electrical components.

Assessing progress and understanding **Pupils with secure understanding indicated by:** explaining what is meant by 'form' and 'function'; stating what they like or dislike about an existing children's toy and why; applying some knowledge of skills to their understanding of one or more children's toys, e.g. the ability to concentrate when solving a Rubik's cube. **Pupils working at greater depth indicated by:** using the terms 'form', 'function', 'form follows function' and 'fit for purpose' throughout their toy product analysis and during discussions; suggesting improvements to a children's toy beyond the entertainment value.	• I can create a design that reflects the design criteria. **Assessing progress and understanding** **Pupils with secure understanding indicated by:** identifying components in a steady hand game; designing their own according to their design criteria; drawing four different perspective drawings of their design. **Pupils working at greater depth indicated by:** designing a backboard for their game; designing a more complex shape as their base.	• I can use tabs to secure the pieces of the net in place. **Assessing progress and understanding** **Pupils with secure understanding indicated by:** creating a secure base with neat edges that relate to their design. **Pupils working at greater depth indicated by:** creating a high-quality base with a good level of detail; adding a backboard that follows the same theme and references as their original design.	**Assessing progress and understanding** **Pupils with secure understanding indicated by:** making and testing a functioning circuit; assembling it within the case. **Pupils working at greater depth indicated by:** creating a complex wire shape for their game; attaching this securely to their base.	
Prior learning *List year groups and topics with connected learning*	Year 4 – Electrical systems: Torches			
Future learning *List year groups and topics with connected learning*				
Key vocabulary to be explicitly taught	assemble design battery battery pack benefit bulb bulb holder buzzer circuit circuit symbol component conductor copper design criteria evaluation fine motor skills fit for purpose form function gross motor skills insulator LED user			
Cross-curricular links	Computing Pupils should be taught to: • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. Science Electricity Pupils should be taught to: • Use recognised symbols when representing a simple circuit in a diagram. • Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. • Use recognised symbols when representing a simple circuit in a diagram. Maths Geometry – properties of shapes Pupils should be taught to: • Recognise, describe and build simple 3-D shapes, including making nets.			
Enrichment *Give visit/visitor/first hand experience and focus*				
Useful websites/resources	**Upper KS2 DT Lesson Plan | Electrical | Game Plan**			

	Upper KS2 DT Lesson Plan | Base Building **Lesson 4: Electronics and assembly**