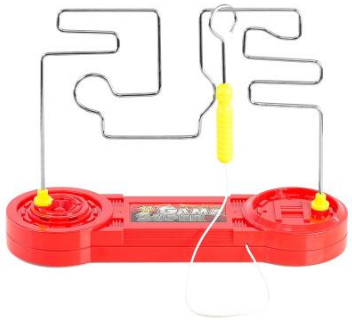
YEAR 6 – DESIGN AND TECHNOLOGY

ELECTRICAL SYSTEMS: STEADY HAND GAME



QUESTION: WHAT MAKES A SUCCESSFUL STEADY HAND GAME?

WEEKS OF TEACHING	LINE OF ENQUIRY	THRESHOLD CONCEPT	SUBSTANTIVE KNOWLEDGE	DISCIPLINARY KNOWLEDGE	CURRICULUM ENDPOINT
1	Developing through play	Take inspiration from design throughout history	• Children's toys are designed with specific forms (shape, size, materials) and functions (how they are used or what they teach). • Existing toys use a variety of materials, mechanisms and construction methods to achieve their intended purpose. • Designers make choices about appearance, usability and safety to appeal to the target age group and meet user needs.	• Evaluate the design of products so as to suggest improvements to the user experience.	**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.
2	Game plan	Design, make, evaluate and improve	• A steady hand game is an electrical circuit game where the player must avoid touching the wire to prevent the circuit from completing. • Electrical circuits include components such as a battery, wires, bulb/buzzer, and switch. • The design of a game must include clear design criteria to ensure it works as intended and is fun and safe to play. • Games can be represented in different perspectives or drawings (front, side, top) to communicate the design clearly. • Materials and construction methods must be	• Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). • Make products through stages of prototypes, making continual refinements.	**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. **Evaluate** Pupils should be taught to: • Evaluate their ideas and products against design criteria and consider the views of others to improve their work.

			chosen carefully to meet safety, durability, and functional requirements. •		**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].
3	Base building	Design, make, evaluate and improve	• A net is a 2D shape that can be folded to form a 3D object. • Accurate cutting and folding are essential for the pieces to fit together correctly. • Tabs are used to join pieces of the net securely and maintain the structure. • Alignment of sides and edges is important to ensure the 3D object is stable and neat. • Decoration and finishing techniques can enhance the appearance and quality of the final product.	• Make products through stages of prototypes, making continual refinements. • Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).	**Design** Pupils should be taught to: • 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: • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
4	Electronics and assembly	Master practical skills	• An electrical circuit is a complete path that allows electricity to flow. • Circuits include components such as batteries, wires, bulbs, buzzers, and switches, each with a specific function. • Circuits can be tested to ensure they work before being incorporated into a product. • Circuits can be integrated into a base or structure to create functional products like games or models. • Understanding how to connect components safely is essential to making a working circuit. •	• Ensure products have a high quality finish, using art skills where appropriate. • Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).	**Design** Pupils should be taught to: • Model ideas through prototypes. **Make** Pupils should be taught to: • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately. **Evaluate** Pupils should be taught to: • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. **Technical knowledge** Pupils should be taught to: • Understand and use electronics in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].
ASSESSMENT OPPORTUNITY: **QUIZ PRESENTATION – Y6: STEADY HAND GAME**					