St James' Church of England Primary School
Design & Technology Overview Sheet

Year 6 – Electrical Systems: Steady Hand Game

Rationale: Pupils who are **secure** will be able to:

- Explain simply what is meant by 'form' (the shape of a product) and 'function' (how a product works).
- State what they like or dislike about an existing children's toy and why.
- Learn about skills developed through play and apply this knowledge in a survey of one or more children's toys.
- Design a steady hand game of their own according to their design criteria, using four different perspective drawings.
- Create a secure base for their game, with neat edges, that relates to their design.
- Make and test a functioning circuit and assemble it within a case.

Learning Objectives:

- Understand how key events and individuals in design and technology have helped shape the world
- Investigate and analyse a range of existing products
- 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 and communicate their ideas through discussion and annotated sketches
- Evaluate their ideas and products against design criteria and consider the views of others to improve their work
- Select from and use a wide range of tools and equipment to perform practical tasks
- Evaluate their ideas and products against design criteria and consider the views of others to improve their work

Overview:

Lesson 1: Developing through Play - To research and analyse a range of children's toys

Lesson 2: Game Plan – To design a steady hand game

Lesson 3: Base Building – To construct a stable base

Lesson 4: Electronics and Assemble – To assemble electronics and complete their electronic game

Cross Curricular Links

Computing - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

Science - Use recognised symbols when representing a simple circuit in a diagram.

Resources

• Presentation: Developing through play • Activity: Children's toy research PowerPoint • Colouring pens/pencils • Pupils' design sheets from the Activity: Steady hand game design sheets from Lesson 2 (see 'Design & Technology, Year 6, Electrical systems: Steady hand game, Lesson 2: Game plan') • Colouring pens and pencils • Black fine liner or marker • Scissors • Glue stick • Pupils' design sheets from the Activity: Steady hand game design sheets from Lesson 2 • Pupil's bases constructed in Lesson 3 • Electrical wires – preferably with crocodile clips (four per pupil) • Buzzer or bulb and bulb holder (per pupil) • Battery pack (per pupil) • AA batteries (two per pupil) • Tinned copper wire (50cm per pupil) or other uncoated conductive flexible wire, usually found in DIY and hardware stores, or refer to YPO Tinned copper wire or Kitronik – Tinned copper wire.You will need approximately 15m for 30 pupils at 50cm per pupil. • You will need approximately 15m for 30 pupils at 50cm per pupil. • Wire cutters • Pliers • Switch – one for each pupil (e.g. 2-pin SPST rocker switches) • Scissors • Plasticine or blu-tack – two balls for each pupil

Impact/Assessment

Most Children will: • Explaining simply what is meant by 'form' (the shape of a product) and 'function' (how a product works). Stating what they like or dislike about an existing children's toy and why. •Identifying components in a steady hand game and designing one of their own according to their design criteria, using four different perspective drawings. • Creating a secure base with neat edges that relates to their design. •Making and testing a functioning circuit and assembling it within the case

More Able Children will: • Using the new terms and phrases, including 'form', 'function', 'form follows function' and 'fit for purpose' throughout their toy product analysis. •Designing a backboard for their game and designing a more complex shape as their base. • Creating a high-quality base with a good level of detail and adding a backboard that follows the same theme and references their original design. • Creating a complex wire shape for their game and attaching this securely to their base.