

Inspiring and enabling our school community to live life to the full



YEAR 4

Subject: DT
Unit: Electronics & control - Steady-hand game

Characteristics of an Effective Learner

Courage
Commitment
Collaboration
Creativity
Curiosity

Prior Learning:

- Year 4 - Children complete a unit in Science about electricity and circuits in conjunction with this DT unit.

Key Vocabulary taught in this unit:

Circuit, bulb, battery, switch, wire, crocodile clip, current, insulator, conductor, purpose, micro-bit.

Intent: What do we want the children to know, be able to do by the time they complete this unit?

Design 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 / investigate and analyse a range of existing products. Children design a steady hand tester game (using an electrical circuit) to raise money at the school fair. They plan the order of work for making their game. Children understand that their design must have “customer appeal” in order to raise money (i.e. be fun to play, not too easy, not too hard). They build a circuit with a bulb, battery and switch.

Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Children draw a labelled diagram for their steady hand tester. They program a micro:bit to monitor a players performance and give appropriate feedback (e.g. LED display with smiley face which turns to a sad face after 3 mistakes).

Make

Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately/ apply their understanding of how to strengthen, stiffen and reinforce more complex structure. Select the appropriate electrical components needed to construct their steady hand tester.

Evaluate

Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. During the production process, recognise what isn't working and suggest a modification. Show where they have changed their design for the better. Test their game by playing it with their peers and evaluate how well it meets the design brief. Find out about how Alessandro Volta invented the battery and made it possible to create portable electronic devices. Learn about the invention of the 3-position traffic light by Garret Morgan.

Technical knowledge

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

Build a circuit with a micro:bit, battery and switch.

Apply their understanding of computing to program, monitor and control their products.

Program a micro:bit to monitor a players performance and give appropriate feedback (eg LED display with smiley face which turns to a sad face after 3 mistakes)

Impact / Outcome:

What will the final product / result be?

Design brief: Design and make a steady hand tester game (using an electrical circuit) to raise money at the school fair.

P4C Inquiry (where appropriate) – n/a

