Design Technology

Electrical Systems

Simples Switches and Circuits

Y4

In this unit, we will design, make and evaluate a night light. We will investigate and evaluate a range of existing battery-powered torches and switches, and engage in focused practical tasks which will inform our designing and making. We will test and evaluate our night lights, linking this to the intended purpose. We will also research inspiring individuals in this field.

Electrical Systems Knowledge:

I will:

- Understand and use electrical systems in products, such as series circuits incorporating switches, bulbs and buzzers.
- Apply understanding of computing to program and control products.
- Know and use technical vocabulary relevant to the project

Skills

I will be able to:

Design:

- **4.1** Record ideas by drawing using annotated sketches
- **4.4** Propose realistic suggestions as to how I can achieve my design ideas.
- **4.5** Order the main stages of making

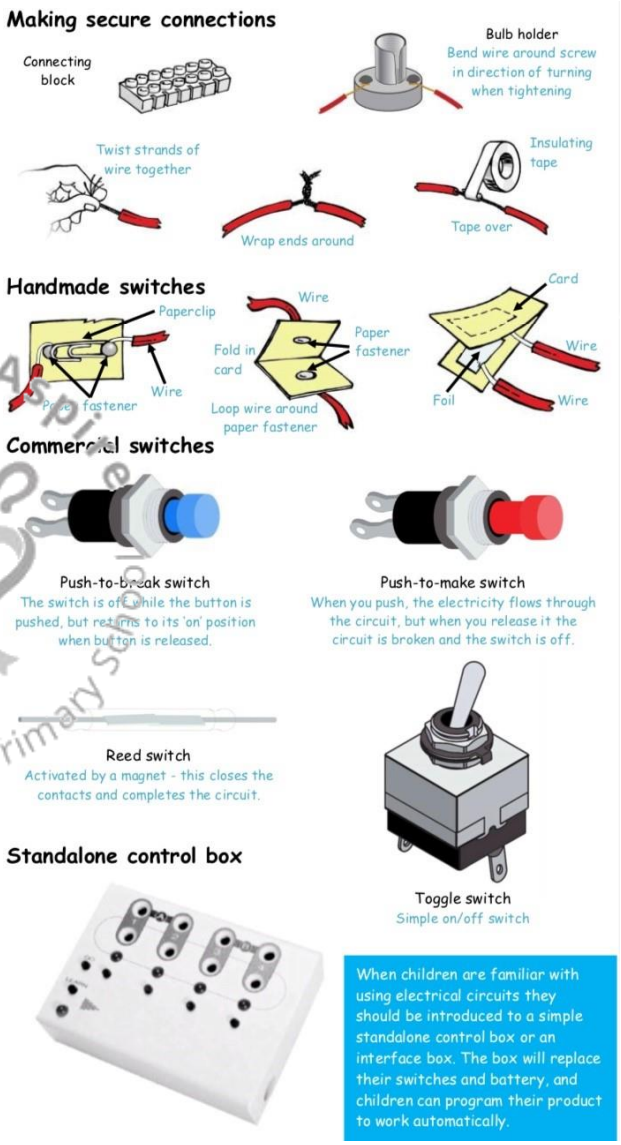
Make:

- **4.7** Explain their choice of materials according to functional properties and aesthetic qualities.
- **4.8** Select and use appropriate tools to measure, mark, cut and assemble with some accuracy.
- **4.9** Use a range of finishing techniques with some accuracy

Evaluate:

- **4.12** Research key individuals in D&T
- **4.13** Talk about my designs as they develop and identify what I like and do not like and say why.
- **4.14** Discuss how well the finished product meets the design criteria

Techniques:



When children are familiar with using electrical circuits they should be introduced to a simple standalone control box or an interface box. The box will replace their switches and battery, and children can program their product to work automatically.

Vocabulary

Technical vocabulary

Series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device

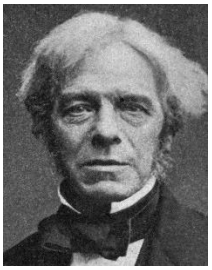
Process vocabulary

User, purpose, function, prototype, design criteria, innovative, appealing, design brief

Names of tools, equipment and materials used

Inspiring Individuals

Allessandro Volta



Michael Faraday