**Electricity and Magnetism**

**Lesson titles**

Introduction to circuits

Potential difference

Resistance of different objects

Series and parallel circuits

Current

Static electricity and electric fields

Magnets and magnetic fields

Electromagnets

**Skills**

Collecting data

Results tables

**Investigations**

Measuring resistance (current) in different items

Electromagnets

**Intention**

By the end of this unit students will be able to make and test series and parallel circuits. The students will be able to use these circuits to investigate the resistance of different objects. Students will make an electromagnet and investigate the factors that increase the strength of the electromagnet.

**Assessment and feedback points**

**Links to GCSE**

6.7.1.1.ii - the difference between permanent and induced magnets

6.7.2.1.iii - explain how a solenoid arrangement can increase the magnetic effect of the current.

6.2.1.1 -draw and interpret circuit diagrams.

6.2.1.4.ii - explain the design and use of a circuit to measure the resistance of a component by measuring the current through, and potential difference across, the component

6.2.1.4.iii - draw an appropriate circuit diagram using correct circuit symbols.

6.2.2.iv - explain the design and use of dc series circuits for measurement and testing purposes

**Suggested practical activities**

Circuit components – what is on the electricity trolley?

Fault finding – what to do when things don’t quite work as they should?

Making a simple series circuit

Measuring the current in a series circuit

Measuring the potential difference in a circuit

Making a more complicated circuit

Investigating resistance (everyday objects)

Investigating resistance (conductive putty)