Module 1: Introduction

Apparatus and techniques

**Measurement**

Selection and use of apparatus to measure a range of values for various quantities, at an appropriate resolution, including:

Length Volume of fluids

Mass pH

Time Temperature

Use appropriate measurements to calculate the volume and area of solids, and to determine the density of materials.

**Techniques**

Be proficient in the safe use of equipment to:

* Observe and measure biological processes, with awareness of the ethical issues of using living material
* Estimate the distribution and abundance of organisms using a range of sampling techniques
* Heat an object with a naked flame
* Maintain the temperature of a liquid or solid at a temperature greater or less than the ambient air temperature
* Conduct and monitor chemical reactions, including the separation of chemical mixtures
* Measure rates of chemical reactions by a variety of methods
* Observe the effects of the interaction of electromagnetic waves with matter
* Measure the wavelength, speed and frequency of waves
* Measure the effect of forces, including their effect on motion
* Measure energy transfers and work done.

**Apparatus**

Use a microscope and a hand lens to make observations of biological specimens and produce labelled scientific drawings.

Set up and use electrochemical cells for production and separation of elements and compounds.

Use circuit diagrams to construct and check series and parallel circuits, and measure current, potential difference (voltage) and resistance, to explore the characteristics of a variety of circuit elements.