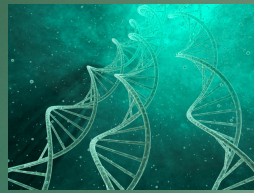


Curricular Mapping Tool - AH Biology



Advanced Higher Biology



Practical work to support
Advanced Higher Biology



Key Area

SSERC Resources

KA1 - Laboratory techniques for biologists

- (a) Health and safety
 - Risk assessing in the laboratory using the SSERC website - [Pupil Resource](#) and [Teacher Guide](#).
- (b) Liquids and solutions
 - Student Support Guides
 - [Concentrations and dilutions](#) (by SAPS) &
 - [Symbols and units](#) (by SAPS)
 - Making a microsyringe ([Method](#), [Powerpoint](#), [Article](#))
 - Making a log dilution of a copper sulfate solution - [protocol](#) and [risk assessment](#).
 - [Making a linear dilution of glucose concentrations](#) - this is included as part of the Standard Curve practical (see below).

Key Area

SSERC Resources

KA1 - Laboratory techniques for biologists

- Production of a standard curve to determine an unknown - Determining the concentration of a glucose solution. Protocol and risk assessment.
- Use of buffers to control pH - Investigating the effect of pH on phosphatase activity in bean sprouts (using pH buffers, centrifugation and colorimetry).
- Method and uses of a colorimeter to quantify concentration
 - How good is your colorimeter? (Method and Powerpoint)
 - Investigating the effect of enzyme concentration on dopa oxidase (using centrifugation and colorimetry).
- (c) Separation techniques
 - Paper chromatography: Separating photosynthetic pigments from spinach using paper chromatography. Video

Key Area

SSERC Resources

KA1 - Laboratory techniques for biologists

- TLC: [Separating photosynthetic pigments using thin-layer chromatography](#).
- Gel electrophoresis: Separating proteins using native gel electrophoresis ([Method](#), [Powerpoint](#), [Protein standards](#), NCBE Materials - [Electrophoresis](#), [gels](#), [student guide](#), [teacher guide](#)).
- Isolation of casein protein from mammalian milk (using isoelectric point and centrifugation): [Protocol](#), [Risk Assessment](#), [Bioinformatics activity](#)
- (d) Detecting proteins using antibodies
 - [Immunology](#) - theory and techniques
 - [ELISA by Mystrica](#)
- (e) Microscopy
 - [Our World Through a Lens](#) - any protocol would be suitable for bright-field microscopy.

Key Area	SSERC Resources
KA1 - Laboratory techniques for biologists	<ul style="list-style-type: none">• Hanging drop microscopy - protocol <p>(f) Aseptic technique and cell culture</p> <ul style="list-style-type: none">• Method and uses of haemocytometers to estimate cell numbers in a liquid culture:<ul style="list-style-type: none">◦ Using a conventional glass haemocytometer◦ Plastic, disposable haemocytometer• SSERC-TV Microbiological Techniques playlist.
KA2 - Proteins	<p>(c) Casein Protein - a bioinformatics study and practical approach to its isolation from mammalian milk.</p> <ul style="list-style-type: none">• Bioinformatics: Pupil Guide; Teacher Guide• Practical protocol, risk assessment.
KA3 - Membrane proteins	<p>(a) Movement of molecules across membranes</p> <ul style="list-style-type: none">• Investigating the chemical nature of the cell membrane in beetroot: Protocol and risk assessment

Key Area

SSERC Resources

KA4 -
Communication &
signalling

- (d) Nerve impulse transmission
- The vertebrate eye - Investigate vision experimentally. Eye dissection [hints and tips](#), [dissecting bull eyes](#), [risk assessment](#) - Code of Practice. [Video](#) tutorial.

KA5 - Protein
control of cell
division

- (b) The cell cycle
- Mitotic index of garlic root tips - [Protocol](#)

