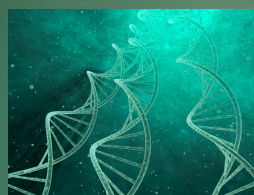


# Curricular Mapping Tool - N5 Biology



## N5 Biology



Practical work to support  
National 5 Biology



Key Area	SSERC Resources
KA1 - <u>Cell Structure</u>	<ul style="list-style-type: none"><li>• <u>Our World Through a Lens</u>: a variety of microscopy activities</li><li>• Cell Structure <u>general resources</u></li><li>• <u>Preparing a hanging drop</u></li><li>• <u>Counting algae using a haemocytometer</u></li></ul>
KA2 - <u>Transport across cell membranes</u>	<ul style="list-style-type: none"><li>• <u>Plasmolysis investigation</u></li><li>• <u>Digital Microscope Osmosis - ppt</u></li><li>• <u>Digital Microscope plasmolysis protocol - Word</u></li><li>• <u>Digital plasmolysis film clip</u></li></ul>
KA3 - <u>DNA and the production of proteins</u>	<ul style="list-style-type: none"><li>• Wizard Genes: <u>Protocol</u>, <u>Food dyes and electrophoresis article</u>, and <u>bulletin</u></li><li>• <u>Discussion: Do you know your DNA?</u></li><li>• <u>Dominoes</u></li><li>• Origami: <u>Instructions</u> &amp; <u>Templates</u></li><li>• Secret Box: <u>Instructions</u>, <u>Teacher Notes</u></li><li>• <u>DNA Extraction from Peas</u></li><li>• <u>Electrophoresis: Whodunnit</u></li></ul>

Key Area	SSERC Resources
KA4 - <u>Proteins</u>	<ul style="list-style-type: none"><li>• Rennet in Cheese-Making - <u>PPT</u>, <u>Investigation</u>, <u>Tech Guide</u></li><li>• Diastase Activity: <u>Tech Guide</u>, <u>Pupil Material</u>, <u>Teacher Guide</u></li><li>• <u>Dopa Oxidase as an enzyme system</u></li><li>• <u>Microscale Biology</u></li><li>• <u>Catalase activity - Bulletin article</u></li><li>• <u>Effect of pineapple on jelly setting</u></li><li>• Lactase Investigation: <u>Tech Guide</u> and <u>Protocol</u></li></ul>
KA5 - <u>Genetic engineering</u>	<ul style="list-style-type: none"><li>• Bacterial transformation using pGLO: <u>Tech Guide</u>, <u>Protocol</u></li><li>• <u>Discussion: GFP stories</u></li><li>• <u>Discussion: Genetic Disease Dilemmas</u></li><li>• Gene Jury: <u>PPT</u>, Card <u>One</u>, <u>Two</u>, <u>Three</u>, <u>Four</u></li><li>• <u>Discussion activities and other resources</u></li></ul>
KA6 - <u>Respiration</u>	<ul style="list-style-type: none"><li>• Using a respirometer: <u>Protocol</u>, <u>PPT</u></li><li>• <u>Use of gas sensors and data loggers to investigate rate of respiration.</u></li><li>• Respiration in immobilised algae: <u>Protocol</u>, <u>Bulletin 1</u>, <u>Bulletin 2</u></li><li>• <u>Construct a respirometer</u></li></ul>

Key Area	SSERC Resources
KA1 - <u>Producing new cells</u>	<ul style="list-style-type: none"><li>• Observe cell division in root tips - "<u>Divide</u>".</li><li>• Using a haemocytometer: <u>Protocol</u>, <u>PPT</u> and <u>webpage</u></li><li>• <u>Plant tissue culture</u>, including cauliflower &amp; orchid cloning.</li><li>• <u>Discussion: Stem Cells</u></li></ul>
KA2 - <u>Control and communication</u>	<ul style="list-style-type: none"><li>• <u>Investigate reaction time in humans (Micro:bit)</u>.</li><li>• <u>Investigate the effect of light on maggot behaviour</u></li><li>• <u>Debate activity</u>.</li><li>• <u>Exercise, our brain and heart rate</u></li><li>• <u>Effect of sleep on memory</u>.</li><li>• <u>Merge Cube activity</u>.</li><li>• <u>Our Growing Brain: Young STEM Leader Programme</u></li><li>• <u>Motor Neuron Disease</u></li><li>• <u>Role of magnetic resonance imaging (MRI) in brain science</u></li></ul>



Key Area	SSERC Resources
KA3 - <u>Reproduction</u>	<ul style="list-style-type: none"> <li>• <u>Pollen tube growth</u> - SAPs protocol</li> <li>• <u>Seed experiments</u> - SAPs protocols</li> <li>• <u>Pollination game</u>- SAPs protocols</li> </ul>
KA4 - <u>Variation &amp; Inheritance</u>	<ul style="list-style-type: none"> <li>• <u>Reebops: PPT</u></li> <li>• <u>Gene Jury Resource - Single gene crosses</u></li> <li>• <u>Similarities &amp; differences</u></li> <li>• <u>The blue people of troublesome creek</u></li> </ul>
KA5 - <u>Transport systems (plants)</u>	<ul style="list-style-type: none"> <li>• Stomata Microscopy - "<u>Every breath you take</u>".</li> <li>• Transpiration - <u>DIY potometer</u>.</li> <li>• <u>SAPS protocols using a potometer</u></li> </ul>
KA6 - <u>Transport systems (animals)</u>	<ul style="list-style-type: none"> <li>• <u>MergeCube activity</u>. Adapt protocol for appropriate anatomy.</li> <li>• <u>Heart dissection</u></li> </ul>
KA7 - <u>Absorption of materials</u>	<ul style="list-style-type: none"> <li>• <u>Lung dissection</u></li> <li>• <u>Materials of living origin: Dissection PPT</u></li> </ul>

Key Area	SSERC Resources
KA1 - <u>Ecosystems</u>	<ul style="list-style-type: none"><li>• <u>Owl pellet dissection</u></li><li>• Biodiversity: <u>hanging drop</u></li><li>• Brine shrimp: <u>Keeping shrimp</u>, Brine shrimp <u>activities</u>, <u>Bulletin</u></li><li>• Discussion: <u>Which would you save?</u></li><li>• Discussion: <u>Let's Talk - Bogs</u></li><li>• <u>Moss Safari</u></li></ul>
KA2 - <u>Distribution of organisms</u>	<ul style="list-style-type: none"><li>• Explore our World: Challenge <u>1</u> and <u>2</u></li><li>• <u>Sampling techniques</u></li><li>• <u>Producing a key</u></li><li>• <u>Producing a key from a hanging drop (pond water)</u></li></ul>
KA3 - <u>Photosynthesis</u>	<ul style="list-style-type: none"><li>• Photosynthesis: <u>CO2 probes protocol</u>, <u>PPT</u></li><li>• Using Egeria najas: <u>activity 1</u>, <u>activity 2</u>, <u>video</u></li><li>• <u>Photosynthesis with immobilised algae</u></li><li>• <u>Measuring photosynthesis in seaweed</u></li><li>• <u>Floating spinach discs</u></li><li>• Chromatography of photosynthetic pigments: <u>video</u>, <u>protocol</u></li></ul>

Key Area	SSERC Resources
KA5 - <u>Food production</u>	<ul style="list-style-type: none"><li>• <u>Eutrophication</u> - effect of fertilisers on algal growth</li><li>• Discussion: <u>Design a fertiliser activity</u></li><li>• Nutrient deficiency - <u>using mung beans</u></li></ul>
KA6 - <u>Evolution of species</u>	<ul style="list-style-type: none"><li>• <u>A lesson in natural selection: mutations, bird beaks and Clipbird</u></li></ul>

Data Sets - Source  
2 options

Fertiliser, Growth of Algae, Photosynthesis, Transpiration,  
Catalase, Enzymes, Pectinase - Click [here](#)

Recorded webinar  
on assignment

Available on SSERC TV - Biology playlist - Click [here](#).

Oct 2023 Webinar  
on Assignments

PPT available - Click [here](#).

SSERC activity  
packs

Produced by SSERC and supported by SQA - Click [here](#).

[\\_Immobilised algae](#)



[Photosynthesis](#)



[Species  
distribution](#)



[Microscale  
amylase](#)



[Microscale  
fermentation](#)



[DIY potometer](#)



[Catalase](#)



[Photosynthesis 2](#)

