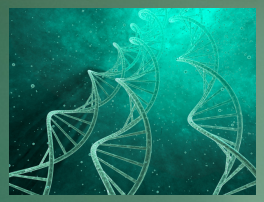
Curricular Mapping Tool - N5 Biology

Practical work to support National 5 Biology



N5 Biology

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Unit 1: Cell Biology

Key Area	SSERC Resources
KA1 - Cell Structure	• Our World Through a Lens: a variety of microscopy activities • Cell Structure general resources • Using the digital microscope to investigate cell size • Preparing a hanging drop • Microscopy activity: algae and moss safari hanging drop • Counting algae using a haemocytometer
KA2 - Transport across cell membranes	• Plasmolysis investigation • Digital Microscope Osmosis - ppt • Digital Microscope plasmolysis protocol - Word • Digital plasmolysis film clip
KA3 - DNA and the production of proteins	• Wizard Genes: PPT, Protocol and bulletin • Discussion: Do you know your DNA? • Dominoes (1, 2, 3) • Origami: Instructions & Templates • Secret Box: Instructions , Teacher Notes, Template • DNA Extraction from Peas

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Unit 1: Cell Biology

Key Area	SSERC Resources
KA4 - Proteins	• Rennet in Cheese-Making - Bulletin article • Effect of temperature and pH on Diastase activity • Dopa Oxidase as an enzyme system • Microscale Biology • Catalase activity - Bulletin article • Effect of pineapple on jelly setting • Lactase investigation (immobilisation)
KA5 - Genetic engineering	• Bacterial transformation using the NCBE pGLO system • Discussion: GFP stories • Discussion: Plant Dilemmas • Gene Jury
KA6 - Respiration	• Using a respirometer for human respiration rate • Effect of temperature on respiration in small invertebrates: protocol & PPT • Use of gas sensors and data loggers to investigate rate of respiration. • Respiration in immobilised algae

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Unit 1: Cell Biology

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Unit 2: Multicellular Organisms

Key Area	SSERC Resources
KA1 - Producing new cells	• Observe cell division in root tips - "Divide". • Using a haemocytometer: Protocol, PPT and webpage • Plant tissue culture, including cauliflower & orchid cloning. • Discussion: Stem Cells
KA2 - Control and communication	• Our Growing Brain: Investigate reaction time in humans (Micro:bit) • Our Growing Brain: Investigate the effect of light on maggot behaviour • Our Growing Brain: Debate activity • Our Growing Brain: Exercise, our brain and heart rate • Our Growing Brain: Effect of sleep on memory • Our Growing Brain: Merge Cube activity • Our Growing Brain: Young STEM Leader Programme • Motor Neuron Disease • Role of magnetic resonance imaging (MRI) in brain science • Additional reaction time activities

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Unit 2: Multicellular Organisms

Key Area	SSERC Resources
KA3 - Reproduction	• Pollen tube growth - SAPs protocol • Seed experiments - SAPs protocols • Pollination activities - SAPs protocols
KA4 - Variation & Inheritance	• Reebops • Gene Jury Resource - Single gene crosses • Similiarities & differences • The blue people of troublesome creek
KA5 - Transport systems (plants)	• Our World Through a Lens - "Every breath you take" - looking at stomata. • Transpiration - DIY potometer & water loss through stomata.
KA6 - Transport systems (animals)	• Our Growing Brain - MergeCube activity. Adapt protocol by selecting appropriate anatomy. • Heart dissection
KA7 - Absorption of materials	• Lung dissection

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Unit 3: Life on Earth

Key Area	SSERC Resources
KA1 - Ecosystem	• Owl pellet dissection • Biodiversity: Brine shrimp, hanging drop (pond water), leaf litter • Discussion: Which would you save? • Discussion: Let's Talk - Bogs • Moss Safari
KA2 - Distribution of organisms	• Explore our World: Challenge 1 and 2 • Sampling techniques • Producing a key • Producing a key from a hanging drop (pond water)
KA3 - Photosynthesis	• Using data loggers to measuring photosynthesis in basil leaves • Using Egeria najas - bubblers • Photosynthesis with immobilised algae • Measuring photosynthesis in seaweed (hydrogen carbonate indicator • Floating spinach discs • Chromatography of photosynthetic pigments

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Key Area	SSERC Resources
KA5 - Food production	• Eutrophication - effect of fertilisers on algal growth • Discussion: Design a fertiliser activity • Nutrient deficiency - using mung beans
KA6 - Evolution of species	• A lesson in natural selection: mutations, bird beaks and Clipbird • Wellcome Trust: I am a worm - get me out of here.

Unit 3: Life on Earth