Practical resources to support the teaching of A level Biology in Wales

Core Content	Additional Options for Practical Work
Basic biochemistry and cell organisation (AS unit 1)	
1. Chemical elements are joined together to form biological compounds	http://www.britishecologicalsociety.org/wp-content/uploads/Education-Water-lesson.pdf range of practical activities relating to the properties of water
2. Cell structure and organisation	http://www.nuffieldfoundation.org/practical-biology/looking-heart heart dissection, looking at structure of organs http://www.nuffieldfoundation.org/practical-biology/dissecting-lungs lung dissection tissue and organ structure http://www.nuffieldfoundation.org/practical-biology/comparing-flower-structure-different-angiosperms dissection and comparison of different flower structures http://www.nuffieldfoundation.org/practical-biology/aseptic-techniques aseptic techniques for the culturing of bacteria on agar plates http://www.saps.org.uk/secondary/teaching-resources/770-microscopy-looking-at-xylem-and-specialised-cells xylem cells
3. Cell membranes and transport	http://www.nuffieldfoundation.org/practical-biology/effect-size-uptake-diffusion - experiment on rate of diffusion using agar cubes. http://www.nuffieldfoundation.org/practical-biology/estimating-rate-transpiration-plant-cutting rate of transpiration and an animation that supports the ideas of water transport http://www.saps.org.uk/secondary/themes/1274 http://www.nuffieldfoundation.org/practical-biology/tracking-active-uptake-minerals-plant-roots active uptake of minerals in plant roots http://www.nuffieldfoundation.org/practical-biology/investigating-effect-temperature-plant-cell-membranes effect of temperature on plant cell membranes

	(can use colorimeter)
4. Biological reactions are regulated by enzymes	http://www.nuffieldfoundation.org/practical-biology/measuring-rate-metabolism measuring metabolic rate http://www.nuffieldfoundation.org/practical-biology/microscale-investigations-catalase-activity-plant-extracts catalase activity in plants http://www.nuffieldfoundation.org/practical-biology/investigating-effect-temperature-activity-lipase temperature impact on lipase http://www.nuffieldfoundation.org/practical-biology/investigating-effect-ph-amylase-activity amylase and the impact of pH
5. Nucleic acids and their functions	http://www.nuffieldfoundation.org/practical-biology/extracting-dna-living-things extraction of DNA practical work
6. Genetic information is copied and passed on to daughter cells	http://www.nuffieldfoundation.org/practical-biology/investigating-mitosis-allium-root-tip-squash mitosis in a root tip squash, there is an animation to support this practical http://saps.org.uk/secondary/themes/1290 http://www.nuffieldfoundation.org/practical-biology/preparing-anther-squash meiosis in an anther squash http://www.nuffieldfoundation.org/practical-biology/making-reebops-model-meiosis model of meiosis
Biodiversity and Physiology of Body Systems (AS Unit 2)	
1. All organisms are related through their evolutionary history	http://www.nuffieldfoundation.org/practical-biology/observing-patterns-distribution-simple-plant patterns in plant distribution http://www.nuffieldfoundation.org/practical-biology/investigating-response-worms-soil-improvers investigating the behaviour of animals to different soil conditions http://www.nuffieldfoundation.org/practical-biology/biodiversity-your-backyard

	using quadrats to measure biodiversity http://www.nuffieldfoundation.org/practical-biology/model-natural-selection-%E2%80%93-spaghetti-worms modelling natural selection http://www.biology-fieldwork.org/woodland/woodland-plants/investigation-comparing-two-areas-of-woodland.aspx Investigation into ground vegetation in two contrasting areas of woodland, including a spreadsheet for calculating Simpson's Diversity Index http://bigpictureeducation.com/video-whats-buttercup Wellcome Trust video and accompanying data for field work http://www.saps.org.uk/secondary/teaching-resources/258 http://www.saps.org.uk/secondary/teaching-resources/127 http://www.saps.org.uk/secondary/teaching-resources/768 online activities to practice sampling techniques before you get into the field, looking at measuring abundance, random sampling and distribution of species across a footpath
2. Adaptations for gas exchange	http://www.nuffieldfoundation.org/practical-biology/modelling-human-ventilation-system modelling human ventilation system http://www.nuffieldfoundation.org/practical-biology/looking-heart heart dissection, looking at structure of organs – link to mass transport system. http://www.nuffieldfoundation.org/practical-biology/using-spirometer-investigate-human-lung-function using a spirometer to measure lung function http://www.nuffieldfoundation.org/practical-biology/investigating-factors-affecting-breathing-rate-locust investigating the factors that affect breathing rate
3. Adaptations for transport	http://www.nuffieldfoundation.org/practical-biology/estimating-rate-transpiration-plant-cutting rate of transpiration and an animation that supports the ideas of water transport http://www.saps.org.uk/secondary/themes/1274

	http://www.nuffieldfoundation.org/practical-biology/looking-heart heart dissection, looking at structure of organs – link to mass transport system.
4. Adaptations for nutrition	http://www.nuffieldfoundation.org/practical-biology/evaluating-visking-tubing-model-gut model gut
Energy Homeostasis and the Environment (A2 Unit3)	
1. Importance of ATP	http://www.nuffieldfoundation.org/practical-biology/measuring-rate-metabolism measuring metabolic rate http://www.nuffieldfoundation.org/practical-biology/investigating-light-dependent-reaction-photosynthesis using DCPIP as an electron acceptor – investigating light dependent reaction
2. Photosynthesis uses light energy to synthesise organic molecules	http://www.nuffieldfoundation.org/practical-biology/investigating-light-dependent-reaction-photosynthesis using DCPIP as an electron acceptor – investigating light dependent reaction http://www.saps.org.uk/secondary/teaching-resources/235 investigating photosynthesis using algal balls and an animation that outlines respiration and photosynthesis http://www.saps.org.uk/secondary/themes/1281 http://www.saps.org.uk/secondary/teaching-resources/181 thin layer chromatography for photosynthetic pigments
3. Respiration releases chemical energy in biological processes	http://www.nuffieldfoundation.org/practical-biology/how-do-plants-and-animals-change-environment-around-them#node-2978 investigating levels carbon dioxide produced by animals and plants in light and dark conditions http://www.nuffieldfoundation.org/practical-biology/measuring-rate-metabolism measuring metabolic rate
4. Microbiology	http://www.nuffieldfoundation.org/practical-biology/aseptic-techniques standard practice for aseptic techniques

	http://www.nuffieldfoundation.org/practical-biology/incubating-and-viewing-plates standard practice for viewing and incubating agar plates http://www.nuffieldfoundation.org/practical-biology/making-nutrient-agars making up nutrient agars http://www.nuffieldfoundation.org/practical-biology/pouring-agar-plate how to pour agar plates http://www.microbiologyonline.org.uk/teachers/resources practical books on microbiology available for teachers to download for free
5. Population size and ecosystems	http://www.nuffieldfoundation.org/practical-biology/nitrogen-fixing-bacteria-free-living-soil - links to nitrogen cycle, recycling chemical elements and impact that humans can have on ecosystems. http://www.biology-fieldwork.org/freshwater/freshwater-animals/investigation-freshwater-energy-flow.aspx An investigation into energy flow using freshwater invertebrates, to construct pyramids of numbers, biomass and energy and calculate efficiency http://www.biology-fieldwork.org/seashore/sand-dunes/investigation-primary-succession-in-sand-dunes.aspx An investigation into primary succession in sand dunes http://www.biology-fieldwork.org/grassland/grassland-plants/fieldwork.aspx Fieldwork techniques for investigating the effects of mowing and trampling in grasslands (human impact on ecosystems) http://www.saps.org.uk/secondary/teaching-resources/127 online activity to explore the how to look at distribution of species across a footpath before you go out into the field http://bigpictureeducation.com/video-whats-buttercup Wellcome Trust video and accompanying data for field work

	http://www.saps.org.uk/secondary/teaching-resources/258 http://www.saps.org.uk/secondary/teaching-resources/127 http://www.saps.org.uk/secondary/teaching-resources/768 online activities to practice sampling techniques before you get into the field, looking at measuring abundance, random sampling and distribution of species across a footpath
6. Human impact on the environment	http://www.biology-fieldwork.org/grassland/grassland-plants/fieldwork.aspx Fieldwork techniques for investigating the effects of mowing and trampling in grasslands (human impact on ecosystems)
7. Homeostasis and the kidney	http://www.nuffieldfoundation.org/practical-biology/investigating-factors-affecting-breathing-rate-locust investigating the factors that affect breathing rate http://www.nuffieldfoundation.org/practical-biology/investigating-factors-affecting-heart-rate-daphnia investigating factors that affect heart rate http://www.nuffieldfoundation.org/practical-biology/observing-effects-exercise-human-body effects of exercise on humans
8. The nervous system	http://www.nuffieldfoundation.org/practical-biology/using-choice-chamber-investigate-animal-responses-stimuli animals response to stimuli http://www.nuffieldfoundation.org/practical-biology/investigating-response-calliphora-larvae-light larvae response to light
Variation Inheritance and options (A2 Unit 4)	
1. Sexual reproduction in humans	
2. Sexual reproduction in plants	http://www.nuffieldfoundation.org/practical-biology/comparing-flower-structure-different-angiosperms dissection and comparison of different flower structures
3. Inheritance	http://www.dnadarwin.org/ explore the molecular evidence for evolution through practical bioinformatics activities that use data analysis tools and molecular data.

	http://www.yourgenome.org/ range of activities and animations from Sanger Institute
4. Variation and evolution	http://www.nuffieldfoundation.org/practical-biology/gene-induction-%C3%9F-galactosidase-e-coli induction of genes (genetic control) http://www.nuffieldfoundation.org/practical-biology/following-gene-transfer-conjugation-bacteria horizontal gene transfer in bacteria http://www.yourgenome.org/ range of activities and animations from Sanger Institute
5. Application of reproduction and genetics	http://www.nuffieldfoundation.org/practical-biology/cloning-living-organism taking cuttings from plants http://www.saps.org.uk/secondary/teaching-resources/706 new effective technique for cloning cauliflowers
Choice of one option from three:	
A. Immunology and Disease B. Human Musculoskeletal Anatomy C. Neurobiology and Behaviour	http://www.nuffieldfoundation.org/practical-biology/modelling-sliding-filament-hypothesis proteins and muscle movement http://www.nuffieldfoundation.org/practical-biology/using-choice-chamber-investigate-animal-responses-stimuli animals response to stimuli http://www.nuffieldfoundation.org/practical-biology/investigating-response-worms-soil-improvers investigating the behaviour of animals to different soil conditions http://www.nuffieldfoundation.org/practical-biology/investigating-response-calliphora-larvae-light larvae response to light

Support for specified practical work

Specified practical work	Extra Practical Support
Biochemistry and Cell organisation (AS Unit 1)	
• Food tests to include: iodine-potassium iodide test for starch; Benedict's test for reducing and non-reducing sugars; biuret test for protein; emulsion test for fats and oils	http://www.nuffieldfoundation.org/practical-biology/quantitative-food-test-protein-content-powdered-milk establishing the quantity of protein in powdered milk
• Calibration of the light microscope at low and high power, including calculation of actual size of a structure and the magnification of a structure in a drawing • Preparation and scientific drawing of a slide of living cells e.g. onion/ rhubarb/ Amoeba including calculation of actual size and magnification of drawing	http://www.nuffieldfoundation.org/practical-biology/comparing-flower-structure-different-angiosperms dissection and comparison of different flower structures http://www.saps.org.uk/secondary/teaching-resources/770-microscopy-looking-at-xylem-and-specialised-cells xylem cells, trichomes http://www.saps.org.uk/secondary/teaching-resources/1325 phloem and xylem
• Determination of water potential by measuring changes in mass or length • Determination of solute potential by measuring the degree of incipient plasmolysis • Investigation into the permeability of cell membranes using beetroot	http://www.nuffieldfoundation.org/practical-biology/investigating-effect-concentration-blackcurrant-squash-osmosis-chipped-potatoes http://www.nuffieldfoundation.org/practical-biology/observing-osmosis-plasmolysis-and-turgor-plant-cells observing osmosis http://www.nuffieldfoundation.org/practical-biology/investigating-effect-temperature-plant-cell-membranes effect of temperature on plant cell membranes (can use colorimeter)
• Investigation into the effect of temperature or pH on enzyme activity • Investigation into the effect of enzyme or substrate concentration on enzyme activity	http://www.nuffieldfoundation.org/practical-biology/investigating-effect-temperature-plant-cell-membranes effect of temperature on plant cell membranes
• Simple extraction of DNA from living material	http://www.nuffieldfoundation.org/practical-biology/extracting-dna-living-things extraction of DNA practical work
• Scientific drawing of cells from slides of root tip to show stages of mitosis	http://www.nuffieldfoundation.org/practical-biology/investigating-mitosis-allium-

• Scientific drawing of cells from prepared slides of developing anthers to show stages of meiosis	root-tip-squash mitosis in a root tip squash http://www.nuffieldfoundation.org/practical-biology/preparing-anther-squash meiosis in an anther squash
Biodiversity and Physiology of Body Systems (AS Unit 2)	
• Investigation into biodiversity in a habitat	http://www.nuffieldfoundation.org/practical-biology/observing-patterns-distribution-simple-plant patterns in plant distribution http://www.nuffieldfoundation.org/practical-biology/investigating-response-worms-soil-improvers investigating the behaviour of animals to different soil conditions http://www.nuffieldfoundation.org/practical-biology/biodiversity-your-backyard using quadrats to measure biodiversity http://www.nuffieldfoundation.org/practical-biology/model-natural-selection-%E2%80%93-spaghetti-worms modelling natural selection http://www.biology-fieldwork.org/woodland/woodland-plants/investigation-comparing-two-areas-of-woodland.aspx Investigation into ground vegetation in two contrasting areas of woodland, including a spreadsheet for calculating Simpson's Diversity Index http://bigpictureeducation.com/video-whats-buttercup Wellcome Trust video and accompanying data for field work http://www.saps.org.uk/secondary/teaching-resources/258 http://www.saps.org.uk/secondary/teaching-resources/127 http://www.saps.org.uk/secondary/teaching-resources/768 online activities to practice sampling techniques before you get into the field, looking at measuring abundance, random sampling and distribution of species across a footpath
• Investigation into stomatal numbers in leaves	http://www.nuffieldfoundation.org/practical-biology/window-past-measuring-stomatal-density identifying the number of stomata on either side of a leaf.

• Dissection of fish head to show the gas exchange system • Scientific drawing of a low power plan of a prepared slide of T.S. dicotyledon leaf e.g. Ligustrum (privet), including calculation of actual size and magnification of drawing	http://www.saps.org.uk/secondary/teaching-resources/1325-a-level-set-practicals-dissection-and-microscopy-of-a-plant-stem microscope activity
• Investigation into transpiration using a simple potometer • Scientific drawing of a low power plan of a prepared slide of T.S artery and vein, including calculation of actual size and magnification of drawing • Dissection of mammalian heart	http://www.nuffieldfoundation.org/practical-biology/estimating-rate-transpiration-plant-cutting rate of transpiration and an animation that supports the ideas of water transport http://www.saps.org.uk/secondary/themes/1274 http://www.nuffieldfoundation.org/practical-biology/measuring-rate-water-uptake-plant-shoot-using-potometer using a potometer http://www.saps.org.uk/secondary/teaching-resources/1263 a simpler set of potometer apparatus http://www.nuffieldfoundation.org/practical-biology/tracking-active-uptake-minerals-plant-roots active uptake of minerals in plant roots http://www.nuffieldfoundation.org/practical-biology/looking-heart heart dissection, looking at structure of organs – link to mass transport system.
Energy Homeostasis and the Environment (A2 Unit3)	
• Investigation of dehydrogenase activity using artificial hydrogen acceptors, as illustrated by methylene blue, DCPIP or tetrazolium compounds	http://www.nuffieldfoundation.org/practical-biology/measuring-rate-metabolism measuring metabolic rate http://www.nuffieldfoundation.org/practical-biology/investigating-light-dependent-reaction-photosynthesis using DCPIP as an electron acceptor – investigating light dependent reaction
• Investigation into the separation of chloroplast pigments by chromatography • Investigation into factors affecting the rate of photosynthesis	http://www.saps.org.uk/secondary/teaching-resources/181 thin layer chromatography for photosynthetic pigments http://www.nuffieldfoundation.org/practical-biology/investigating-light-dependent-reaction-photosynthesis using DCPIP as an electron acceptor – investigating light dependent reaction

• Investigation into the role of nitrogen and magnesium in plant growth	http://www.saps.org.uk/secondary/teaching-resources/235 investigating photosynthesis using algal balls and an animation that outlines respiration and photosynthesis http://www.saps.org.uk/secondary/themes/1281
• Investigation into factors affecting the rate of respiration in yeast	
• Investigation into the numbers of bacteria in fresh and stale milk, using techniques of serial dilution, plating and counting colonies	http://www.nuffieldfoundation.org/practical-biology/aseptic-techniques standard practice for aseptic techniques http://www.nuffieldfoundation.org/practical-biology/incubating-and-viewing-plates standard practice for viewing and incubating agar plates http://www.nuffieldfoundation.org/practical-biology/making-nutrient-agars making up nutrient agars http://www.nuffieldfoundation.org/practical-biology/pouring-agar-plate how to pour agar plates http://www.microbiologyonline.org.uk/teachers/resources practical books on microbiology available for teachers to download for free
• Investigation into the abundance and distribution of organisms in a habitat	http://bigpictureeducation.com/video-whats-buttercup Wellcome Trust video and accompanying data for field work http://www.saps.org.uk/secondary/teaching-resources/258 http://www.saps.org.uk/secondary/teaching-resources/127 http://www.saps.org.uk/secondary/teaching-resources/768 online activities to practice sampling techniques before you get into the field, looking at measuring abundance, random sampling and distribution of species across a footpath
• Dissection of kidney	
Variation Inheritance and options (A2 Unit 4)	
• Investigation of the digestion of starch agar using germinating seeds	http://www.nuffieldfoundation.org/practical-biology/comparing-flower-structure-different-angiosperms dissection and comparison of different flower structures

• Dissection of wind and insect-pollinated flowers • Scientific drawing of a low power plan of a prepared slide of an anther, including calculation of actual size and magnification of drawing	
• Experiment to illustrate gene segregation including the use of the chi squared test in assessing the significance of genetic outcomes	
• Investigation of continuous variation in a species (including use of the Student's t test)	

Practical resources to support the teaching of practical skills in Biology A levels in Wales

Practical techniques	Additional options for practical work
use appropriate apparatus to record a range of quantitative measurements (to include mass, time, volume, temperature, length and pH)	http://www.saps.org.uk/secondary/teaching-resources/235 investigating photosynthesis using algal balls (pH and colour)
use appropriate instrumentation to record quantitative measurements, such as a colorimeter or potometer	http://www.nuffieldfoundation.org/practical-biology/measuring-rate-water-uptake-plant-shoot-using-potometer using a potometer http://www.saps.org.uk/secondary/teaching-resources/1263 a simpler set of potometer apparatus http://www.nuffieldfoundation.org/practical-biology/quantitative-food-test-protein-content-powdered-milk establishing the quantity of protein in powdered milk – can use a colorimeter in this practical http://www.nuffieldfoundation.org/practical-biology/investigating-effect-temperature-plant-cell-membranes effect of temperature on plant cell membranes (can use colorimeter) http://www.saps.org.uk/secondary/teaching-resources/235 and http://www.saps.org.uk/secondary/teaching-resources/1224 investigating photosynthesis using algal balls (can use a colorimeter)
use laboratory glassware apparatus for a variety of experimental techniques to include serial dilutions	
use of light microscope at high power and low power, including use of a graticule	http://www.nuffieldfoundation.org/practical-biology/investigating-mitosis-allium-root-tip-squash mitosis in a root tip squash http://www.nuffieldfoundation.org/practical-biology/preparing-anther-squash meiosis in an anther squash http://www.saps.org.uk/secondary/teaching-resources/770-microscopy-looking-at-xylem-and-specialised-cells xylem cells, trichomes

	http://www.saps.org.uk/secondary/teaching-resources/1325 preparing a temporary slide to show and measure phloem and xylem
produce scientific drawing from observation with annotations	http://www.nuffieldfoundation.org/practical-biology/investigating-mitosis-allium-root-tip-squash mitosis in a root tip squash http://www.nuffieldfoundation.org/practical-biology/preparing-anther-squash meiosis in an anther squash http://www.nuffieldfoundation.org/practical-biology/comparing-flower-structure-different-angiosperms dissection and comparison of different flower structures http://www.saps.org.uk/secondary/teaching-resources/770-microscopy-looking-at-xylem-and-specialised-cells xylem cells, trichomes http://www.saps.org.uk/secondary/teaching-resources/1325 phloem and xylem
use qualitative reagents to identify biological molecules	http://www.nuffieldfoundation.org/practical-biology/quantitative-food-test-protein-content-powdered-milk establishing the quantity of protein in powdered milk – can use a colorimeter in this practical
separate biological compounds using thin layer/paper chromatography or electrophoresis	http://www.saps.org.uk/secondary/teaching-resources/181 thin layer chromatography for photosynthetic pigments
safely and ethically use organisms to measure: - plant or animal responses	http://www.nuffieldfoundation.org/practical-biology/microscale-investigations-catalase-activity-plant-extracts catalase activity in plants http://www.nuffieldfoundation.org/practical-biology/how-do-plants-and-animals-change-environment-around-them#node-2978 investigating levels carbon dioxide produced by animals and plants in light and dark conditions http://www.nuffieldfoundation.org/practical-biology/investigating-response-worms-soil-improvers investigating the behaviour of animals to different soil conditions

- physiological functions	http://www.nuffieldfoundation.org/practical-biology/using-choice-chamber-investigate-animal-responses-stimuli animals response to stimuli http://www.nuffieldfoundation.org/practical-biology/investigating-response-calliphora-larvae-light larvae response to light http://www.nuffieldfoundation.org/practical-biology/using-spirometer-investigate-human-lung-function using a spirometer to measure lung function http://www.nuffieldfoundation.org/practical-biology/investigating-factors-affecting-breathing-rate-locust investigating the factors that affect breathing rate http://www.nuffieldfoundation.org/practical-biology/investigating-factors-affecting-heart-rate-daphnia investigating factors that affect heart rate http://www.nuffieldfoundation.org/practical-biology/observing-effects-exercise-human-body effects of exercise on humans http://www.getinthezone.org.uk/ Practical activities (kits were delivered to free to all schools in 2012) with link to online database for analysis
use microbiological aseptic techniques, including the use of agar plates and broth	http://www.nuffieldfoundation.org/practical-biology/aseptic-techniques standard practice for aseptic techniques http://www.nuffieldfoundation.org/practical-biology/incubating-and-viewing-plates standard practice for viewing and incubating agar plates http://www.nuffieldfoundation.org/practical-biology/making-nutrient-agars making up nutrient agars http://www.nuffieldfoundation.org/practical-biology/pouring-agar-plate how to pour agar plates

safely use instruments for dissection of an animal organ, or plant organ	http://www.nuffieldfoundation.org/practical-biology/looking-heart heart dissection, looking at structure of organs http://www.nuffieldfoundation.org/practical-biology/dissecting-lungs lung dissection tissue and organ structure http://www.nuffieldfoundation.org/practical-biology/comparing-flower-structure-different-angiosperms dissection and comparison of different flower structures http://www.saps.org.uk/secondary/teaching-resources/1325-a-level-set-practicals-dissection-and-microscopy-of-a-plant-stem dissection of plants
use sampling techniques in fieldwork	http://www.nuffieldfoundation.org/practical-biology/observing-patterns-distribution-simple-plant patterns in plant distribution http://www.nuffieldfoundation.org/practical-biology/biodiversity-your-backyard using quadrats to measure biodiversity http://www.biology-fieldwork.org/woodland/woodland-plants/fieldwork-collecting-vegetation-data.aspx Sampling strategies and use of quadrats for sampling ground vegetation in woodlands http://www.biology-fieldwork.org/woodland/woodland-invertebrates/fieldwork-sampling-woodland-invertebrates.aspx Sampling strategies and capture techniques for sampling woodland invertebrates. http://www.biology-fieldwork.org/woodland/woodland-invertebrates/investigation-sampling-snail-populations.aspx Use of mark-release-recapture and Lincoln Index for estimating the size of populations http://bigpictureeducation.com/video-whats-buttercup Wellcome Trust video and accompanying data for field work http://bigpictureeducation.com/animation-surveying-populations Animation shows sampling methods in different environments

	http://www.saps.org.uk/secondary/teaching-resources/258 http://www.saps.org.uk/secondary/teaching-resources/127 http://www.saps.org.uk/secondary/teaching-resources/768 online activities to practice sampling techniques before you get into the field, looking at measuring abundance, random sampling and distribution of a species across a footpath
use ICT such as computer modelling, or data logger to collect data, or use software to process data	http://www.dnadarwin.org/ explore the molecular evidence for evolution through practical bioinformatics activities that use data analysis tools and molecular data.

Additional links to teaching resources

Society of Biology www.societyofbiology.org

Society of Biology and Nuffield Resource http://www.nuffieldfoundation.org/practical-biology

Field Studies Council http://www.biology-fieldwork.org/

British Ecological Society http://www.britishecologicalsociety.org/education/

Biochemical Society http://www.biochemistry.org/Education/Teachers.aspx and www.sciberbrain.org and http://www.biochemistry.org/Portals/0/Education/Docs/Biochem_Booklet_web.pdf

Science and Plants for Schools http://www.saps.org.uk and

http://www.saps.org.uk/secondary/teaching-resources/1304-a-level-set-practicals (a collection of new practical resources to support the practical endorsement)

Society for General Microbiology http://www.sgm.ac.uk and http://www.microbiologyonline.org.uk

Wellcome Trust www.wellcome.ac.uk/education

Resources contributed by:

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