

Session Outline

Advanced Higher Biology – Sampling

Biology: Organisms and Evolution 1 Field techniques for biologists (a) Health and safety (b) Sampling of wild organisms (c) Identification and taxonomy (d) Monitoring populations (e) Measuring and recording animal behaviour

Investigative Biology 1 Scientific principles and process (a) Scientific method Scientific cycle (b) Scientific literature and communication (c) Scientific ethics; 2 Experimentation (c) Experimental design (e) Sampling (f) Ensuring reliability

3 Critical evaluation of biological research (a) Evaluating background information (b) Evaluating experimental design (d) Evaluating conclusions

Learning objectives	Session structure	Assessment for learning
<p>Solve problems and apply scientific knowledge to practical contexts Know and understand how to use a wide range of experimental and practical techniques to investigate variation, populations and communities. Collect data to measure species richness and diversity.</p>	<p>Sampling Biodiversity Students will investigate the communities that make up the ecosystems within our nature reserves. Random sampling or belt transects with quadrats will be used to investigate the impact of biotic and abiotic factors on the population size and variation within a species and how this impacts upon its niche. By collecting this data students will have the opportunity to consider how we work locally and globally to manage landscapes for human and conservational needs. Plenary activity Using their experiences in the field students will evaluate and consider the limitations of their methodology and present their findings</p>	<p>RSPB Learning staff will use a variety of teacher and student led individual and group activities throughout the session to assess for learning.</p>
Before your visit	After your visit	Key terms
<p>Students will benefit from a prior knowledge of species richness and species diversity</p>	<p>The data collected can be used in mathematical analysis, such as Simpson's index of diversity and/or for use with appropriate statistical tests.</p>	<p>Sampling techniques, quadrats, biodiversity, species richness, Simpson's index, population, community, habitat, variation, management</p>