Session Outline

GCSE Science/Biology – Managing Water Quality

Specification links: Each Session is tailored to the exam board specifications. Please refer to the supporting document for your chosen exam board

Exam board suggested practicals:

AQA: Pollution kills plants and animals which can reduce biodiversity, Explain how waste, deforestation and global warming have an impact on biodiversity

Edexcel: Investigate how indicator species can be used to assess levels of pollution in water or the atmosphere

OCR A: Describe both positive and negative human interactions within ecosystems and explain their impact on biodiversity.

OCR B: Measure living and non-living indicators to assess the effect of pollution on organisms

WJEC: Investigate how indicator species and changes in pH and oxygen levels may be used as signs of pollution in a stream.

Learning objectives	Session structure	Assessment for earning
Gain practical experience of, and be able to evaluate the use of organisms as indicators of ecosystem health Use practical fieldwork techniques to collect quantitative data on the distribution and abundance of organisms Understand the challenges faced in balancing the needs of humans and wildlife Collect data suitable for investigating the trophic structure of a habitat.	**Introduction** Welcome to the RSPB. Students will be introduced to the inspiring location of our nature reserves and explore the need of ecologists to understand the impact of human activity on the world around us. **Practical Fieldwork** Students will use practical fieldwork techniques to investigate how organisms can be used to assess the health of ecosystems in our inspiring nature reserves. Students will sample invertebrates from an aquatic habitat and look at how the adaptations of these organisms enable them to survive and under different biotic and abiotic pressures. By collecting this data students will have to opportunity to consider how environments change and how conservation organisations act locally and globally to manage landscapes for humans and wildlife. **Plenary activity** Using their experiences in the field students will evaluate and consider the limitations of their methodology and present their findings	RSPB Learning staff will use a variety of teacher and student led individual and group activities throughout the session to assess for learning.

Before your visit	After your visit	Key terms
Students will benefit from having a prior understanding of 'what pollution is'.	Use the data collected and supporting teacher's pack to calculate the trophic structure of the habitat investigated. Carry out an air quality survey of the school grounds using the OpAL Air Survey resources (http://www.opalexplorenature.org/airsurvey)	Pollution, indicator, biotic, abiotic, biodiversity