


Session title	Environmental change in freshwater ecosystems	
Key question	What effects do humans have on freshwater habitats and how can these be measured?	
Session description	Investigate environmental change and human impacts on freshwater habitats. Discover the interdependence of organisms and how they affect and are affected by their environment. Work scientifically to identify which organisms are present and use the correlation between water quality and biodiversity to determine the health of the pond.	
Key Stage suitability	KS3	
Duration	60 minutes	

Curriculum links	KS3 Science: <ul style="list-style-type: none"> ▪ Relationships in an ecosystem <ul style="list-style-type: none"> ○ The interdependence of organisms in an ecosystem, including food webs and insect pollinated crops ○ How organisms affect, and are affected by, their environment, including the accumulation of toxic materials. ▪ Inheritance, chromosomes, DNA and genes <ul style="list-style-type: none"> ○ Differences between species 		
Learning outcomes	All learners	More able learners	
	<ul style="list-style-type: none"> ▪ Will be able to identify at least two factors that affect a pond. ▪ Will be able to use equipment and follow a methodology to carry out a scientific survey. ▪ Will be able to use pond dipping equipment safely and effectively to catch animals with minimal disturbance to the habitat. 	<ul style="list-style-type: none"> ▪ Will be able to recognise adaptations that make animals pollution-tolerant or sensitive. ▪ Will be able to identify other factors that could affect their survey. 	
Key vocabulary	<ul style="list-style-type: none"> ▪ Ecosystems ▪ Interdependence ▪ Methodology 	<ul style="list-style-type: none"> ▪ Biotic ▪ Abiotic ▪ Eutrophication 	<ul style="list-style-type: none"> ▪ Indicator species ▪ Sensitivity ▪ Tolerance

Session Outline	Time
Introduction	5 mins
A quick introduction to the session and what will be covered	
Section 1: Introduction to pond surveying	5 mins
Demonstration using equipment, covering health and safety points and methodology of pond surveying	
Section 2: Pond sampling	15 mins
Learners will undertake pond sampling	
Section 3: Introduction to survey and recording	5 mins
Demonstration of ID guide, survey sheet and water quality, introducing both biotic and abiotic factors	
Section 4: Surveying and recording data	20 mins

Learners will collect their samples and analyse them	
Plenary	10 mins
Groups will be invited to share their findings with other groups. What does this tell us about the water quality of the pond?	