Name of session	**Pond Explorer** (classification and food chains)		
	Level: Lower KS2 Year3&4	Length of session: 2 hours	Available at: Sutton Ecology Centre

Curriculum Links

Working Scientifically

- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Making systematic and careful observations using a range of equipment (video microscope, magnifying glasses)
- Recording findings using simple scientific language, drawings, bar charts and tables

Living things and their habitats

- Recognise that living things can be grouped in a variety of ways (vertebrates and invertebrates)
- Use classification keys to help identify and name a variety of living things in their local environment

Animals

- Construct and interpret a variety of food chains, identifying producers, predators and prey.

Previous knowledge expected from students	Key concepts/key words
To have seen the picture of a pond in the different seasons. To have predicted some minibeasts that might live in this habitat.	Vertebrates, invertebrates, classification of animals, observation, identification, dichotomous key, food chain, producer, herbivore, carnivore, decomposer

Learning objectives

To be able to group pond animals into vertebrates and invertebrates, and to begin to put them into further groups.
To be able to use a dichotomous key to identify pond creatures.
To learn about food chains and understand the terms producer, herbivore, carnivore and decomposer.
To be able to construct a food chain.
To be able to pond dip to collect pond creatures, identify and record what they found and observe their findings carefully to make a scientific drawing.

Outcomes

Pupils will be able to name a variety of vertebrates and invertebrates, some pupils will be able to groups these further.
All pupils will have used a dichotomous key to identify at least one pond creature.
Pupils will have constructed and recorded a food chain based on the creatures they found in the pond
Pupils will have recorded the creatures found in their groups and all pupils will have made a scientific drawing based on close observation of one creature.

Starter

5 mins: what season is it? Which picture of the pond habitat matches this season best? What do you think we might find? Which season would we find most different types of minibeasts?

Introduction

Timings	Student Activity
20 mins	Pupils are given a picture of a pond creature, or animals that visit the pond and are asked to group them into Vertebrate or Invertebrate. Then, can these be grouped further?

Main Activities

Timings	Student activity
10mins	Construct a pond food chain using terms producer, herbivore, carnivore, secondary carnivore and decomposer. Which are predators, which are prey?
20mins	Pond dipping, in 6 groups. Safety talk.
10mins	Using a dichotomous key, pupils are shown how to identify their creatures. They record what they found using a tally.
30mins	Creatures are taken back to the classroom and we look at them closely under the video microscope to look at their adaptations and mouth parts – can we predict if they are a predator or prey based on these features?
15mins	Pupils concentrate on making a drawing of one creature, and label it.

Plenary
10mins: Can you use the creature you have drawn in a food chain? Will it be in the pond all year? How will this effect the food chain and other creatures living in the pond? Preparing to leave, washing hands etc.
Extension work
What is the longest food chain you can make? Can you make a food web?
Pre-course preparation work suggestions
Discussion to establish prior knowledge and what the children would like to find out. Quiz to revise key food chain vocabulary. Use a dichotomous key to identify pictures of organisms. Research lesson (homework/groupwork in school) – give each child/group a different invertebrate that will be found at the Ecology Centre. Children research what it eats, what it is eaten by (put it in to food chains), habitat, adaptations, life cycle, etc. Make a fact file.
Further Work (post course) suggestions
Explore reasons why the ecology centre pond may change (drought due to climate change may dry up the pond, pressure for more housing may mean it is built on, it could be polluted by vandals throwing rubbish or waste in the pond) and what the effect would be on the habitat and the biodiversity in the pond. How will the pond biodiversity be effected in different seasons – look at the photographs of the pond in different seasons, what changes are going on under the surface of the water. How does temperature effect the animals living there? Writing formal letters, making suggestions for changes, improvements future uses of Sutton Ecology Centre.
Alternatives (field sites and wet weather)
This session is not translatable inside, and therefore will go ahead in wet weather. The introduction and plenary can be done inside if the weather is wet or too cold/windy. The session will be cancelled only due to severe weather warning such as flooding, high winds and stormy weather.
Opportunities for evaluation
Teacher evaluation: Photograph pupils in action for evidence, observation throughout the session, written work on worksheet: can they make accurate observation of their creature, assess understanding post session through activities and questioning. By providing appropriate level of adult/child ration to ensure pupils are kept 'on task'.
Leader evaluation: The session leader will assess progress throughout the day by open ended questioning and plenary sessions. Through observation, the session leader will ensure that all pupils are engaged in learning and complete the tasks required.

Resources
Laminated pictures of different pond creatures, with Velcro. Labels for grouping: Vertebrate/Invertebrate, bird, amphibian, fish, mammals, snails, spiders and insects. Updated worksheet to include food chain.
Key H&S
Dress and prepare for the outdoors. Long trousers due to tall grass, brambles and nettles. Sensible footwear in all weather conditions. Waterproofs in wet weather. Sunhats, suntan lotion and water bottles in hot sunny weather. All pupils and teachers should wash their hands prior to leaving the site or eating. Teachers should arrange a pre-visit to discuss specific health & safety requirements to generate their own risk assessments. Course leaders: Site check and dangerous litter pick.