

Key Subjects:	Geography, Science
Venue:	WaterWorks Centre nature reserve, Leyton, London
Programme Length:	3 ½ hours

SESSION AIM

A unique opportunity to study urban habitats with a focus on the hidden world of land invertebrates present within the WaterWorks nature reserve, and the observation of waterbirds at the WaterWorks bird hide.

Land invertebrate study and minibeast hunt.

The study of 'minibeasts' in their urban habitats throughout the Lee Valley. Focusing on land invertebrate's needs of life, food chains, classifications and adaptations.

Waterbird study.

A visit to study the former Essex Filter Beds and its redevelopment and management to create one of the largest bird hides in London encompassing a range of habitats showing succession from open water, through floodplain grassland to dense reed and willow wood and the waterbirds that live there. To understand what the four needs of life are and where they can be found within the habitat. To allow discussion, identification and recording of different species of waterbirds. To understand and discuss the relationship between seasons, food availability, natural and man-made hazards and the need for migration affecting survival of migratory birds. To study waterbird behaviour and how they are adapted to their way of life. To gain an understanding of predator/prey relationships and food chains.

ACTIVITIES

This activity is suitable for Key Stage One and Two children aged 5-11 years and is based at the WaterWorks Nature Reserve in Lea Bridge Road, Leyton. The programme focuses on species identification, habitats, food chains and adaptations, and includes the following:

Welcome and introduction to the programme

- ❖ Safety talk- including safety sack contents and appropriate behaviour
- ❖ Summary of programme
- ❖ Distribution of equipment

Study of the land invertebrate (minibeast) habitat

- ❖ Introduction to the urban habitat and definitions of habitat and microhabitat
- ❖ Observe manmade features in the habitat
- ❖ Complete a sound map and discuss the range of sounds heard (KS2)
- ❖ Discuss needs of life and play the needs of life game
- ❖ Predict in which land microhabitat most invertebrates will be found (KS2)
- ❖ Using survey equipment
- ❖ Invertebrate collection, classification, recording and releasing
- ❖ Evaluate prediction and reasons behind the results (KS2)

Study of the waterbird habitat:

- ❖ Equipment distribution and demonstration including safe use of binoculars

Migration and Migration Game (Part 1):

- ❖ Migration discussion – what migration is, and why birds migrate
- ❖ Study of a known migration route to the Lee Valley Park via a migration game involving all group members

Bird Watching at WaterWorks Nature Reserve Bird Hide:

- ❖ Identifying and recording water birds using simple identification keys
- ❖ Study bird behaviour and feeding methods
- ❖ Observe habitat and consider needs of life relating to habitat
- ❖ Construction of a food chain
- ❖ Discuss adaptations of a bird

Migration Game (Part 2):

- ❖ Study of a known bird migration route from the Lee Valley Park back to summer breeding site (as above)
- ❖ Summary of session, equipment collection and hand washing

SAFETY All activities and sites are risk assessed. All Lee Valley Regional Park teaching staff carry mobile phones and first aid kits. Groups should follow their ratio guidelines. We provide a copy of our safety rules for teachers to discuss with students prior to visit. Further H&S information is available at visitleevalley.org.uk/education

CLOTHING AND BAGS Appropriate outdoor clothing e.g. waterproofs, suitable footwear, sun cream and hat. It is recommended that hands free bags are brought to carry lunch etc.

RESOURCES All required resources and equipment are provided.

BEHAVIOUR Teachers are responsible for good behaviour throughout their visit including lunchtime supervision.

ASSESSMENT Open-ended questioning, ongoing peer discussion, sharing experiences, completion of project booklets (some programmes) and plenary sessions.

WASTE AND RECYLING Please see our website regarding lunch waste and our recycling policies.

LEARNING OUTCOMES

Study of the land invertebrate (minibeast) habitat

Most children will be able to:

- ❖ List at least five key safety precautions required when outdoors and near water.
- ❖ Identify and **classify** five invertebrates to their Class and Species (i.e. Spider Class : Arachnid and one Species is Crab spider) (KS2)
- ❖ Explain what terrestrial means (KS2)
- ❖ Define what a habitat (KS1 and KS2) and a micro habitat is (KS2) and give examples
- ❖ Explain how to use surveying equipment
- ❖ Name the four **needs of life** for invertebrates (and other animals)
- ❖ Understand the terms **habitat, urban habitat , minibeast, camouflage, food chain, adaptation** (KS 2)
- ❖ Write a habitat description (KS2)
- ❖ Use simple keys to identify land invertebrates.

In addition to the above some children will be able to:

- ❖ Name the four needs of life for invertebrates (and other animals) and how that relates to their populations in microhabitats
- ❖ Identify and classify more than five invertebrates by Class and Species
- ❖ Discuss the key body features of various terrestrial invertebrates and how they are adapted to their habitat (KS2).

Study of the waterbird habitat:

Most children will be able to:

- ❖ Understand the concept of bird **migration**
- ❖ Describe a **habitat**
- ❖ Use simple keys to identify water birds
- ❖ Record sightings of different bird species
- ❖ Use **food chains** to show feeding relationships in a habitat
- ❖ Discuss the key features of a waterbird and understand how different water birds are **adapted** to different habitats
- ❖ Understand the appropriate behaviour required of them when on a field trip

In addition to the above some children will be able to:

- ❖ Identify a number of waterbirds by sight without the use of a key
 - ❖ Understand and explain how different water birds are adapted to different habitats
- Be able to construct their own example of a food chain

POST VISIT Pupils can send their trip inspired letters, poems, pictures and environmental pledges to youthandschools@leevalleypark.org.uk
A selection will be displayed online at visitleevalley.org.uk/education

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IDEAS FOR PREPARATION WORK

Study of the land invertebrate (minibeast) habitat

Discussion on the following points:

Habitats: What makes a good wildlife habitat and which would be the better quality habitat; long grass or short grass; under logs or on a gravel path? Why is this so (think about the needs of life: air, food, water and shelter)?

Minibeasts: Which animals would be termed 'minibeasts' and what is meant by the words 'urban' and 'habitat'? What are suitable habitats for minibeasts? Do they all live in the same part of the habitat? What do they need to be able to find in their habitat in order to survive?

That we should respect the animals and the environment we are using when minibeast hunting.

Equipment that might be used to help find minibeasts on land such as sweep nets, sheets and trays.

Why would we use a pot with a magnifying lid to contain creatures that we have captured and wish to study. Why wouldn't we put a small fly into the same pot as a large spider? Why are the nets and sheets used for minibeast hunting white instead of green or brown?

What are the reasons that pupils should not pick up creatures in their hands? (Youth and Schools Service provides pupils with plastic spoons for this purpose). Youth and schools tutors inform the children that this is to protect both them and the creatures they are studying. Some creatures may bite (such as red ants) or be slimy and make their hands dirty. Children are also warned not to try and catch wasps and bees. They are also reminded that they may harm the small and delicate creatures they are collecting if they try to pick them up using their fingers.

They are also reminded to keep their hands away from their faces and out of their mouths when working outside.

Identification: the basic differences between insects and other small creatures such as spiders, woodlice, slugs and snails. Discuss the presence/absence of features such as legs, wings, antennae, eyes, mouthparts or a shell.

Adaptations: shape, colour, camouflage, warning colours and markings. Also body features as suggested above.

Life cycles: How these vary between different types of minibeast. Most minibeasts alter in appearance and can live in different habitats at different stages of their lifecycle.

Food chains: Discuss the different levels of a food chain within a minibeasts habitat and what would happen if the habitat became polluted causing all the green plants within it to die.

Some minibeasts are herbivores and some are carnivores.

Study of the waterbird habitat:

Discussion on the following points:

What is a waterbird and what is meant by the word 'habitat'? What a waterbird would need to find in its habitat with reference to the needs of life: food, water, air and shelter. What features of the habitat would provide such needs, for example plants provide both food and shelter for some birds. The feeding relationships within a waterbird habitat with reference to food chains.

Bird and animal migration and the reasons for the regular seasonal movement of some creatures. Comparison to alternatives such as hibernation and how humans cope in cold weather.

Adaptations and why birds have different shaped bodies, beaks, legs, feet and plumage variations for camouflage and display.

How pupils should behave on a bird watching field trip – what they should wear, why they must follow instructions carefully, handle equipment safely and respectfully, and the need for quiet and controlled conduct when visiting a public bird hide.

Pupils could also research the different types of water birds they might see on this field trip and investigate facts about them such as adaptations and feeding habits. They could do this as part of an IT lesson and present their findings to the rest of the class.

IDEAS FOR FOLLOW- UP WORK

Referring back to the information from the visit, the children could:

Create a wildlife garden: As part of a school group/class project creating they could design a wildlife area, garden or model garden, with a mix of suitable microhabitats. This could be run as a competition.

Make a food chain mobile: Students could devise a food chain relating to a minibeast or waterbird and make a mobile.

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Make a bag bug or bird: To reinforce the appreciation of the creatures seen on the visit, students could create a minibeast or bird model using an old carrier bag stuffed with rolled up newspaper and sectioned off using tape or elastic bands to make a head and body. A range of craft materials can be taped onto this basic shape to form eyes, antennae, wings, legs and feet depending on the creature being made. The pupils could then present their creation to the rest of the class.

Discussion on eyes and animal senses: Dragonflies have excellent eyesight (with 30,000 lenses!) which helps them catch their prey and avoid being caught themselves. Other animals might have a different sense which is highly developed. Animals could be studied to find out which of their five senses (sight, smell, hearing, touch or taste) is used the most, and which the least. For example: Earthworms are covered with taste receptors; Dogs can hear incredibly high-pitched sounds; Butterflies have taste receptors on their feet; Crickets can hear using their legs and Jellyfish have 24 eyes. Reasons for the development of these senses could be explored.

Make a Hidden World Poster: For younger pupils ask them to draw their favourite minibeast on a piece of A5 paper and to write the name of their creature and their own name next to it. Get the children to cut around their artwork and to stick it on a large poster sized piece of paper for display on the classroom wall. This poster could be entitled *'The Hidden World of the Lee Valley Park'* as a reminder of their visit. For older pupils Create a large wildlife wall poster with labels: label habitats including explanations on why they are suitable e.g. more shelter from predators, retains more moisture for water, more food for herbivores and carnivores; include minibeasts with descriptive labels e.g. what type, how many body parts, name the body parts, adaptations.

Make a water bird collage

Students could create a collage of the water birds and habitats seen at the WaterWorks.

Make a 'Stop pollution' poster

Following a discussion on pollution and the need to protect living things and the environment, students could make a poster highlighting why humans should not pollute water and land habitats.

Bird Watch in the school grounds

Pupils could explore the school grounds in order to expand their investigation to the study of visiting field bird species. The RSPB website provides useful and simple bird pictures and information on www.rspb.org.uk

Students could consider/investigate:

- ❖ Species of birds seen
- ❖ Numbers of birds seen
- ❖ Which bird is the most common in their school ground
- ❖ What they could do to encourage more birds into their school

To book or discuss this programme please contact the Youth and Schools Service on **03000 030 618** or email youthandschools@leevalleypark.org.uk