

# LEA RIVER PARK

## EDUCATION RESOURCE PACK

RIVER THAMES.  
with  
THE DOCKS FROM  
WOOLWICH TO THE TOWER.

East India Dock Basin

LEA RIVER PARK

# INTRODUCTION

## An outdoor classroom 400 miles long:

The waterways of London form a 400 mile network of potential! They are a fantastic outdoor classroom, waiting to be explored. Studies in geography, ecology, history and citizenship are fitting here, with boundless inspiration for art, literacy and the creative curriculum.

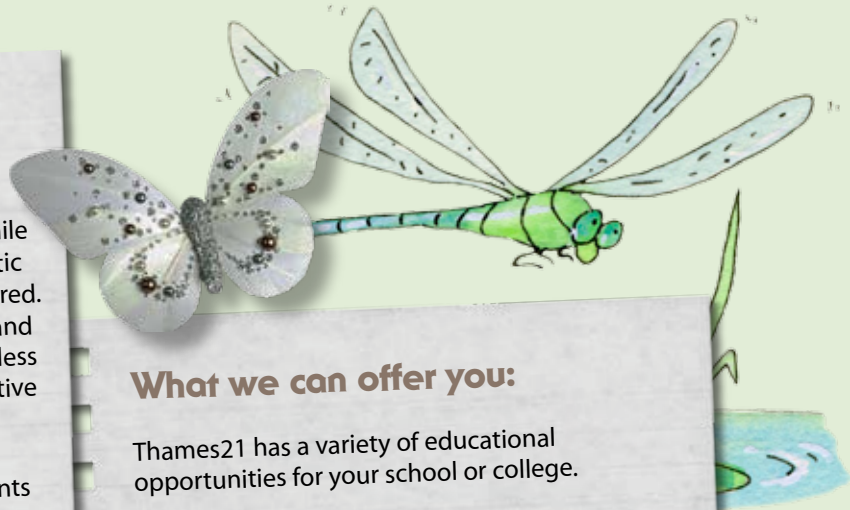
This pack will help you and your students explore your local waterways; The River Lea and Lee Navigation, in the area of the new Lea River Park, stretching down the River Lea from Stratford to the Thames.

## Thames21:

Although our waterways are a superb learning resource, some do need a helping hand to reach their potential. Thames21 is a registered charity working with over 8000 volunteers each year to improve the waterways, clean up grot spots and improve wildlife habitats. Thames21 organise community events and activities to bring people to the waterways for leisure and recreation, and deliver educational projects for school and colleges. See [www.thames21.org.uk](http://www.thames21.org.uk) for more information.

## In your area:

Thames21 are working on the Lea River Park project, a new 2 mile long park extending along the River Lea from Stratford south to the Thames. This park is being developed by London Thames Gateway Corporation and the Lee Valley Regional Park Authority. It will be a superb green space for the area, linking to the Olympic Park and increasing access to the waterways for all. There are lots of opportunities for the community to be involved. Visit the website [www.leariverpark.org](http://www.leariverpark.org) for more details about the project.



## What we can offer you:

Thames21 has a variety of educational opportunities for your school or college.

- This Resource Pack has been developed in consultation with teachers and lecturers and offers self-led activities linked to the waterways in the Lea River Park for Key Stage 1-4 to A-levels.
- Our Sticklebacks in the Classroom project gives students the opportunity to care for Sticklebacks during the spring term. Great for any age student, there are many links to National Curriculum studies and provides a superb stimulus for a creative curriculum approach.
- We can facilitate field visits and practical volunteering activities for your students.
- We offer work experience placements for students aged 15+
- Information stalls or activities at your environmental days, green fairs etc.
- Speakers for careers guidance, geography lessons, citizenship sessions etc.
- Activities for youth groups or parents attached to your school.





## This Resource Pack:

This Resource Pack has been developed in consultation with teachers and lecturers in Newham and Tower Hamlets. It aims to guide education professionals to use the waterways in the Lea River Park as an outdoor classroom. The Pack covers health and safety and includes information on opportunities for additional follow up study and links. Suitable sites are identified for each activity, such as Three Mills Island, accessed from Stratford or Bow, or East India Dock Basin on the Thames, close to Canning Town station. Some lesson plans are based in class, but of course a visit to the appropriate site can bring this learning to life. All sites can be easily accessed by public transport.

The lesson plans and activities are linked to the National Curriculum for Key Stage 1-4 and appropriate exam board syllabus for GCSE and A-level study, covering science, geography, history and citizenship. Many excellent stimuli can be found amongst this pack for those following a creative curriculum.

This Pack will be continually developed and improved. Your feedback would be appreciated.

We hope the pack will help to introduce more people to the wonders of the waterways, and inspire young people to tackle the negative and cherish the treasures.

For more information on education in the Lea River Park or to give us your feedback please call our East London Office on 020 7515 3337 or email [info@leariverpark.org](mailto:info@leariverpark.org)

**The pack has been developed with the kind assistance of teachers from the following schools and colleges:**

- Manorfield Primary School
- Drew Primary School
- Kaizen Primary School
- St Paul's Way Community School
- Tower Hamlets College
- Newham College

The development of this pack has been supported by:





## Background

The River Lea has shaped its valley through the years, both in form and in human use. The River is tidal. Now the tides flow in and out of the Lea up to Three Mills Island, where a lock today creates permanent high water north from there. The tidal River has provided water to power the mills on Three Mills Island, and to transport goods. Food was produced here, and London's drinking water came from reservoirs in the valley.

The River Lea was vital to the health and wealth of the city. The city was not so giving in return. The Lea's location has also meant that it has been the place for London to dispose of its waste products, out of sight and smell. The direction of the prevailing wind has dictated that the east of London has always been the place for undesirable, noxious activities, so industry became the main land use here. Factories made glass, paints, dyes, alcohol and matches.

With this industry came also an extraordinary culture of innovation. From the invention of synthetic plastic, to the gasworks that powered East London, and Joseph Bazalgette's creation of the first city-wide sewage system, pumped through Abbey Mills. Faraday pioneered electric lighting at Trinity Buoy Wharf, keeping our seafaring nation safe with lighthouses. Culture-creating new goods came into the East India Docks from India and China, such as our beloved tea, and the Virginian settlers left from here on a dramatic voyage across the Atlantic.

Despite centuries of urbanisation and industrial use a wide range of habitats, plants and animals are to be found here. The canal and river provide an excellent place for a bird watching. Herons, cormorants, gulls, ducks, coots, moorhens and even kingfishers abound. The Lea is a migration route for birds, so in spring and autumn you might spot a rarity, such as an osprey taking the chance for a quick meal on the fish that inhabit the river.

Water birds should beware of the pike, a huge fierce predator. Fishermen are content with Perch, Carp, and Bream, and rare Eels have been given special passes to help their movements up the canal and river through the locks. Fish come here to breed, and in the early summer the canal is teeming; you can see shoals of tiny fish.

The reed beds on the canal are a great place for investigating water mini-beasts. Dragonfly nymphs, newts, hoggouse, shrimp, water boatman and a host of other creatures can be caught in a net.

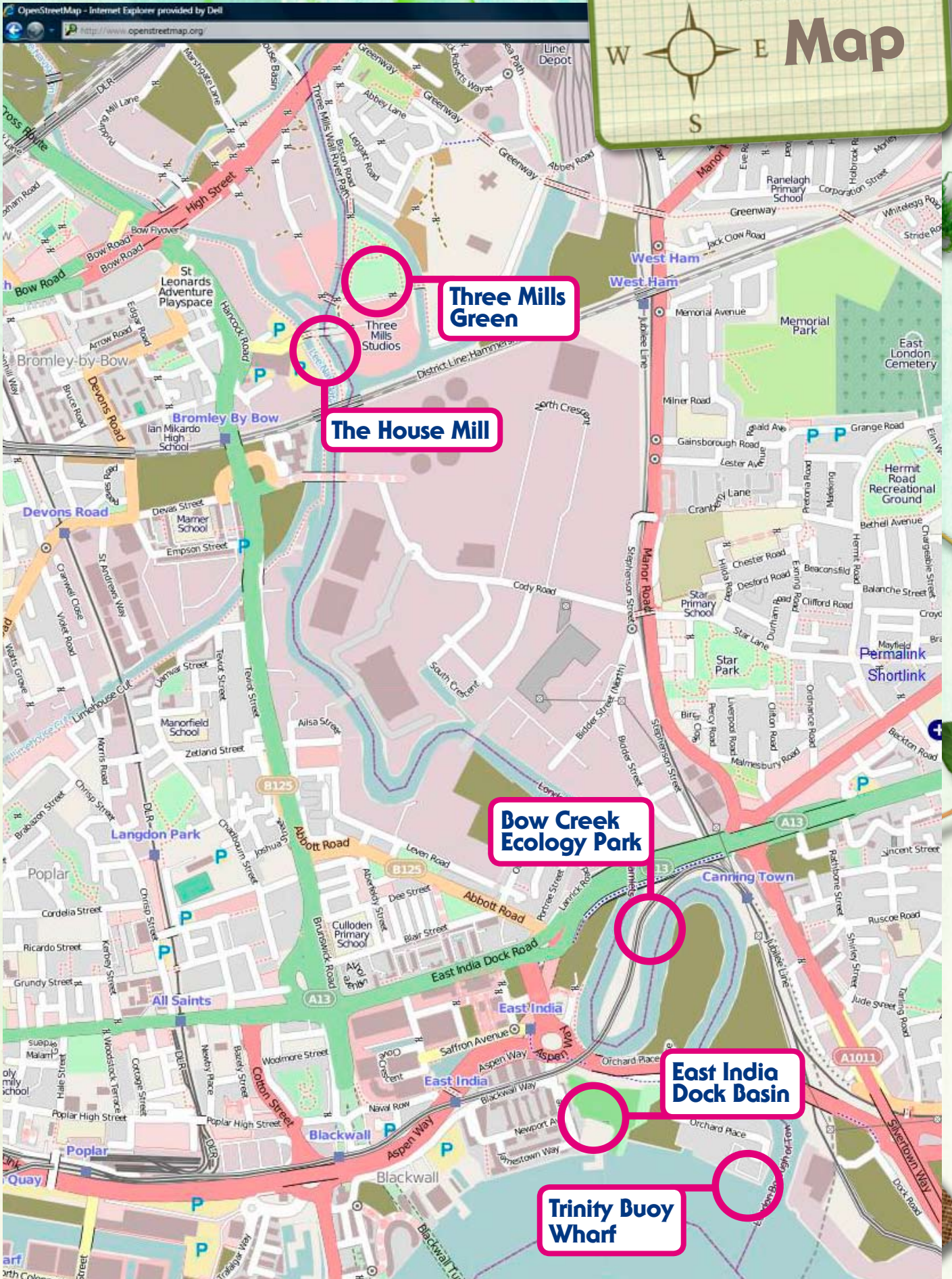
The River Lea and Lee Navigation canal provide a wealth of stimuli for discovery, and for students learning more about their community, its history, and the place in which they live.



# OVERVIEW OF STUDY SITES



Site	Good for.....	Organisation/ Website	Nearest public transport for site
<p>The House Mill Three Mills Lane Bromley by Bow E3 3DU ☎ 020 8980 4626 Group visits by prior arrangement</p>	<p>Local history study Sustainability study Has a classroom facility Café and toilets Viewing River Lea Viewing Lee Navigation Short walk to Bow Lock <b>Tour guides available for school parties</b></p>	<p>The River Lea Tidal Mill Trust Ltd <a href="http://www.housemill.org.uk">www.housemill.org.uk</a></p>	<p>Bromley by Bow station on District line</p>
<p>Three Mills Green Three Mills Lane Bromley by Bow E3 3DU ☎ 08456 770 600</p>	<p>Large open space for lunches/letting off steam! Games Minibeast hunts Viewing Lee Navigation and Three Mills Lock</p>	<p>Lee Valley Park <a href="http://www.leevalleypark.org.uk">www.leevalleypark.org.uk</a></p>	<p>Bromley by Bow station on District line</p>
<p>Bow Creek Ecology Park Bidder St E16 4ST ☎ 08456 770 600</p>	<p>Ecology/wildlife study Peace and quiet Has outdoor shelter Viewing River Lea</p>	<p>Lee Valley Park <a href="http://www.leevalleypark.org.uk">www.leevalleypark.org.uk</a></p>	<p>Canning Town station on Jubilee line and DLR</p>
<p>East India Dock Basin Orchard Place E14 9QS ☎ 08456 770 600</p>	<p>Local history study Ecology/wildlife study Peace and quiet Viewing River Thames</p>	<p>Lee Valley Park <a href="http://www.leevalleypark.org.uk">www.leevalleypark.org.uk</a></p>	<p>East India Dock DLR</p>
<p>Trinity Buoy Wharf 64 Orchard Place E14 0JW ☎ 020 7515 7153 Group visits by prior arrangement</p>	<p>Local history study Study of Michael Faraday Interesting architecture Artists workshops Café and toilets Viewing River Thames</p>	<p>Urban Space Management Ltd <a href="http://www.trinitybuoywharf.com">www.trinitybuoywharf.com</a></p>	<p>East India Dock DLR</p>



**Three Mills Green**

**The House Mill**

**Bow Creek Ecology Park**

**East India Dock Basin**

**Trinity Buoy Wharf**

# HEALTH + SAFETY

Naturally there can be some trepidation amongst teachers when considering waterway activities for their class.

Certainly there are some added hazards when exploring the river or canal compared with other school trips. With some prior research and by using simple safety measures risk can be greatly reduced, along with concern, allowing a safe and fun day for all.

Take a look at the sample risk assessment. Here we aim to provide comprehensive information on health and safety considerations when taking pupils out to the waterways. We don't want to scare, but do include all possible risks, however unlikely to occur, so you have the full information with which to plan your visit and fill out your own risk assessments.

If you require any more information or training on waterway safety, please contact Thames21 and we will be happy to assist.

**SAMPLE RISK ASSESSMENT** Waterway educational visit

Date:	Location:	Lead teacher:	Print Address:						
<b>Hazards</b>	<b>Risk of injury or illness</b>	<b>Likelihood of injury or illness with Risk Reduction Measures</b>	<b>Risk Reduction Measures</b>	<b>Likelihood of injury or illness on the day of the visit (with in part)</b>	<b>Equipment to reduce health injury on the day</b>	<b>Control of emergency services</b>	<b>Control of other hazards</b>	<b>Control of other hazards</b>	
3 Falling into the water/canal	Drowning, Injury from fall	Low	High	<ul style="list-style-type: none"> <li>Safety talk: Pupils to be taken care of when near the edge of the waterway. Ensure appropriate adult: pupil ratios.</li> <li>Children to be covered not in appropriate and safe locations eg. always plenty of space, not near edge of waterway.</li> <li>No running while near waterway.</li> <li>Those that take control and any teacher trained in first aid.</li> <li>If pupil slipping ensure only adult hand long hand out to get children out. Pupils that are in the water to be taken care of.</li> </ul>	Low	Thames 21, Long handled net if canal only activity.	<ul style="list-style-type: none"> <li>3 Unlikely emergency services</li> <li>3 Contact with emergency services</li> <li>3 Contact with emergency services</li> </ul>	<ul style="list-style-type: none"> <li>3 Unlikely</li> <li>3 Unlikely</li> <li>3 Unlikely</li> </ul>	<ul style="list-style-type: none"> <li>3 Unlikely</li> <li>3 Unlikely</li> <li>3 Unlikely</li> </ul>
4 Weather heat	Risk of sun, sunburn becoming wet and cold	Medium	High	<ul style="list-style-type: none"> <li>Check weather forecast in the week before visit. Take extra care around waterways if there has been rain.</li> <li>Wear water appropriate clothing and footwear with good grip.</li> <li>Consider being in sun at appropriate times.</li> <li>Follow school sun safety policy.</li> <li>Check to be taken into account.</li> </ul>	Low	<ul style="list-style-type: none"> <li>Water bottles</li> <li>Waterproof bags</li> <li>Waterproof shoes</li> </ul>	<ul style="list-style-type: none"> <li>4 Unlikely</li> <li>4 Unlikely</li> <li>4 Unlikely</li> </ul>	<ul style="list-style-type: none"> <li>4 Unlikely</li> <li>4 Unlikely</li> <li>4 Unlikely</li> </ul>	
5 Sharp objects in vegetation or litter (broken glass, metal, needles)	Cuts, puncture wounds	Low	High	<ul style="list-style-type: none"> <li>Ensure area is clean and tidy.</li> <li>Take a bin bag and gloves to the day.</li> <li>Do not touch anything - wear disposable gloves and call local Council if there is a spill.</li> <li>Follow school policy on small supernovae during trip.</li> <li>Safety talk - children told to stay with designated adult. Point out an area to which children should return if they are lost.</li> <li>Use high visibility vests.</li> <li>Ensure appropriate adult: pupil ratios.</li> </ul>	Low	<ul style="list-style-type: none"> <li>Gloves</li> <li>Bin bag</li> <li>Water bottle</li> </ul>	<ul style="list-style-type: none"> <li>5 Unlikely</li> <li>5 Unlikely</li> <li>5 Unlikely</li> </ul>	<ul style="list-style-type: none"> <li>5 Unlikely</li> <li>5 Unlikely</li> <li>5 Unlikely</li> </ul>	
6 Risk of pupil becoming lost	Pupils become frightened and vulnerable	Medium	High	<ul style="list-style-type: none"> <li>Follow school policy on small supernovae during trip.</li> <li>Safety talk - children told to stay with designated adult. Point out an area to which children should return if they are lost.</li> <li>Use high visibility vests.</li> <li>Ensure appropriate adult: pupil ratios.</li> </ul>	Low	<ul style="list-style-type: none"> <li>High visibility vests.</li> </ul>	<ul style="list-style-type: none"> <li>6 Unlikely</li> <li>6 Unlikely</li> <li>6 Unlikely</li> </ul>	<ul style="list-style-type: none"> <li>6 Unlikely</li> <li>6 Unlikely</li> <li>6 Unlikely</li> </ul>	
7 Children on separate paths	Collisions	Medium	High	<ul style="list-style-type: none"> <li>Safety talk - ensure warned about children who may be walking past on the path.</li> <li>Ensure adequate space to carry out any activities.</li> <li>First person to appear to see child approaching should call out to warn others.</li> <li>Ensure pupils stop to wait till the other side when allowing children to cross.</li> </ul>	Low	<ul style="list-style-type: none"> <li>No need.</li> </ul>	<ul style="list-style-type: none"> <li>7 Unlikely</li> <li>7 Unlikely</li> <li>7 Unlikely</li> </ul>	<ul style="list-style-type: none"> <li>7 Unlikely</li> <li>7 Unlikely</li> <li>7 Unlikely</li> </ul>	
8 Medical condition that creates an increased risk of injury	Low of consciousness, Fat	Low	High	<ul style="list-style-type: none"> <li>All children to be accompanied by an adult.</li> <li>Call emergency services if participant falls ill.</li> <li>Carry mobile phone.</li> <li>Ensure a parent is first aid trained.</li> </ul>	Low	<ul style="list-style-type: none"> <li>Mobile phone</li> <li>First aid kit</li> </ul>	<ul style="list-style-type: none"> <li>8 Unlikely</li> <li>8 Unlikely</li> <li>8 Unlikely</li> </ul>	<ul style="list-style-type: none"> <li>8 Unlikely</li> <li>8 Unlikely</li> <li>8 Unlikely</li> </ul>	
9 No other hazards on the day									

Call emergency services? YES/NO

Lead teacher: \_\_\_\_\_ Printed name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# IN COURT ABOUT AN ACTIVITY DON'T DO IT

The Risk Assessment can be found in Appendix 1 at the end of this document or downloaded here

# GEOGRAPHY

## LESSON PLANS

Unit/Section	Catalyst/Stimuli Questions	Learning Outcomes	Activity
Unit 1: Around our school - the local area Section 3: What can we see in the streets around our school?	Do you see a waterway on your way to School?  Can you describe the route from school to your local waterway?	Learning river words from maps.  During field visit learn the name and type of waterway.  Discover the waterway's location in the local area and the route to it from school.	<u>Site visit</u> : Three Mills, Bow Creek Ecology Park or East India Dock Basin.  <u>Sheet 1</u> : The waterway near me
Unit 1: Around our school - the local area Section 4: What are our immediate surroundings like?	What are the man made and natural features found by the waterway and what do the man made features do?  Were there any places on the waterway that you thought were nasty? Why?  How could we make the waterway a better place for everyone?  What's your favourite place along the waterway and why?	Observing and recording man made and natural features seen on the Lee Navigation/River Lea through survey work.  Observing and recording 'nice' and 'nasty' features and their location.  Discussing how problems with litter and graffiti affect people and wildlife and possible ways they could be solved.  Expressing reasons for choosing a favourite place.	<u>Site visit</u> : Three Mills.  <u>Sheet 2</u> : I Spy  <u>Sheet 3</u> : Wonderful waterway or rubbish dump river?
Unit 1: Around our school - the local area Section 7: Are there any changes taking place in our area?	Are there any changes you can see happening at the waterway?	Researching changes over time.  Observing, locating and recording changes during field visit.	<u>Site visit</u> : Three Mills and south along river.  Investigating the Lea River Park project (see <a href="http://www.leariverpark.org">www.leariverpark.org</a> ) and observing the developments during the field visit (bridge building, path making, building a lift, planting trees etc.)

# GEOGRAPHY

## LESSON PLANS continued.

Unit/Section	Catalyst/Stimuli Questions	Learning Outcomes	Activity
Unit 6: Investigating our local area Section 1: Where is the locality in relation to other places? Where is our school?	Where is the River Lea on the map?  Can you direct someone to the River Lea from your school?	Locating the school, river and other features on a map.  Planning a route to the river.	<u>Refer to Resources:</u> Use the maps and aerial photographs to locate the school, river and plot a route to the river from school.
Unit 6: Investigating our local area Section 2: What is the Lea River Park area like?	What is the River Lea like?  What is the environment around the river like?  What was/is the River Lea used for?  Why do you think the environment around the river is like this?	Identifying the main human and physical characteristics of the River Lea and surrounding area.  Developing an awareness and understanding of the main land uses in the local area and around the river and the reasons for this (eg. industry situated next to river for transport, water etc.)	<u>Refer to Resources:</u> Use the photographs of features around the River Lea to match with the base map.  Use the oblique aerial photographs to identify land uses and features and mark the main land uses on an outline plan.
Unit 6: Investigating our local area Section 5: What changes have taken place to the River Lea and its surroundings?	What changes have taken place along the River Lea?  How have these changes helped the area?  Can you find environmental problems in the area?  How can these problems be solved?	Researching changes to the area using the internet  Describing how the changes have helped the environment and people using the waterways  Identifying damage to the environment  Discussing environmental concerns and solutions	Refer to Lea River Park website to research progress on the park project and changes to investigate with the class.  Sheet 3: Wonderful waterway or rubbish dump river?  Site visit: Three Mills area  Observing the Lea River Park developments during the field visit (bridge building, path making, building a lift, planting trees etc.), interviewing site users about changes and their opinions on these

# GEOGRAPHY

## LESSON PLANS continued.

Unit/Section	Catalyst/Stimuli Questions	Learning Outcomes	Activity
<p>Unit 14: Investigating rivers Section 3: Where is this river? Where does it go? How is it changing? What do I think and feel about this river?</p> <p><u>Teacher's guidance notes:</u> Due to its urban setting the River Lea has been modified greatly over time, and thus is not the best example for study of the physical characteristics of a natural river, though it can be used to illustrate some. However it has had a fascinating history of human use and impact upon the landscape so is suitable to stuffy these issues. River processes should be covered before taking part in this activity.</p>	<p>Where is the River Lea?</p> <p>Can you locate and identify natural and man made features of the river?</p> <p>How do people use the river today? Are these uses good or bad for the river?</p> <p>Can you construct an acrostic poem about the River Lea?</p>	<p>Locating the river and identifying its route through the local area</p> <p>Observing and identifying physical processes of a river such as meanders, transportation and deposition found on the banks of tidal River Lea.</p> <p>Mapping river features.</p> <p>Observing human uses of the river and assessing personal opinions about these.</p> <p>Writing creatively about the river.</p>	<p><u>Site visit:</u> Three Mills or Bow Creek Ecology Park.</p> <p><u>Sheet 4:</u> Features of the Lea</p> <p><u>Sheet 5:</u> The River and people</p>
<p>Unit 14: Investigating rivers Section 4: What is this river like? How does it affect the landscape? How is it changing and why?</p>	<p>What is the River Lea like?</p> <p>How has the River Lea affected the landscape in the past, and how is it affecting it now?</p> <p>Is the River Lea polluted?</p> <p>How are the river and its surroundings changing and why?</p>	<p>Greater knowledge of the River Lea and its affect on the local landscape</p> <p>Investigating how and why the river has changed over time.</p> <p>Investigating a local environmental issue (water pollution).</p>	<p><u>Site visit:</u> Three Mills or Bow Creek Ecology Park.</p> <p><u>Sheets 4 &amp; 5</u> Refer to Resources and see <a href="http://www.leariverpark.org">www.leariverpark.org</a></p> <p>An additional activity would be Water Quality testing to investigate causes and effects of pollution in the river. This activity is ideal for key stage 2 and older students. Training, worksheets and equipment will be provided by Thames21 for this activity.</p>

# The Waterway Near Me.



Use this map to find the waterway closest to your school.

The name of our local waterway is

.....

.....

.....

.....

Our local waterway is a:

River

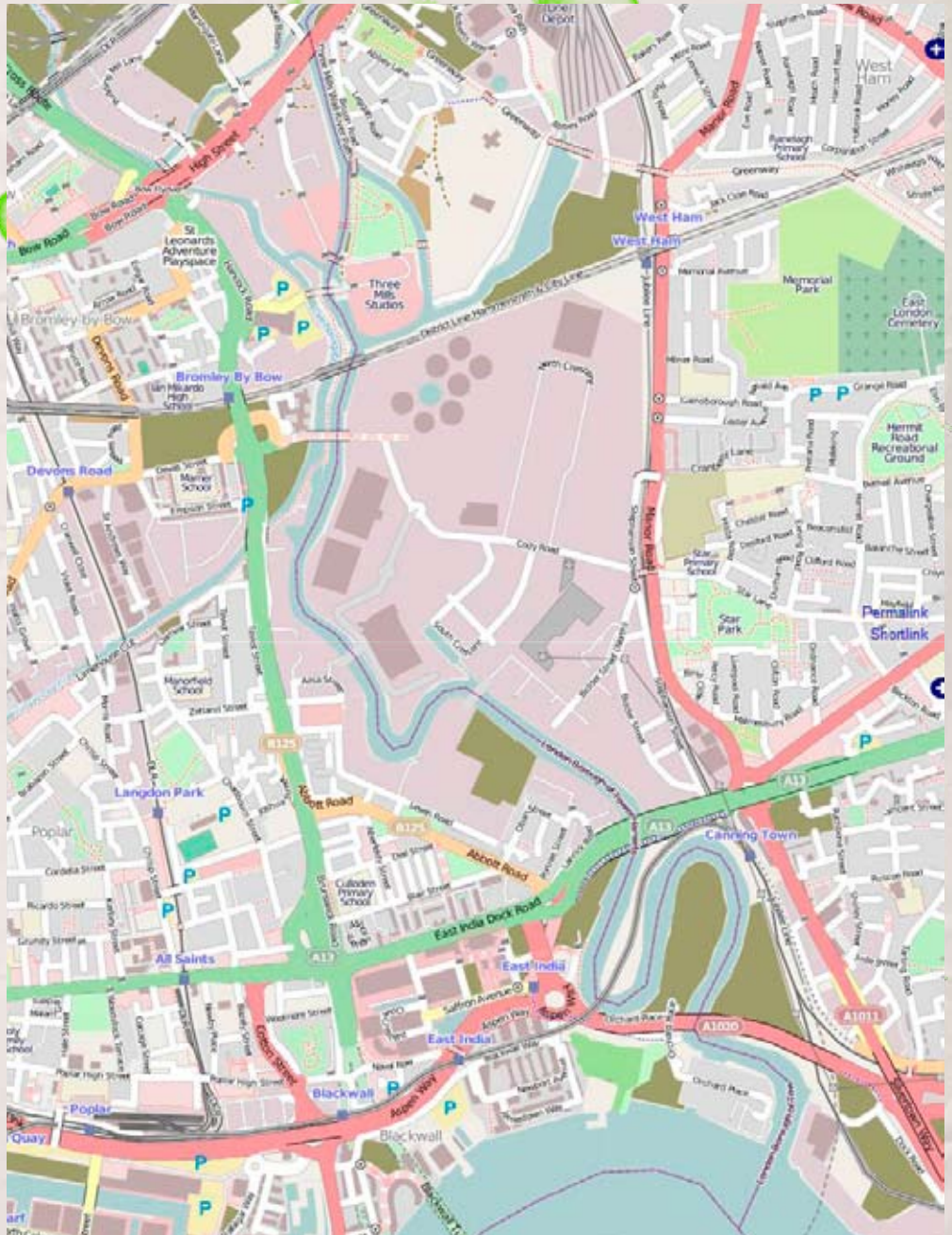
Stream

Canal

Mark the location of your school with an X

Draw a line showing your route to the waterway from school.

If your school is further away describe the journey from school today.



# I Spy.



Look at the pictures below as you walk along the River Lea or Lee Navigation canal. Tick the box for each feature that you see.

## Man made features:



## Natural features:

*tick boxes* ↗



Here's some information on how the man made features are or were used. Can you fill in the gaps?

**Narrow boat** – these boats were used for transporting goods. Now they are mainly used for fun trips, and some people even live on them!

**Lock** – a lock allows boats to navigate along rivers or canals where the water levels may be different. The boat will come into the middle section of the lock and the water will be let in or out until it is level with the next section of canal or river that the boat is travelling on.

**Bridge** - .....

**Mooring ring** – mooring rings are used to tie up the narrow boats to stop them floating away! It's a bit like parking a car.

**Towpath** – that's the path you're walking on now. It was used by the horses that towed the narrow boats along before they were powered by engines.

**House Mill** - .....

# Wonderful Waterway or Rubbish Dump River?



Along the canal and river there are some nice places and features and some nasty ones. See what you can find. Let's do the nasty features first:

Nasty features	Tick if you see it	Where?	None/some/a lot	How does this affect you or wildlife?	How could this problem be solved?
Litter					
Pollution e.g. oil, paint					
Graffiti					
Vandalism e.g. broken bins					

Take photographs of the nasty features as you see them.

How about some nice features. Can you see any of these?

Nice features	Tick if you see it	Where?	None/some/a lot
Trees			
Flowers			
Birds			
Other animals			
Nice buildings			
Sculptures			

Did you see any other nice features? What were they?

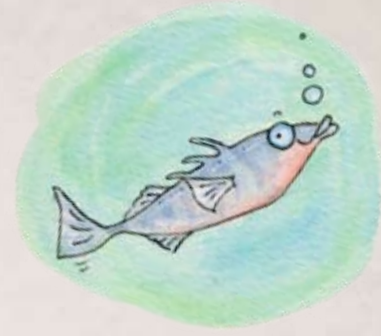
Can you think of any other ways to improve the waterway for people or wildlife?

Use another sheet of paper to sketch a nice place you see on your walk.

Which was your favourite place on the walk and why?



# Features of the Lea.



Look at the map and locate the River Lea. Colour it in a suitable colour. Locate your school and draw a route from your school to the River Lea.

The mouth of the River Lea comes out into another river. Which one?

The River Lea is tidal. When the tide is in water comes up the River Thames from the sea and is pushed up the River Lea, so the water level is very high. The tide then goes out and some water drains from the River Lea back into the River Thames and then the sea. Then the water level in the River Lea is low and you can see mud on the river bed. At the moment is the tide in or out?

When the tide is out have a look down into the River. Can you see anything which might have been transported and deposited by the River?

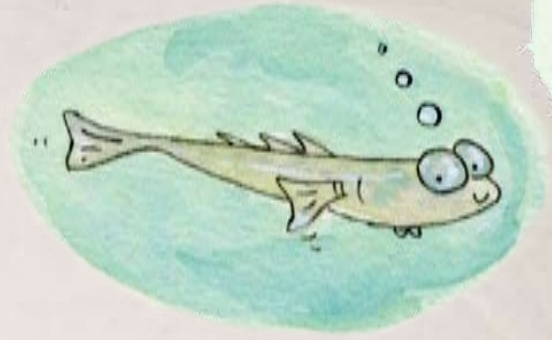
The River Lea has been changed over time by man, so you can't see some of its natural features. For example, the river banks and cliffs are now man made. What are they made from?

Although the River Lea has been changed, there are still some big meanders in the course of the river.

Can you find one on the map and label it?



# The River and People.



During your walk along the river look out for any evidence of these ways in which humans use rivers:



Of these uses, divide them into what you feel are good uses and bad uses, and explain why.

Use	Good/bad	Why?

Here is an example of an acrostic poem about the River Lea:

River Lea running through  
 Industry surrounded you  
 Vital water, must be near  
 Ever changing year on year  
 River that made this here

Think about the River Lea, everything you have seen today and how you feel about them. Can you make up your own?

R  
I  
V  
E  
R  
  
L  
E  
A

# HISTORY

## LESSON PLANS

Unit/Section	Catalyst/Stimuli Questions	Learning outcomes	Activity
Unit 18: What was it like to live here in the past? Section 2: How can we use maps to explore how our area has changed?	How has the area around the River Lea changed over time?  What has changed and what has remained the same?  How would it have been different if you were walking around the area in the past, how would it have been different?	Observe and record changes depicted on maps.  Describe the local area as it would have been in the past.	<u>Site visit:</u> Three Mills, East India Dock Basin or Trinity Buoy Wharf.  <u>Refer to Resources:</u> Use historical maps provided to study changes to area over time.  <u>Sheet 1:</u> Stepping Through Time
Unit 18: What was it like to live here in the past? Section 3: What can local buildings or sites tell us about the past?	What was the Lee Navigation/River Lea like in the past?  What was the House Mill used for and what is it used for now?  Why do you think it was built here?  Who might have lived and worked at the Mill/ Lee Navigation?	Observe, sketching and identify building features.  Asking questions to discover historical information.  Annotating sketches.  Writing descriptively about the past.	<u>Site visit:</u> Tour of the House Mill can be booked for schools, see useful contacts.  Sketching the House Mill.  <u>Refer to Resources:</u> Use resources to assist in writing a description of living and working in the Mill.
Unit 18: What was it like to live here in the past? Section 4: What do pictures and photographs tell us about past life in our area?	What do the photographs tell us about the area in the past?  What do the photographs tell us about the people that lived and worked here?	Identify features of the area in pictures and compare them to the modern day sites.  Investigate who took the photographs and why.  Use the photographs as a stimulus to create role plays.	<u>Site visit:</u> Tour of the House Mill can be booked for schools, see useful contacts.  <u>Refer to Resources:</u> Use photographs provided in this section to complete comparison activities and as a stimulus for role play.
Unit 18: What was it like to live here in the past? Section 7: What was it like to live in our area in the past?	What have you learnt about past life at the House Mill, waterways and around Three Mills Island?  Can you make this information into a presentation for an audience (classmates, parents etc.)?	Make a presentation using a variety of information.	Use activity sheets, sketches, photographs, resources etc. to create a presentation about Three Mills Island throughout history.

# Stepping Through Time.

Choose a historical map of the local area.

Mark on the map your route to the River Lea from school.

When you arrive at the river complete this activity:

Think back over your walk from school. Write some descriptive words here about what you saw, heard and smelt during your walk today.



Now look at your historical map again. Write some other descriptive words about what the same walk would have been like during the time shown of your map.

# SCIENCE

## LESSON PLANS

Unit/Section	Catalyst/Stimuli Questions	Learning Outcomes	Activity
Unit 2B: Plants and animals in the local environment Section 2: Looking for plants and animals	What kind of animals will we find along the waterway?  Where do they prefer to live?	Observing and identifying wildlife found along the waterway through outdoor survey work on site.  Observing and identifying habitats and recording living things with their habitat.	<u>Site visit:</u> Three Mills, Bow Creek Ecology Park or East India Dock Basin  Sheet 1: Bird spotting challenge
Unit 2B: Plants and animals in the local environment Section 3: Describing local habitats	What sort of animals do you think we will see in the park?  What sort of animals do you think we will see by the river or canal?  Were you right?!	Investigating the difference between the waterway and terrestrial habitat through outdoor observations.	<u>Site visit:</u> Three Mills, Bow Creek Ecology Park or East India Dock Basin  Sheet 3, page 1: Land lovers and water dwellers
Unit 4B: Habitats Section 2: Finding different habitats	What does the word 'habitat' mean?  Can you name habitats found in and around the waterways?  Are these habitats large, mini or micro?	Increasing knowledge of different local habitats.  Classifying habitats according to scale.	Sheet 2: There's no place like home
Unit 4B: Habitats Section 3: Different animals in different habitats	What kind of animals will we find on our trip to the waterway?  Where will we find them?  Why did we find different animals in different habitats?	Making predictions about habitat  Testing predictions  Observing and recording animals and habitats  Giving reasons for habitat preference	<u>Site visit:</u> Three Mills Green, Bow Creek Ecology Park or East India Dock Basin  <u>Sheet 3:</u> Land lovers and water dwellers

## SCIENCE LESSON PLANS Cont.

Unit/Section	Catalyst/Stimuli Questions	Learning Outcomes	Activity
Unit 4B: Habitats Section 4: Grouping living things	Does your minibeast look like any of the other minibeasts we've found today?  Can you sort your minibeasts into groups of shared habitat, colour or number of legs?	Observe and record body features of minibeasts  Observe similarities and differences  Group minibeasts according to observable similarities	<u>Site visit:</u> Three Mills Green, Bow Creek Ecology Park or East India Dock Basin  <u>Sheet 3:</u> Land lovers and water dwellers
Unit 4B: Habitats Section 5: Using keys to identify plants and animals	What is an ID key?  How do you use an ID key?  Can you use the ID key to work out which minibeast you have found?	Using keys to identify aquatic life and terrestrial minibeasts.	<u>Site visit:</u> Three Mills Green, Bow Creek Ecology Park or East India Dock Basin  <u>Refer to Resources:</u> Use keys in Resources section to accompany Sheet 3 activity.
Unit 4: Habitats Section 7: Finding out about food sources	What do some waterway animals eat?  Where do they find their food?  Why have they chosen to live in that habitat?	Identifying food sources and links to habitat preference.  Researching diet and habitat of one chosen animal using ICT.	<u>Sheet 4:</u> Grub's Up!  Choose one animal to research diet and habitat using ICT and make information into a colour poster.
Unit 4: Habitats Section 8: Identifying food chains	What do different waterway animals eat?  What is a predator?  What do prey animals eat?  Can you build a food chain using waterway animals? Why is the water weed so important in the food chains?	Identifying food sources for waterway animals.  Learning food chain terms - green plant, prey, predator  Building food chains in a waterway habitat.  Importance of green plants for life on earth.	<u>Site visit:</u> Three Mills Green, Bow Creek Ecology Park or East India Dock Basin  <u>Sheet 4:</u> Grub's Up!

## SCIENCE LESSON PLANS Cont.

Unit/Section	Catalyst/Stimuli Questions	Learning Outcomes	Activity
Unit 4: Habitats Section 9: Protecting habitats	<p>If the water was polluted with chemicals or oil what might happen to the water weed in the canal/river?</p> <p>What might then happen to the animals?</p> <p>Why should we protect the waterways and other habitats?</p>	<p>Introduction to water pollution.</p> <p>Identifying the effect of negative changes eg. water pollution on a specific habitat.</p> <p>Knowledge of the importance of protecting the waterways and local green spaces.</p>	Group discussion on completion of Sheet 4: Grub's Up.
Unit 5B: Life cycles Adaption of this unit can use waterway wildlife to illustrate reproduction and life cycles.	<p>How does your chosen animal start life?</p> <p>Is it like the adult straight away? If not how is it different?</p> <p>How does your chosen plant start life?</p> <p>What does your plants seed look like?</p> <p>How does your plant spread its seeds?</p> <p>What pollinates your plant?</p>	<p>Knowledge that all animals and plants reproduce.</p> <p>Investigating lifecycles of animals and plants found in and around the waterways.</p> <p>Recognising different stages and processes in lifecycles and how these vary between plants/ animals and species.</p> <p>Studying the life cycle of a chosen plant/animal.</p>	<p><b>Refer to Resources:</b> Use waterway wildlife life cycle examples for class work.</p> <p>Could organise a site visit to coincide with relevant phases of lifecycles e.g. spawning frogs, fish fry in waterways, flowering/ fruiting plants.</p>
Unit 5_6H: Enquiry in environmental and technological contexts Section 1: Planning an enquiry	<p>What do we mean by a 'healthy' waterway?</p> <p>How can we investigate whether the waterway is healthy?</p> <p>How can we keep ourselves safe while we are investigating?</p> <p>What can we learn about the health of the waterway by studying the wildlife that lives there?</p>	<p>Discussion of environmental issues.</p> <p>Formulating a scientific question.</p> <p>Planning an appropriate method of investigation.</p> <p>Planning and taking action to ensure safety.</p> <p>Researching an enquiry using ICT.</p>	<p><b>Site visit:</b> Three Mills area.</p> <p><b>Refer to Useful Contacts:</b> Thames21 have a programme of water quality testing on the River Lea and Lee Navigation. They are able to assist with planning and delivering such a session.</p> <p>Research pollution tolerance of different invertebrates using internet.</p>

# SCIENCE LESSON PLANS Cont.

Unit/Section	Catalyst/Stimuli Questions	Learning Outcomes	Activity
Unit 5_6H: Enquiry in environmental and technological contexts Section 2: Collecting and interpreting data	<p>What can we learn about the health of the waterway by studying the wildlife that lives there?</p> <p>How clean is the water in the river and canal, or different places along the same waterway?</p> <p>What other factors might affect our results?</p>	<p>Conducting a wildlife survey to assess biodiversity.</p> <p>Using simple water quality testing equipment.</p> <p>Collecting scientific data.</p> <p>Assessing accuracy of data.</p>	<p><u>Site visit:</u> Three Mills, Bow Creek Ecology Park or East India Dock Basin</p> <p><u>Sheet 1:</u> Bird spotting challenge <u>Sheet 5:</u> Really Wild Reed Bed</p> <p><u>Refer to Useful Contacts:</u> Thames21 have a programme of water quality testing on the River Lea and Lee Navigation. They are able to assist with planning and delivering such a session.</p>
Unit 5_6H: Enquiry in environmental and technological contexts Section 3: Explaining results and considering evidence	<p>What did we discover?</p> <p>Were there any differences in our results in different locations?</p> <p>What do our results mean?</p> <p>Was the waterway healthy?</p> <p>What could improve our test next time?</p>	<p>Collating and comparing data.</p> <p>Using knowledge and understanding to answer a scientific question.</p> <p>Assessing limitations of an experiment and suggesting improvements.</p>	<p><u>Refer to Resources:</u> Compare with previous results from water quality tests on the River Lea/ Lee Navigation.</p> <p>Make a poster to display results, conclusions, and recommendations.</p>
Unit 6A: Interdependence and adaptation Section 4: Animals and plants in the local habitat	<p>What is an organism?</p> <p>What types of organisms live in or around a waterway?</p> <p>Can you remember how to use a key?</p>	<p>Brainstorming and recall of previous knowledge on plants and animals.</p> <p>Revisiting the use of keys to identify living things.</p>	<p><u>Site visit:</u> Three Mills or Bow Creek Ecology Park.</p> <p><u>Sheet 5:</u> Really Wild Reed Bed</p> <p><u>Refer to Resources:</u> Use keys illustrating animals in and around the waterways. Use during field visit to waterway.</p>

# Bird Spotting Challenge.



As you walk along by the waterway see if you can spot any of these birds. Fill out the table if you see them.

Bird	How many were there?	Where were they?	Any other information?
 <p>Heron</p>			
 <p>Seagull</p>			
 <p>Coot</p>			
 <p>Moorhen</p>			
 <p>Canada goose</p>			
 <p>Swan</p>			
 <p>Mallard duck</p>			
 <p>Cormorant</p>			
 <p>Blackbird</p>			
 <p>Pigeon</p>			

# Grub's Up!

Can you match these animals to the food they eat?



Heron



Dragonfly



Swan



Bat



Stickleback



Kingfisher

Water weed and grass

Smaller insects than itself

Bloodworms

Fish (big and small)

Moths and flying insects

Small fish

Here's a food chain of animals that live in or near the waterway:

**Green plant**



**Prey**



**Predator**

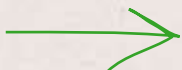
Water weed and grass

Baby swan (Cygnet)

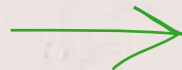
Fox

Can you fill in the predator in this waterway food chain?

Water weed



Fish



.....

Now have a go at building your own waterway food chain:

# Land Lovers and Water Dwellers 1.



## Land-loving minibeasts

Can you think of some minibeasts you might find on your land-loving beastie safari?

## Water dwellers

Now have a go at thinking of some animals you might see when you walk along next to the water. Write them here and tick them off if you see them on your walk!



# Land Lovers and Water Dwellers 2.



Now work together to catch some minibeasts on land and in the water. Remember to treat them very gently! Use your keys to identify them.

Fill in this table to show what you found.

What is your minibeast called?	Draw your minibeast here	Where did you find it? (its habitat)	Does it have legs? If it has legs write how many.	What colour is your minibeast?

Can you sort your minibeasts according to habitat, colour or number of legs? List the members of two of your groups here with a title so we know why they are grouped together:

# Really Wild Reed Bed.



Work together with your adult to dip for water minibeasts in the reed bed. Use the key to identify them. List all that you find here:

Now have a go at dipping in open water where there are no plants. Write another list of the creatures you find.

Where did you find the most different kind of creatures?  
Why do you think they prefer to live in that habitat?

Choose one minibeast that you liked best. Draw it here and annotate your drawing to show features of the animal and how it is suited to its habitat.

**Back in class research your minibeast using books or the internet to answer these questions:**

1. What does it eat?
2. Can you build a food chain using your minibeast as one of the consumers?
3. Name two features of the minibeast that help it to live in its chosen habitat:

*my BEAST*



# There's No Place Like Home.

Here are some habitats found in and around the waterway.

Can you put them into the correct box according to their scale?

Tree

River

Mud

Stone

Reed bed

Flower bed

Canal

Soil

Floating raft

Hole in river or canal wall

Field

Habitats at the biggest scale in here if you would!



Mini-habitats for us please!



Micro-habitats go here - they're the smallest



## Useful Links

### Thames21

Registered charity working to bring London's waterways to life. We clean waterside grot spots, create new wildlife habitat, run family events and educational sessions.

[www.thames21.org.uk](http://www.thames21.org.uk)

### Lee Valley Park

The regional park stretching and incredible 26 miles along the River Lea from Ware in Hertfordshire to the Thames. The park encompasses study sites of Three Mills Green, Bow Creek Ecology Park and East India Dock Basin.

[www.leevalleypark.org.uk](http://www.leevalleypark.org.uk)

### Trinity Buoy Wharf

A unique and historic riverside community. This site has London's only lighthouse and was the workshop for the Trinity Company who maintained the lighthouses and buoys around our coast. Today a collection of artist's studios.

[www.trinitybuoywharf.com](http://www.trinitybuoywharf.com)

### The House Mill

A beautiful historic oasis in urban east London. This mill is believed to be the largest tidal mill in existence in the world.

[www.housemill.org.uk](http://www.housemill.org.uk)

### Museum of London at Docklands

Fascinating exhibitions and resources about London's history as a port and the Docks importance and changes over time

[www.museumindocklands.org.uk](http://www.museumindocklands.org.uk)

### Port of London Authority

The authority responsible for safe navigation on the Thames and promoting the use of the river and its tributaries. Useful information such as the amazing history of the river and tide timetables.

[www.pla.co.uk](http://www.pla.co.uk)

### Lea River Park

A new two mile long park being developed along the River Lea from Stratford to the Thames. A great leisure and educational resource in the making.

[www.leariverpark.org](http://www.leariverpark.org)

### East London History Society

Information on the history of Tower Hamlets, Newham and Hackney, including photographs, pictures and maps.

[www.eastlondonhistory.org.uk](http://www.eastlondonhistory.org.uk)

### The Newham Story

The story of Newham and its people, including information about the docks and rivers.

[www.newhamstory.com](http://www.newhamstory.com)

Thanks to the Friends of Lea River Park and London Thames Gateway Development Corporation for their kind permission to use their photographs: Julia Humphreys, Andy Briggs, Cliff Prior, Paul Grant, Eugene Cozier, Paul Webb, Laura Billings & [openstreetmap.org](http://openstreetmap.org)