

# the outdoor classroom

## river pollution and human impact on the environment



### Curriculum focus:

Geography, Citizenship

### Keywords:

Environment, Pollution, Rivers, Water, Water Quality

### Skills learnt in this worksheet include:

Observing and questioning  
Collecting and recording evidence  
Classifying, representing and interpreting data  
Undertaking field work  
Use ICT for data handling and interpreting  
Environmental education  
Learning technical language related to rivers and pollution  
Using literary images to define a problem

### Resources required for this activity:

Data sheet  
Tally chart  
Map  
Pencils  
Camera  
Newspaper article sheet

### Further information and resources that could be used to support this topic include:

Classroom activities and case studies on a range of water-related issues and their impacts, including clean water.

[www.oxfam.org.uk/education/resources/water\\_for\\_all/water/](http://www.oxfam.org.uk/education/resources/water_for_all/water/)

Classroom activities relating to rivers and pollution including writing about a scenario of pollution in the Wild Wood in "The Wind in the Willows".

[www.geographyteachingtoday.org.uk/curriculum-making/teaching-ideas/rivers-and-wildlife/](http://www.geographyteachingtoday.org.uk/curriculum-making/teaching-ideas/rivers-and-wildlife/)

FORCE Website includes details of the major pollution spill in October 2011

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

For the Environment Agency press release on the pollution event.

[www.environment-agency.gov.uk/news/134523.aspx?page=1&month=10&year=2011](http://www.environment-agency.gov.uk/news/134523.aspx?page=1&month=10&year=2011)

For a record of pollution in all rivers.

[www.environment-agency.gov.uk/business/topics/pollution/32314.aspx](http://www.environment-agency.gov.uk/business/topics/pollution/32314.aspx)

For pollution incident maps.

[www.environment-agency.gov.uk/homeandleisure/37821.aspx](http://www.environment-agency.gov.uk/homeandleisure/37821.aspx)

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### Ideas for activities on site:

Look at the river in a number of places along the river bank and from the bridges.

#### 1. Discussion

- Discuss what pollution is.
- Why is it bad for the environment?

#### 2. Record the following on a datasheet:

- Are there any visible signs of pollution in the river or along its banks?  
This could be litter, chemical, sewage, or more natural e.g. cut logs or grass cuttings.
- How clear is the water?
- What colour is the water?
- Is there any sign of scum, or oil?
- Are there any plants in the channel, or growing in the river?
- What animals can you see in the river?
- Are there any fish in the river?
- What depth does the light reach in the water?  
Can you see the bottom of the channel?
- Is there any dumped rubbish?
- Record the position of any pollution that you find on a map.  
You could also take photos of all your findings.

#### 3. Using a tally chart record the types of pollution found e.g. logs, shopping trolleys, litter, noise etc.

- Consider where the pollution may have come from and how it arrived in or near the river.

*At a later date this data could be used for graphs, pie charts etc.*

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### 4. Discuss and record on a data sheet:

- What is the effect pollution has on the river?
- How can the river condition be improved?
- Who is responsible for looking after the river?
- How can individuals help to ensure that the river is not polluted?

### 5. Discuss and record what noises you can hear on the site.

- What is noise pollution?
- Is noise pollution a problem here?
- If it is what could be done about it?
- Who is responsible?

DEFRA has a noise mapping website which includes frequently asked questions about noise, noise pollution and noise maps.

[www.services.defra.gov.uk/wps/portal/noise](http://www.services.defra.gov.uk/wps/portal/noise)

### 6. Collate all your findings using a database or graphing program.

The data could be used to create a presentation to show potential environmental concerns on the River Crane and how they might be addressed.

This data could also be linked to Environment Agency data found at :

[www.environment-agency.gov.uk/homeandleisure](http://www.environment-agency.gov.uk/homeandleisure)

Interactive maps showing information about river quality and pollution incidents.

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7. Read the following poem or book as part of the discussion about pollution.

### **A River's Story by Raymond Wilson**

from **Earthways, Earthwise: Poems on Conservation** by Judith Nicholls  
(isbn 0192722484 )

The fish disappeared from the river,  
They turned up white bellies and died,  
And drifted like dead men's fingers  
In the slow running tide.

They washed the river, strange as it sounds,  
Till the tide flowed fresh and clean,  
Then back came the fish, to flash and glitter  
Where they had always been.

### **Dinosaurs and All That Rubbish by Michael Foreman (isbn 0140552607)**

A picture book about man destroying his world through misuse and disrespect.  
The book has also been made into a musical play for schools to perform.

[www.davidwood.org.uk/plays/plays\\_dinosaurs\\_and\\_all\\_that\\_rubbish.htm](http://www.davidwood.org.uk/plays/plays_dinosaurs_and_all_that_rubbish.htm)

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8. In November 2011 there was a major pollution incident on the River Crane. Below is the press release that FORCE wrote at the time.

- Using the Crane News Sheet write a newspaper article based on this press release.
- You could draw a picture to illustrate it.

### RIVER CRANE. POLLUTION UPDATE

#### Overview

On the weekend of 29th and 30th October 2011 there was a major pollution incident on the River Crane when a large volume of raw sewage was released from an outfall adjacent to the A4 (Bath Road) river crossing at Cranford in the London Borough of Hounslow.

The sewage rapidly polluted the entire river system downstream to the River Thames, including the main River Crane, the Duke of Northumberland's River and the lakes at Syon Park. The diverse wildlife of the River Crane suffered very badly as a direct result of this pollution. The latest estimate of fish mortalities stands at over 10,000 and recent surveys indicate a total loss of fish and invertebrates from the river system and the associated sediment.

Thames Water has accepted full responsibility for the incident. FORCE Trustees have met with senior staff at both the water company and the Environment Agency to hear about the current status of the river and to discuss the way forward. We have stressed that such an incident should never be allowed to happen again. We were reassured to learn that a full review of its circumstances and the lessons to be learned for practices throughout the sewer network will be carried out by Thames Water.

The river has benefited from heavy rainfall over the weekend and we have been told that the water quality has largely recovered. There are still concerns about the microbiology of the river and adjacent wetland areas. The Environment Agency is still recommending that people and their pets stay out of the river until further tests have been completed.

#### Biodiversity

Environment Agency experts have said that it will take some months for river life to start to recover and several years for its full biodiversity to return. Local people have expressed concern about water voles and kingfishers, seen by many on the river over the last few years. We understand that water voles were probably not affected at the time of the incident, but observations for any longer term effects will continue. The kingfishers are likely to have left the lower Crane to find food elsewhere. Their future return may provide one early indication that the river is recovering. Plans for supporting the return of the decimated fish stock will be drawn up over the next few months.

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### **Longer term commitments**

Thames Water is very likely to be prosecuted for this incident and the case will take some time to come to court. In the mean time Thames Water and the Environment Agency have pledged to work hard over the coming months and years to support and encourage the return of life to the river.

Thames Water has further stated its intention to see the river improved compared to its historical condition over a five year timescale, investing sufficient resources to make this happen. FORCE welcomes these pledges and we plan to engage constructively with both organisations over the next few years to help ensure that they are met.

### **Improvement works continue**

In the interim it is vital that recent improvement works to the green spaces adjacent to the river are continued and we shall continue to work with all the interested parties to ensure that this happens. Next Sunday we are holding one of our regular workdays, near to the Mill Road entrance in Crane Park, and we welcome anyone wishing to work with us or to find out more about what we do.

### **What you can do to help**

Our members and other local people have been asking how they can help and – as well as attending our work days – you can be our eyes and ears on the river. All reports of river life over the next six months in the form of fish species, kingfishers, dragonflies, herons and crayfish for example, will be greatly appreciated.

We shall relay this information to the Environment Agency and it will help to build a detailed record of the recovery process and allow the intelligent planning of support actions such as fish stocking. Suggestions of improvements that can be made in the longer term would also be welcomed.