

Programme 4: Lough Neagh**Geography**

BROADCAST DATES

BBC2 NI 10.30-10.50AM

Programme	Title	Broadcast Date
3	Mournes	Tuesday 9 th May 2006
4	Lough Neagh	Tuesday 16 th May 2006

PROGRAMME 4 - LOUGH NEAGH**LEARNING OUTCOMES**

This unit will support the revised Northern Ireland Curriculum for Geography at KS2. It will expand their awareness of people and places and how people use the earth's natural resources close to home.

This programme will give pupils the opportunity to learn about:

- Some of the plants and animals that live in Lough Neagh
- Some landscape features of Northern Ireland
- Some of the ways people affect the environment locally
- A local habitat and the relationship between the animals and plants found there
- The main stages in the life cycle of eels
- Ordering living things in a simple food chain and understand the dependency of one on the other

ABOUT THE PROGRAMME

The programme is divided into three sections, '**Under the Lough**', '**On the Lough**' and '**People and the Lough**'. This is to provide an opportunity to pause the programme for more in-depth discussion, if desired

UNDER THE LOUGH

In this section we take a trip under the lough to discover an underwater world that is teeming with life. It is here that we start to explore the notion of a food chain. Donna explains that, to understand how all life around the lough is connected, we must start by looking at the first link in the food chain - algae. Donna makes the point that algae, although very small, are the main food source for the millions of small animals and insects that live on the lough bed. These, in turn, become food for fish and bird-life. During this section we see examples of different insects and fish that live in and around the lough.

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ON THE LOUGH

Life on the lough's shoreline is as interesting and varied as life below. In this section Donna illustrates the importance of the plants around Lough Neagh, not just as a source of food but as a habitat. She explains that there are three types of plants that live in and around the lough; **submerged plants** (which live underwater), **water margin plants** (which live half in and half out of the water) and **marsh plants** (which like to live in ground that is wet all year round). We see how these plants provide homes for insects, animals and birds.

The programme explains why, during winter, Lough Neagh attracts the largest number of wildfowl in the British Isles (up to 100,000). These birds, mostly ducks, come from Iceland, Russia and Scandinavia. Donna then takes a trip to one of the hundred islands that are dotted throughout Lough Neagh. Most of these islands are part of the Lough Neagh National Nature Reserves which are managed by nature wardens. They protect the thousands of rare birds that breed on the islands.

PEOPLE AND THE LOUGH

In this final section Donna looks at the relationship humans have had with the lough, including their part in the food chain. For 8000 years people have lived around the lough and in that time they have brought about many changes. We examine those changes and their effects on the environment. Donna looks at industry on the lough in the form of tourism, fishing and sand dredging. She also examines the environmental changes that people have created; how we have lowered the water level in the lough to control flooding, how we use the lough's water to drink, how we pump our waste into it and how we have increased pollution levels in the lough. The programme ends by suggesting that it is the responsibility of people to ensure that the lough stays healthy so as not to harm the animal and plant-life.

BACKGROUND

Lough Neagh is the largest freshwater lake in Great Britain and Ireland. Being a lowland lake, Lough Neagh is very fertile with lush and diverse species of plant-life, some of which are rare in other parts of Northern Ireland. These plants provide a great variety of natural habitats for insects, birds and fish to feed and nest in. Designated as an area of special scientific interest, Lough Neagh is one of Europe's most important wetland environments. Each winter the lough attracts the largest number of wildfowl in the British Isles (up to 100,000), which makes it one of the most important refuge sites for birds in Europe. Lough Neagh is also a very rich fishing ground and consequently supports the largest eel fishing industry in Western Europe.

The lough is also a major source of drinking water, supplying 460,000 of Northern Ireland's 1,600,000 population. After use, much of this water returns to the lough via sewage treatment works making the lough an important waste outlet. Unfortunately, over the last century the lough has become slowly more polluted. This decade has seen the levels of pollution once again on the rise. There is a very real threat that, if unchecked, this could lead to the death of fish and insect life. In turn, this could have a serious effect on people who make a living from the lough.

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Various studies of Lough Neagh's water have shown that since the turn of the century, when people first started to pump their waste into the lough, it has slowly become polluted. The pollution takes the form of a slow build up of normally harmless nutrients (any substance which provides nourishment), called phosphates. Phosphates are a form of plant food which encourage the growth of vast amounts of algae. When the algae die, like all living things they decay. Unfortunately it is this process of decay which uses up most of the oxygen in the water. This can cause the death of fish and insect life. The only way to solve this problem is to lower the amount of phosphate getting into the lough.

Phosphates enter the lough from three different sources: **domestic, agricultural and industrial** waste. Although sewage is treated to ensure that very little phosphate finds its way into the lough, this was not always the case. In the past people only partially treated their sewage, which is high in dissolved nutrients, and this is exactly what algae require to grow.

The most common cause of pollution is the escape of silage effluent and other farm waste into rivers. Another threat comes from agricultural fertilizers which are used by farmers to add nutrients to their land. Over many years the soil itself has become so rich in these nutrients that when it rains, they are washed out into the watercourses which flow into Lough Neagh. Industrial spillage remains a threat but most companies have very strict guidelines to ensure that this remains a rare occurrence.

KEY WORDS

Food Chain, Habitat, Pollution, Migrate, Sewage, Fertilizer, Nutrients, Algae, Freshwater Lake

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1. CLASSROOM ACTIVITIES – Before the Programme

Activity	Tasks	Worksheets	Relevance to NI Curriculum
Investigating the local environment	<p>Discuss the meaning of the Keywords</p> <p>Look at maps of Northern Ireland and of the World. Locate Lough Neagh on a map of Northern Ireland. Use Ordnance Survey Holiday Map : North 1 : 250,000.</p> <p>Discuss the proximity of the lough to members of the class. Do they know anybody who fishes in it, bird watches, windsurfs etc.?</p>		<p>Talking and Listening Taking part in discussion – obeying the conventions of discussion.</p> <p>Geography Enquiry skills -consideration of the local environment</p> <p>Mapwork skills -locating places and features on a map</p>

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2. CLASSROOM ACTIVITIES – After the Programme

Activity	Tasks	Worksheets	Relevance to NI Curriculum
Investigating wildlife and their habitats	<p>Draw a food chain involving algae, insects, fish, and humans.</p> <p>On a world map show where the visitors to Lough Neagh come from (e.g. Eels from the Sargasso Sea; birds from Iceland, Russia, Scandinavia; tourists).</p> <p>In the programme you will see a number of birds diving beneath the water. Ask the class why these birds dive to the lough bed and for what?</p>		<p>Geography Observing, recording and presenting information</p> <p>Mapwork skills -locating places and features on a map The Environment -investigating animals associated with the local environment</p> <p>Talking and Listening Taking part in group and class discussion sharing, responding to and evaluating ideas.</p>

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Activity	Tasks	Worksheets	Relevance to NI Curriculum
Considering conservation of the environment	<p>Discuss pollution and how it might upset the food chain.</p> <p>Discuss what effect this pollution might have on jobs around the lough?</p> <p>Ask the class what measures they would take to control the amount of pollution getting into the lough.</p>		<p>Geography The Environment - investigating animals associated with the local environment - understanding how people affect the environment - issues associated with conservation of the environment</p> <p>What People Do - understanding the different jobs people do to provide goods</p> <p>Talking and Listening Talking with confidence and developing ideas. Showing the ability to explain views and opinions.</p>

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Activity	Tasks	Worksheets	Relevance to NI curriculum
Debating conservation issues	<p>Although the level of water in the lough has been lowered by 3 metres, farmers on the south coast of the lough would like it reduced further. This would allow them to reclaim many acres of land for grazing. What effect do they think this would have on the insect, animal and bird life?</p> <p>Split the class into groups, each group representing people who would have an interest in a proposal. Each group must research and then discuss what effect the proposal would have on them. Debate the issue and come to a conclusion - should the proposal go ahead?</p>		<p>Geography The Environment-land-use, natural resources and conservation Enquiry skills -consideration of the local environment</p> <p>What People Do - understanding the different jobs people do to provide goods</p> <p>ICT Internet research</p> <p>Talking and Listening Taking part in group and class discussion sharing, responding to and evaluating ideas.</p> <p>Making decisions using objective criteria.</p>

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Activity	Tasks	Worksheets	Relevance to NI Curriculum
Investigating the supply of Water	If any of the class live in Belfast, Armagh, Antrim, Portadown, Craigavon, Lurgan, Banbridge, Ballymena, Larne and Glengormley, then they may be drinking water that comes from Lough Neagh. There are plans to increase the amount of water we take from Lough Neagh. How does the class think this might affect the lough?		Geography Enquiry skills- consideration of the local environment Talking and Listening Talking with confidence and developing ideas. Showing the ability to explain views and opinions.

Activity	Tasks	Worksheets	Relevance to NI Curriculum
Lough Neagh worksheet	Ask each pupil in the class to fill in worksheet 1. This question sheet consolidates the programme's learning outcomes.	Worksheet 1- Lough Neagh	Geography/ English

Programme 4: Lough Neagh**Geography****RESOURCES****Oxford Island National Nature Reserve**

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Co. Armagh BT66 6NJ

Contact Number: (028) 3832 2205.

e-mail: oxford.island@craigavon.gov.uk

<http://www.oxfordisland.com/loughneagh.shtml>

A series of free fact sheets relating to natural habitats are available from:

The Environment Service

Commonwealth House

35 Castle Street

Belfast BT1 1GU

Lough Neagh and Lower Bann website

<http://www.loughneagh.com/>

Information about the Lough Neagh Discovery centre

<http://www.craigavon.gov.uk/tourism/loughneagh.asp>