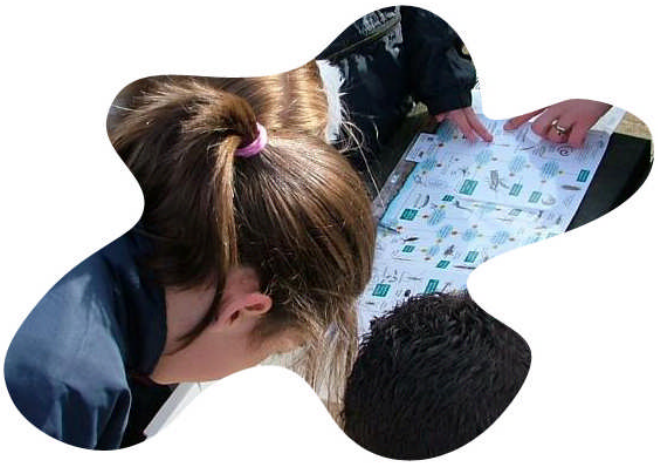
Eco-Schools

Northern Ireland



Biodiversity Topic

Primary

TIDY Northern Ireland

Loughs Agency – Gníomhaireacht na Lochanna – Factrie fur Loughs

Developed with funding from Loughs Agency

Biodiversity

***"The Earth has an abundance of everything, but our share in it is only what we really need."* Sir Richard Attenborough.**

Biodiversity is the wealth of wildlife in the world around us and including us. From wildflowers and insects to mammals and birds, all the woodlands, meadows, wetlands and other natural habitats, as well as man-made places such as plantations, fields, canals – even 'wasteland' is valuable for wildlife.

Biodiversity literally means 'the variety of life,' but there are several more complicated definitions, such as: "Biodiversity – or Biological Diversity – is the variety of life in all its forms, levels and combinations including ecosystem diversity, species diversity, and genetic diversity." (IUCN, UNEP and WWF, 1991). Biodiversity is also a key component in understanding and delivering sustainable development, without that understanding, we risk the systems that maintain our environment.

The Global to the Local

At the 1992 Earth Summit in Rio de Janeiro, 159 countries signed the Biodiversity Convention, committing them to "conserve the variety of animals and plants within their jurisdiction", with further items agreed at the Johannesburg Summit in 2002. The Northern Ireland Biodiversity Strategy launched in 2002, provides a province wide framework for species and habitat conservation and encourages local people and local organisations, to work together to ensure that biodiversity is considered while protecting the environment. In understanding biodiversity, we will also understand more about ourselves and the World around us.

Schools and Biodiversity

Schools can introduce children to the natural environment and in particular to biodiversity, in a variety of ways. Biodiversity is not just a science subject, but the arts, language, geography, and technology, could all be employed to further a pupil's understanding, knowledge and skills about biodiversity.

Getting Started

Biodiversity, like the other topics within the Eco-Schools programme, needs to have an action plan developed after your environmental review. This **action plan** highlights what key actions you take and when to undertake them. School grounds provide a useful starting point, but it may also be an idea to contact your local council environmental or Local Biodiversity Officers, or some of the partner organisations listed under each theme. They may have some ideas on local projects that your school could take part in.

To provide you with some initial ideas on getting started, a number of themes are highlighted below. Included under each theme is a case study that aims to provide inspiration, contacts for organisations that play a role in ensuring Northern Ireland's biodiversity is conserved for future generations and links to the NI Curriculum that may prove useful for schools in planning their biodiversity action plan.

Theme: Using Science and Technology

If we are to conserve Northern Ireland's biodiversity, it is important that we understand these plants, animals and habitats that go to make up our local environment, and how our actions can have both positive and negative impacts on them. Science and technology can be utilised to research and to monitor these impacts on biodiversity. From this research, actions can then be taken to conserve it and measures put in place to protect it.

One such programme is Vital Signs delivered here in Northern Ireland by the Lough's Agency. The project is based in schools located in the Foyle, Blackwater, Carlingford, and Melvin river catchments on both sides of the Ireland/Northern Ireland border. The project Vital Signs Ireland is an environmental and ICT project which promotes science fieldwork along with ICT know-how to raise awareness and understanding of local river environments. Students have the opportunity to use palm computers to monitor a local aquatic environment, monitoring weather, water quality, river habitats, plants and animals in the riparian environment.

The data collected in the field is GIS-linked and uploaded to the Vital Signs website so the students can then display their results and compare their data with that of other schools within their catchment and further afield. The Vital Signs website gives details of what's involved in the programme and ideas and information on river and stream studies.

Case Study

St Teresa's Primary School Loughmacrory Co Tyrone took part in the Vital Signs programme using their local river the Claggan. This formed part of a larger programme of study for Key Stage 2 pupils – Water **(insert 1, insert 2).** With the help of staff from Loughs Agency and the Vital Signs technology, the children monitored the Claggan for pollution etc to establish if it could be used as a release site for salmon. Read some of the children's newsletter articles – **The River Times** which were produced and presented at a parents' evening at the end of the school year.

Curriculum Links

Vital Signs is aimed at upper Key stage 2 and older and provides both a scientific and technology based approach that can also integrate arts, language and literacy, maths and the other elements of the World Around Us – geography and history into the programme of study.

The World Around Us

- Science – investigating the insect life of the river, taking measurements etc
- Technology – using hand held computers to record data and downloading it onto the web
- Geography – exploring the physical features, recording weather, reading maps etc
- History – local river and how it was and is used etc.

Language and Literacy

- Writing – reports, articles and creating presentations
- Talking – presenting findings to school and others
- Reading – finding out about some of the insects they found, reading maps, gathering articles about the river etc
- Listening – taking instructions in the field and in the classroom etc.

Mathematics and Numeracy

- Analysing data.
- Applying findings through graphs, diagrams charts etc.
- Concluding findings and presenting ideas.

Personal Development

- Understanding health and safety on site.
- Taking care of others.
- Expressing views.
- Applying findings to the wider community.
- Developing care for their local environment.

Physical Education

- Preparing for outdoor work.
- Taking part in physical tasks.

Religious Education

- Exploring the importance of rivers to human spirituality and well being.
- Care for other living things.

Contacts/Links

These web links provide additional ideas and information in using science and technology to teach biodiversity. The organisations will also be able to provide supporting materials and information including advice on preparing for field studies, health and safety, and information on local biodiversity.

The Loughs Agency
Vital Signs
Environment and Heritage Service
Local Biodiversity Officers
Northern Ireland Biodiversity – It's in Our Nature
Magilligan Field Centre

Theme: Practical Ideas for School Grounds

School grounds are an important resource for schools and can not only add to the overall appearance, but can provide important space for local biodiversity to flourish. Whether you are an urban or rural school, some planning and a few small changes can create wildlife habitats for a wide range of living things. Ponds, wildflower meadows, trees and pot plants, are all invaluable for wildlife such as insects, birds and mammals such as hedgehogs. Even foxes may find their way into your school grounds. Creating such spaces, shows a respect for living things and provides pupils with an opportunity to study plants and animals and where they live at first hand.

To get an idea of what you could create for wildlife, it's a good idea to undertake a habitat survey of your site or a biodiversity audit or map of your site.

Case Study

St Malachy's Primary School in Belfast has over a number of years created an amazing wildlife garden in what was once a very urban concrete space. With assistance from Conservation Volunteers Northern Ireland, and a team of dedicated teachers and pupils, they planned a mix of habitats including **a pond, wildflower meadow and planted area**. Having learnt so much, they have created their own website and CDRom to assist other schools create their own wildlife gardens - http://www.ourwildgarden.org. This website provides great ideas and gives a good overview of what planning is needed. Click for some photos of St Malachy's Wildlife Garden, which may inspire you to create one at your school **(photo 1, photo 2)**.

Curriculum Links

The school grounds can not only provide a resource for teaching a variety of subjects, but can instill care and pride in students. Schools involved in looking after their school grounds may also notice a drop in littering and graffiti. In planning and creating a wildlife garden, students' skills and confidence are also developed as they work together investigating ideas and putting these ideas into action. St Malachy's PS has found that many **subject areas** can be covered using the school grounds as a resource, their teaching resource – Eco-Trail highlights this variety.

The World Around Us

- Science – growing and caring for plants, investigating the variety of insects and birds associated with different plants.
- Technology – recording changes with a digital camera, setting up a web camera.
- Geography – drawing a map of the school grounds, monitoring temperature and wind conditions in different areas of the grounds.
- History – creating a log of how the grounds have developed over the project, exploring local plant names and their uses.

Language and Literacy

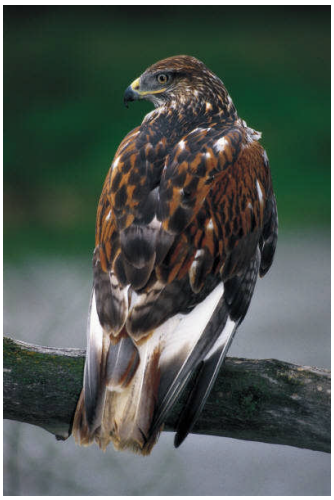
- Writing – reports and articles, creating poems and stories.
- Talking – poetry and storytelling.
- Reading – finding out about some of the living things they find by gathering articles, searching the web etc.
- Listening – noting bird song etc. following instructions on practical working days etc.

Mathematics and Numeracy

- Undertaking bird counts, plant transects etc.
- Applying findings through graphs, diagrams, charts etc.
- Concluding findings and presenting ideas.

Personal Development

- Understanding health and safety on site.
- Taking care of others.
- Expressing views.
- Applying findings to the wider community.
- Developing care for their local environment.



Physical Education

- Preparing for outdoor work.
- Taking part in physical tasks.
- Playing nature games.

Religious Education

- Exploring the importance of plants and animals to human spirituality and well being.
- Care for other living things.

Contacts/Links

Schools across Northern Ireland have been developing their grounds for wildlife and as places to teach. Many schools in the Eco-Schools Programme have used the progamme's partner organisations for advice and assistance, and many like St Malachy's Primary School have a wealth of knowledge and experience to share. Contact some of the schools in your local area who are taking part in Eco-Schools as well as linking to some of the contacts below.

Growing Schools

Conservation Volunteers Northern Ireland

The Ulster Wildlife Trust,
Learning Through Landscapes
Groundwork UK
Environment and Heritage Service
BBC - Breathing Places - Be inspired
Trees For All
The Royal Society for the Protection of Birds (RSPB)
Conservation Volunteers Northern Ireland
Transforming your School Grounds
Nature in your Neighbourhood

Theme: Getting Involved in Local Projects

Taking some of what you have learnt within the classroom and applying it to real life situations can prove an invaluable learning experience for students. It can also provide invaluable information for other organisations, while highlighting a local issue or interest to both the students and local community. Remember that biodiversity is not just about animals, plants and habitats are also important!

St Ronan's Primary School in Lisnaskea Co Fermanagh undertook a creative approach to helping the RSPB find out about waders in Upper Lough Erne. The pupils first got some ideas of how to create a myth. They then created a series of myths about these protected birds – the Curlew, the Snipe and the Lapwing which were produced into booklets and displayed in the local library. Myth Making **(insert 1, inserts 2)** provides a cross curricula approach to raising awareness about local bird species **(example 1, example 2, example 3)**.

Curriculum Links

The World Around Us

- Science – researching a local species of plants and animals and investigating possible threats and impacts.
- Technology – producing the myths into booklet form including photos and design.
- Geography – pinpointing particular local habitats on maps.

- History – charting the history of the site and its uses, exploring local townland names and names of wildlife.

Language and Literacy

- Writing – taking notes, writing an outline plan then creating the myths.
- Talking – poetry and storytelling, interviewing locals about the area and its wildlife.
- Reading – finding out about a particular plant, animal or habitat that needs help by gathering articles, searching the web etc.
- Listening – storytellers and audio books, other pupils stories etc.

Personal Development

- Expressing views.
- Applying findings to the wider community.
- Developing care for their local environment.

Physical Education

- Playing nature games.

Religious Education

- Exploring the importance of plants and animals to human spirituality and well being, care for other living things.

Contacts/Links

There are many ways your school can become involved in protecting local biodiversity. Organisations such as The Ulster Wildlife Trust, The Woodland Trust, The Royal Society for the Protection of Birds (RSPB), The Loughs Agency and Conservation Volunteers, as well as local councils and government offer opportunities to become involved with biodiversity projects and research.

The links below will put you in touch with these organisations and provide you with some ideas for getting your students involved in a local biodiversity project.

The Ulster Wildlife Trust.
The Woodland Trust.
Nature Detectives
Trees For All
The Royal Society for the Protection of Birds (RSPB),
The Loughs Agency
Conservation Volunteers Northern Ireland
Environment and Heritage Service

Local Councils
Biodiversity Officers
The Natural History Museum
Ulster Museum
Ecos
Enfo
BBC Wildlife
WWF
National Trust
Habitas
Growing Schools

Theme: Northern Ireland Species and Habitats

The Northern Ireland Biodiversity Strategy launched in 2002, provides a province-wide framework for species and habitat conservation and encourages local people and local organisations to work together to protect Northern Ireland's biodiversity. This strategy highlights the priority species and habitats in Northern Ireland, and actions needed for their conservation. There are 200 plant and animal species and 40 habitats, details of the strategy are available from the Environment and Heritage Service website. To find out about particular species and habitats follow the links to the following organisations; The Ulster Wildlife Trust, The Woodland Trust, The Royal Society for the Protection of Birds (RSPB), and Habitas.

Working alongside the The Loughs Agency, Greenhaw Primary School in Londonderry took part in "Salmon in the Classroom" programme. The school received all the equipment needed including tanks, thermometers, 100 eggs, and instructions on rearing the salmon for release to the River Castle in Eglinton, which is part of the Foyle catchment. The school found that by focusing on a particular species, the salmon **(insert 1, insert 2)**, elements such as **rivers**, **water cycle**, **habitat**, **food chains**, **pollution** and **life cycles** can also be introduced. Greenhaw PS also went as far as 'twinning' with a school Washington State in the United States, swapping ideas and information about what each class has learnt. Read an article by one of the students who took part – **"Greenhaw News".**

Curriculum Links

The World Around Us

- Science – researching a priority species of plants or animal and investigating possible threats and impacts. Monitoring egg development, life cycles etc.
- Technology – recording changes with a digital camera, setting up a web camera. Linking to international school via webcam etc.
- Geography – charting migration of salmon, locating river catchments etc.
- History – charting the history of the river and its uses. Researching species/habitat in the past.

Language and Literacy

- Writing – reports and articles, creating poems and stories about the species.
- Talking – poetry and storytelling, interviewing fishermen about the salmon.
- Reading – finding out about the priority species and habitats by gathering articles, searching the web etc.
- Listening – following instructions on care for the eggs.

Mathematics and Numeracy

- Undertaking monitoring of temperature, counting eggs etc.
- Applying findings through graphs, diagrams, charts etc.
- Concluding findings and presenting ideas.

Personal Development

- Understanding health and safety.
- Taking care of self and others.
- Expressing views.
- Applying findings to the wider environment.
- Developing care for their local environment.

Physical Education

- Preparing for outdoor work.
- Taking part in physical tasks.
- Playing nature games.

Religious Education

- Care for other living things.

Contacts/Links

The Ulster Wildlife Trust.
The Woodland Trust.
Nature Detectives
Trees for All
The Royal Society for the Protection of Birds (RSPB),
The Loughs Agency
Conservation Volunteers Northern Ireland
Environment and Heritage Service
Local Councils
Biodiversity Officers
The Natural History Museum
Ulster Museum
Ecos
Enfo
BBC Wildlife
WWF
National Trust
Habitas
Growing Schools
Something Fishy
Froglife
Butterflies of Ireland
Bat Conservation Trust
Mammal Society

Theme: Issues Facing Biodiversity

Biodiversity matters because it impacts on all our lives, both directly and indirectly. The benefits of biodiversity include;

- 20% of wild plants provide 80% of our foods (Natural History Museum),
- plants and animals provide many of our medicines and industrial materials such as timber and oil.
- natural systems help control flooding, recycle wastes, create soils, and water etc.
- people enjoy nature and wild places, encouraging creativity and leisure.

The quality of our lives is greatly enriched by the natural environment, yet a lot of human activity is having a negative impact on biodiversity across the world. These threats include;

- climate change,
- introduced species,
- habitat loss and fragmentation,
- genetically modified organisms such as crops,
- pollution of soil, air and water,
- over-exploitation and
- industry, agriculture and forestry.

Case Study

To find out what issues may be facing a local habitat; St Teresa's Primary School in Loughmacrory Co Tyrone adopted a local river the Claggan. The Adopt-A-Stream organised by the Loughs Agency brings the school through from surveying the river, assessing water quality, St Teresa's Primary School in Loughmacrory in Tyrone "adopted" their local river the Claggan as the site for the release of salmon they had hatched under careful conditions in the classroom. After surveying the Claggan's conditions it was decided that a clean up was needed to improve the chances for the newly introduced salmon. Read some of the children's newsletter articles produced for an end of year parents' day - **The Lough Express**.

Curriculum Links

The World Around Us

- Science – researching a local habitat's species of plants and animals and investigating possible threats and impacts.
- Technology – recording changes with a digital camera, setting up a web camera on site.
- Geography – drawing a map of the habitat, monitoring temperature and wind conditions in different sites.
- History – charting the history of the site and its uses.

Language and Literacy

- Writing – reports and articles, creating poems and stories about the site.
- Talking – poetry and storytelling, interviewing locals about the area and its wildlife.
- Reading – finding out about some of the living things they find by gathering articles, searching the web etc.
- Listening – following instructions on field visits, carrying out interviews with staff of organisations etc.

Mathematics and Numeracy

- Undertaking bird counts, plant transects etc.
- Applying findings through graphs, diagrams, charts etc.
- Concluding findings and presenting ideas.

Personal Development

- Understanding health and safety on site.
- Taking care of self and others.
- Expressing views.
- Applying findings to the wider community.
- Developing care for their local environment.

Physical Education

- Preparing for outdoor work.
- Taking part in physical tasks.
- Playing nature games.

Religious Education

- Exploring the importance of plants and animals to human spirituality and well being, care for other living things.

Contacts/Links

Many of the organisations below are involved in monitoring both species and habitats. By undertaking studies of Northern Ireland plants, animals and habitats, the students will be adding to the knowledge about such species. In turn this will aid organisations to take action to conserve them.

The Ulster Wildlife Trust,

The Woodland Trust,

Nature Detectives

Trees For All

The Royal Society for the Protection of Birds (RSPB),
The Loughs Agency
Conservation Volunteers Northern Ireland
Environment and Heritage Service
Local Councils
Biodiversity Officers
The Natural History Museum
Ulster Museum
Ecos
Enfo
BBC Wildlife
WWF
National Trust
Habitas
Growing Schools
Biodiversity Puppet Show

Acknowledgements

Loughs Agency for funding and programme information including case studies.

Staff of the following Eco-Schools partners; The RSPB, The Ulster Wildlife Trust, The Woodland Trust, Conservation Volunteers Northern Ireland.

Staff and pupils of all the schools included as case studies.

Researched and compiled by Paula Flanagan.