

Eco-Schools Inspiration

Biodiversity



Teaching
Resource



KEEP
NORTHERN
IRELAND
BEAUTIFUL



ECO-SCHOOLS

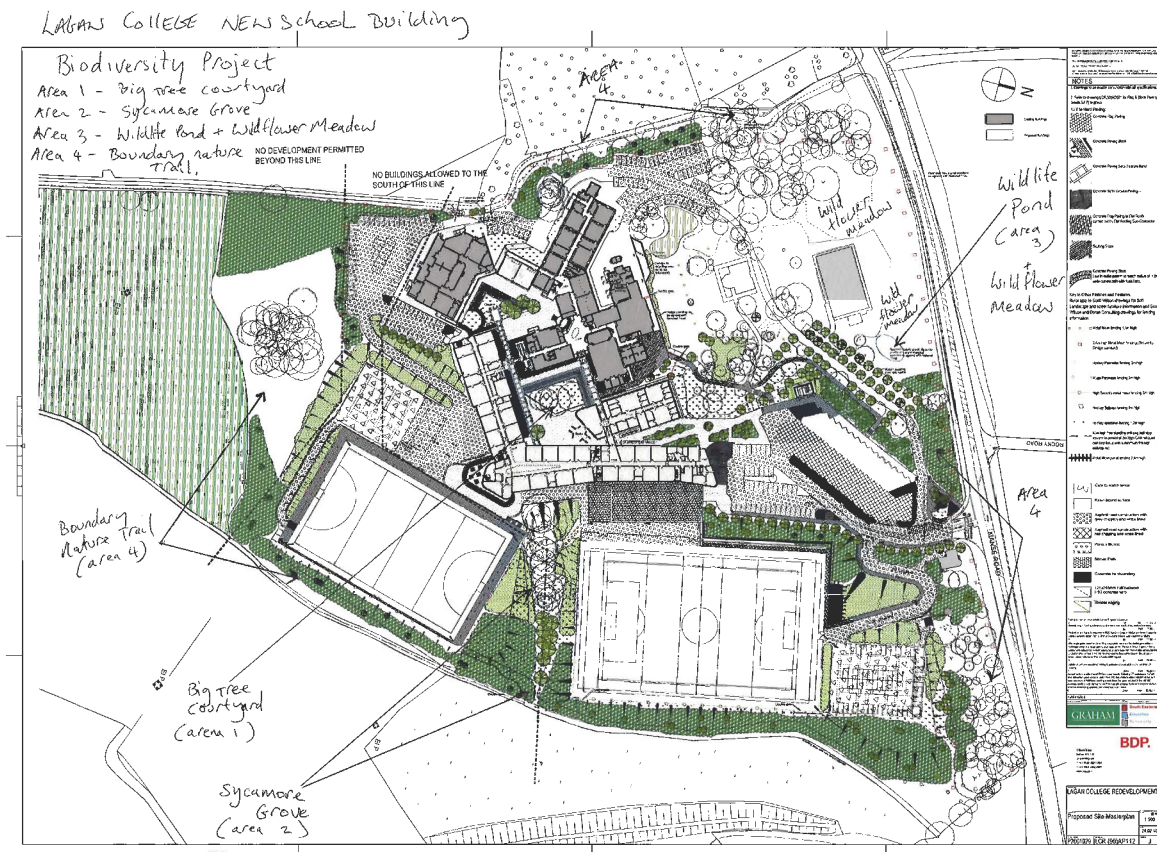


Contents

Biodiversity: Introduction	03
Case Study: Lagan College	04
Curriculum Links and Skills	08
Primary Activity Ideas	09
Post-Primary Activity Ideas	11
Other Links	13

Click on the link to go to the page

Click on the banner within this document (top left) to return to the Contents page



Lagan College biodiversity site map.



“ I THINK IT’S REALLY IMPORTANT THAT KIDS ARE TAUGHT ABOUT WILDLIFE AND HOW IT’S IMPORTANT TO PROTECT WILDLIFE. ”

CARTER WICKHAM, YEAR 8, LAGAN COLLEGE

Introduction

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. Biodiversity literally means “the variety of life”. Biodiversity is also a key component in understanding and delivering sustainable development, without that understanding, we risk the systems that maintain our environment.

Biodiversity is essential because it impacts on all of our lives, both directly and indirectly. All species, including humans, require a range of basic resources to keep them alive and healthy. Humans need oxygen to breathe, water to drink, food to eat and shelter from the weather. The living things on our planet provide many of these things for us, so their conservation is vital if we are to survive. Yet, a lot of human activity is having a negative impact on biodiversity across the world.

Getting started

Biodiversity provides direct links to the statutory requirements of the curriculum, providing knowledge, skills and understanding across the key stages in the following areas:

- Life processes
- Humans and other animals
- Green plants
- Variation and classification, inheritance and evolution
- Living things in their environment

Biodiversity, like the other topics within the Eco-Schools programme, needs to have an Action Plan developed after the Environmental Review. School grounds provide a useful starting point, but it may also be an idea to contact your local council or some of the Eco-School partner organisations who may have some ideas on local projects that your school could take part in.

To provide you with some ideas on how to approach the Biodiversity topic in your school this chapter provides: a case study that aims to provide inspiration, contacts for organisations that play a role in ensuring Northern Ireland’s biodiversity is conserved and links to the Northern Ireland Curriculum that may prove useful for schools in planning Biodiversity activities.

The Biodiversity topic may be used as one of the three topics necessary to complete the 7 step Eco-Schools programme.





Case Study

School: <i>Lagan College, Castlereagh</i>	Teacher: <i>John Paul Patton</i>
No. of pupils: <i>Over 1200</i>	Eco-School status: <i>Green Flag</i>

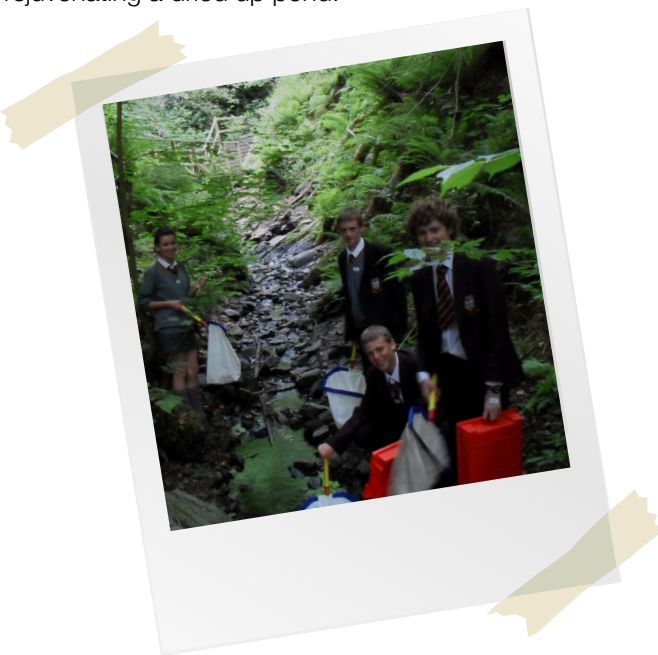
Background Information

Q: Why did you choose Biodiversity as an Eco-Schools topic? What was your Action Plan?

A: Lagan College is fortunate in that there is a huge range of natural biodiversity on campus as it is situated on a National Trust conservation area and the school works hard to preserve, where possible, trees and other key features of the natural environment. There is a rookery on the campus and plans are underway for a nature trail round the college, a wildflower meadow and rejuvenating a dried up pond.

Our campus has bird boxes, bird feeders, log piles for invertebrates and a woodland area which pupils are involved in looking after. We also make use of links with other organisations and companies such as The Ulster Wildlife Trust, WWF, RSPB and National Trust.

Lagan College has carried out work on all of the Eco-Schools topics, with a large focus on Litter in the past and has participated in the BIG Spring Clean campaign. With the construction of the new campus finally finished in the summer of 2013 there are now ample opportunities to focus on improving biodiversity within the school grounds. Here is an excerpt from a previous action plan:



Lagan College Previous Action Plan

Action	Target/measure
Tree planting	Supported by Castlereagh Borough Council
National Trust and Planetarium Day	Whole community educational event
Nature Walk	To celebrate work for the year and to learn from the natural environment
Sponsor an endangered animal	To help an endangered species and learn about them



Case Study

Q: How do you integrate Biodiversity into the curriculum?

A: The principle behind Eco-Schools is that environmental topics being studied in the classroom should influence the way the whole school operates. What you decide to study should, if possible, enhance the environmental actions (i.e. your Action Plan) being undertaken by your school. This will provide greater relevance for the students. In the case of our school various curriculum links are made. For example, year 11 composed an eco-article as part of their digital media course, year 12 motor vehicle and road user students completed sustainable transport coursework, and year 10 maths worked with graphs of school energy. In addition, junior members took part in Environmental Youth Speak, year 10 English classes wrote a sustainable future essay and other opportunities arose such as a bin decoration competition and eco film making.

Q: How do you co-ordinate with other teachers to ensure a whole school approach?

A: Whole school awareness and participation in the programme is fortified through our enthusiastic eco-committee and dedicated Eco-Coordinator who go far to ensuring Eco-Schools is well led and supported, with the school promoting this as an area for whole school improvement. Staff development training also exists in this area. Effective communication takes place via email, assemblies and newsletters. And our Eco-Board. A range of stakeholders have been kept aware and informed from Board of Governor level to dinner ladies and caretakers. Our Action Plan is also included in the school development plan.



Q: How did you encourage pupil participation? How did they have ownership of the project?

A: Lagan College's Eco-Committee is representative of the school community with a teacher, pupils (junior, senior and 6th form) and parents involved and meet fortnightly. Committee decisions are disseminated via assemblies and within form class.

We can communicate with pupils via various methods such as our school blog, assemblies, newsletter, magazine, notice board and plasma screens. We also have an Eco Action Day and Eco-Code which is in pupils' homework diaries and most classrooms.

Pupils can get involved through recycling and engaging in litter picks, putting on assemblies on eco-issues, and writing for the school newsletter. Pupils were also engaged in developing our school Eco-Code.



Receiving our
Green Flag *Right*

ECO-CODE

I **RESPECT** the environment in and around our school, as a National Trust site.

I put all litter in the bin and help pick up litter when required.

I **REDUCE** waste where possible through: only printing and photocopying when necessary; and through turning off lights, heat and electrical equipment when they are not being used.

I **REUSE** paper, books and other resources where possible.

I **RECYCLE** all paper, cardboard, computer ink cartridges, batteries and textile within the college.

I do my best to ensure that Lagan College continues to excel as an Eco-School.



Case Study

During Implementation of Eco-Schools Inspiration case study

Q: How will pupils/whole school benefit from the Eco-Schools Inspiration project?

A: The pupils will benefit from having secured the £500 and the equipment we purchased. The wellington boots and waterproof trousers will help us do field work when it's wet. The binoculars will help our bird survey. The bird food and feeders and baths and boxes etc. will help us hopefully increase biodiversity and observe species in the school. This in turn will help showcase our designated Eco areas to the whole school community and enable staff, students and guests to see wildlife on the campus. This in turn will help raise awareness of biodiversity and the need to protect it.

Q: What is your overall aim and what actions are you going to take?

A: We are organising a new Biodiversity Study Group to audit and monitor the local wildlife on our school site. This group will meet once a month to provide updates on wildlife monitoring, to discuss resources and actions and to plan and implement events. At our first group we will have a look at resources and plan any immediate actions such as creating a Biodiversity Map for our campus which notes observatory points and biodiversity spots such as our Big Tree Courtyard, pond and wildflower garden.

During our first meeting we carried out a bird audit and discussed organising a competition to name a biodiversity spot on campus.



Bird feeder and box in the Big Tree Courtyard Above

Q: How are you going to spend the £500 funding?

A: We are planning to spend our funding on a pair of binoculars as well as some outdoor clothing and boxes for birds, mammals and insects. The items will assist us with our wild life audits and observations on site. We have various Biodiversity spots we want to observe to include our Big Tree Courtyard and our unnamed large tree area. We are hoping to monitor and collect data on tree and plant species, small mammals, bird life and insects using our binoculars, cameras and video monitoring equipment. Each student in our Biodiversity Study Group has put themselves forward to monitor and observe an area of their choice.

Q: Are you going to receive any support or resources from parents, staff or outside agencies?

A: The National Trust are going to help us with materials for bug hotels and log piles which we hope to place within are various Biodiversity Spots such as an enclosed marsh area. In addition, a parent is going to help us carry out a moth survey; the pupils are particularly enthusiastic about getting involved in moth trapping. We often make use of resources from the RSPB. Their website is particularly helpful and we partake in the Big Schools Bird Watch each year. At Lagan College, we are also fortunate in that staff are generally supportive of eco work on campus.



Unnamed biodiversity spot Left.



Case Study

Reporting on impact of action(s)

Q: Did you encounter any problems and, if so, how did you overcome them?

A: The only problem that we encounter with the Eco-Schools work is lack of time due to the extreme pressure put on staff and students by the current nature of 'Controlled Assessment' and 'Continual Assessment' in education. But we aim to work in and around this 'pressure cooker' environment as best we can as the programme is of great benefit in educating the pupils about living more sustainably and being more environmentally friendly. There are so many eco-enthusiasts across the year groups; it would be a shame to not get involved in studying topics such as Biodiversity.

Q: Is there any advice you could offer to schools undertaking the Biodiversity topic? Do you have any useful suggestions for other teachers embarking on the topic?

A: Consult with your local council Biodiversity Officer to find out more about local biodiversity priorities in your area and review the Local Biodiversity Action Plan. The RSPB Big Schools Bird Watch is a great way to start work on the Biodiversity topic. They provide excellent free resources and will often get involved in school workshops. The data taken from the bird watch is used in an important national survey. They also store the data from year to year. Moreover, placing bird feeders and bird boxes can also be a great idea, even for schools with minimal grounds.



Q: Has doing this topic driven other Eco-Schools ideas? What are your future plans regarding Eco-Schools?

A: This is just the beginning of a Biodiversity focus that we plan to develop over the next number of years. Our next key focus is on developing the dried up wildlife pond on site and planting a wildflower meadow to increase biodiversity.

By collecting data we see the real impact of our work. Through collecting and monitoring data it will ultimately help us with the evaluation i.e. to consider the results achieved - are these as expected, if not why not?; identify any areas for improvement; and to celebrate our success. Please view the Biodiversity Awareness Survey Map on Page 2.





Curriculum Links and Skills

The Biodiversity topic allows you to incorporate and promote **Thinking Skills & Personal Capabilities** and **Cross-Curricular Skills** into your lessons.

World Around Us Suggested Learning Intentions

(taken from W.A.U. strands on Northern Ireland Curriculum website)

Strand 1: Interdependence

'About the variety of living things and the conditions necessary for their growth and survival (S&T); to understand the interdependency that exists in simple food chains and webs (S&T); about the interrelationships between animals and plants in a habitat (S&T); to understand some of the ways in which living things rely on common landscape features (G); to be aware of the changes in their local environment over time (H); about issues associated with the conservation, preservation and regeneration of the environment (G).'

Strand 2: Movement and Energy

'How seasonal change causes animals to move (S&T); how human activities affect habitats and ecosystems (S&T) (G); how natural events can impact on the environment and habitats of animals (S&T) (G).'

Strand 3: Place

'About some of the plants and animals in a chosen habitat locally (G); the conditions necessary for life in a variety of places (S&T); how place affects the plant and animal life there (S&T); about simple food chains in different places (S&T); how animals grow, feed and use their senses in a variety of places (S&T); how seasonal change affects the behaviour of animals and plants (S&T); how variations in place affects the growth of plants (S&T).'

Strand 4: Change Over Time

'About the life cycles of some plants and animals (S&T); about organisations who work to protect the environment and wildlife (G); about the importance of conserving the environment including protection of habitats and wildlife (G).'

Managing Information

Example: Select a wide variety of sources of information for compiling a Biodiversity report, such as fieldwork, questionnaires, surveys and secondary sources, such as, aerial photographs, books, maps, atlases, newspapers, graphs, CD ROMS and selected websites.

Thinking, Problem-Solving and Decision-Making

Example: Use a plan of the school grounds for orienteering and fieldwork activities to find and observe areas of biodiversity within and around the school grounds. Make decisions about how to improve/increase biodiversity in those areas.

Using ICT

Example: Produce a Biodiversity booklet using publishing software that includes photos and graphs which record changes in the school grounds, taken with a digital camera.

Being Creative

Example: Try out different ways to solve problems when, for example, using a map of school grounds to determine best possible locations for encouraging biodiversity. How could you increase the amount/type of wildlife visiting that area?

Communication

Example: Pupils take instructions in the field and in the classroom and contribute comments, ask questions and respond to others' points of view. Pupils may conduct interviews with staff from Keep Northern Ireland Beautiful or their delivery partners for example local council waste or biodiversity officers.

Working with Others

Example: Make a presentation to class, school, parents or visitors. e.g. how to increase biodiversity in the school grounds or what work the pupils have been carrying out to encourage biodiversity.

Using Mathematics

Example: Identify and collect information on types of mini-beasts found on the school grounds. Read, interpret, organise and present the information found in mathematical formats such as a bar chart or line graph.

Self-Management

Example: Plan for safe practice and control risks when investigating and making such as compiling and using a health and safety checklist when investigating outdoors.



Primary Activity Ideas

Language & Literacy

Writing

- Create presentations on a Biodiversity theme such as an outline plan for tackling a Biodiversity issue.
- Write a report/article e.g. on a species of animal or about the problem of endangered species and extinction.
- Write stories on the Biodiversity topic e.g. a short story from the point of view of a specific animal or insect.
- Take notes during outdoor observations.
- Spelling/phonics work – high frequency Biodiversity topic words.

Talking & Listening

- Discuss video clips related to Biodiversity.
- Note bird song.
- Interview locals about the area and its wildlife.
- Carry out interviews with staff of environmental organisations etc.

Reading

- Find out about some of the insects found on the school grounds.
- Read a selection of fiction and non-fiction books on animals and environments.
- Find out about a particular plant, animal or habitat that needs help by gathering articles, searching the web etc.

Religious Education

- Explore the importance of plants, animals and rivers to human spirituality and wellbeing.
- Stewardship-Care for other living things.

Mathematics & Numeracy

Number

- Understand and use negative numbers in context, e.g. temperature.
- Apply knowledge of percentage calculations to problem solving activities in money, e.g. 25% off in a sale on insect/mammal hotels.
- Discuss and be able to assess “value for money” in relation to shopping, e.g. when purchasing seeds or wildlife feed.
- Undertake bird counts, plant transects etc.
- Use the four operations to solve more complex word problems and puzzles involving numbers and measures related to a Biodiversity investigation.

Measures

- Undertake monitoring of temperature, counting eggs etc.
- Calculate distance using mental, pencil and paper or calculator methods e.g. perimeter of a biodiversity plot in school or when looking at maps.
- Record measurements of length when for example, building a bird house or measuring a plot of the school ground. Calculate the perimeter of school ground plots; use scale in maps and drawings.

Shape & Space

- Discuss the 3D shapes used in various animal habitats such as bird boxes or bug hotels.
- Measure and draw angles in degrees up to 360° and explore angle relationships, associated with parallel lines, using practical apparatus such as bird/mammal/insect boxes or when drawing a plan for building a box.

Handling Data

- Discuss, plan, collect, organise and represent data in response to a question or statement such as: what insects are staying in the bug hotel?
- Discuss examples of data represented in newspapers, magazines and multimedia sources.



Primary Activity Ideas

The World Around Us

Geography

- Explore the physical features of landscapes, recording weather, reading maps etc.
- Pinpoint particular local habitats on maps.
- Draw a map of the school grounds; monitoring temperature and noting biodiversity spots.
- Chart migration of a species such as salmon, locating river catchments.

History

- Research the local river and how it was and is used at present.
- Chart the history of the site where the school is located and its uses, exploring local town land names and names of wildlife areas.
- Create a log of how the grounds have developed over a project, exploring local plant names and their uses.
- Research species/habitats in the past how they have been affected and what uses they have.

Science & Technology

- Investigate the insect life of the river; take measurements.
- Grow and care for plants; investigate the variety of insects and birds associated with different plants.
- Research a local species of plants and animals and investigate possible threats and impacts.
- Monitor egg development, life cycles etc.

The Arts

Art & Design

- Collect, examine and select resource material to use in the development of ideas such as leaves and twigs.
- Look at and talk about the work of local artists, designers and crafts workers e.g. artists who work with recyclable materials, natural materials or paint landscapes.
- Use a range of media, materials, tools and processes such as: drawing, painting, printmaking, malleable materials, textiles and three-dimensional construction when creating artwork on the Biodiversity theme.

Music

- Create musical stories, pictures, patterns, conversations etc. based on a Biodiversity theme or issue e.g. sounds in the forest.
- Sing and perform with simple instruments from memory, by ear or from notation to develop vocal and instrumental skills e.g. animal songs.

Drama

- Role play situations such as how water pollution from human activities has a long-term effect on animals and plants in certain biospheres.
- Explore a range of cultural and human issues in a safe environment by using drama to begin to explore pupils' feelings about issues, and by negotiating situations both in and out of role.
- Use the Biodiversity theme to develop a range of drama strategies including freeze frame, tableau, hot seating, thought tracking and conscience alley.

Personal Development & Mutual Understanding

- Understand health and safety on site.
- Actively taking care of self and others.
- Apply findings to the wider community.
- Develop care for their local environment through playing an active and meaningful part in the life of the community e.g. litterpick or gardening in the local area.
- Take care of the outside environment with respect and care for plants and animals.

Physical Education

- Prepare for outdoor work.
- Take part in physical tasks.
- Play nature games.
- Move in the style of various animals.
- Create a dance e.g. rain dance.



Post-Primary Activity Ideas

Environment & Society

Geography

- Map the school grounds noting habitats and other relevant biodiversity features.
- Map rivers and associated habitats.
- Develop a sense of place through the study of a range of local, national, European and global contexts; and Biodiversity issues of topical significance.
- Create a study of ecosystems/biospheres on the planet, such as deserts, rainforests and coral reefs. Investigate where different plants and animals live and interact.

History

- Investigate the significance of Biodiversity in the past e.g. place names.
- Chart changes to school grounds from past to present and how these changes have helped/hindered local wildlife.
- Investigate significance of Biodiversity in stories and tales.

Language & Literacy

English/Irish Medium with Media Education

- Carry out an awareness raising campaign, identifying and describing species, issues, debating etc.

Modern Languages

- Make and maintain links with other International Eco-Schools.
- Learn the names of various species of wildlife in another language.

Physical Education

- Take part in responsible outdoor field work.
- Take part in responsible outdoor practical work.
- Carry out physical activity outside e.g. walk/jog around a nature trail.

Learning for Life & Work

Local & Global Citizenship

- Actively engage and participate in a local project/issue such as endangered native species.
- Engage and participate in an action project.

Education for Employability

- Learn about the work of those involved in Biodiversity and the systems used to conserve wildlife and habitats.

Personal Development

- Manage own personal health and safety in field and lab, sharing ideas and working as a team.

Home Economics

- Choose food and other products that have fewer impacts on local biodiversity.
- Apply relevance of Biodiversity to choices in running a household.



Post-Primary Activity Ideas

The Arts

Art & Design

- Communicate graphically, producing engaging presentations e.g. posters on endangered wildlife.

Drama

- Employ drama strategies for engaging with and responding to environmental issues and promoting solutions.

Music

- Compose and perform music in response to the Natural World and environmental issues.
- Compose music and perform music in response to the wildlife observed etc.
- Listen to bird and other wildlife songs/noises.

Mathematics

- Record temperature and light conditions within habitats created and under laboratory conditions.
- Record site details, plotting measurements on site.
- Work with Biodiversity statistics e.g. draw and interpret graphs.

Science & Technology

- Investigate species and habitats significant to Northern Ireland, developing identification skills using ID keys.
- Use the Internet to research species, using field equipment such as temperature probes and light meters, recording progress and findings.
- Carry out a survey such as birdlife on campus.
- Carry out an audit of various wildlife in and around the school site.

Religious Education

- Research the difference in school grounds of schools with different faiths and cultures. Are there buildings laid out differently? Do they have buildings used for purposes not found here?



Useful links

[Eco-Schools delivery partners](#)



[Eco-Schools delivery partner resources](#)



[Eco-Schools document templates](#)



Click on the link to visit the website



Funded by



Administered by

