



Caring for the Planet, Feeding Our World

The Environment

MDG 7: ENSURE ENVIRONMENTAL SUSTAINABILITY

The aim of these lesson plans is to enable teachers to explore the relationship between the environment and people, particularly those living in poverty, with 5th and 6th class pupils.

These lesson plans will:

1. Introduce your pupils to global environmental issues
2. Examine the links between the environment and people
3. Introduce your pupils to the Millennium Development Goals (MDGs)
4. Highlight the links between MDG7 and the other MDGs, particularly MDG1 (reducing poverty and hunger).

STRUCTURE OF THE LESSONS:

There are four lesson plans. Each lesson takes between 40 minutes and 1.5 hours. They can be adapted to your pupils' abilities, knowledge and experience. It is not necessary to use all of the lesson plans but they have been developed to lead you through the topics, each lesson building on the one before. They can be done separately or together in a way that fits into your schedule.

CONTENTS OVERVIEW:

Glossary	Key terms used in the lesson plans and their definitions
Lesson 1 overview:	Introduction to the Millennium Development Goals
Lesson 2 overview:	Introduction to environmental issues
Lesson 3 overview:	Case study on farming in Malawi
Lesson 4 overview:	Simulation game on subsistence farming
Lesson 5 overview:	Acting for Rio +20

PLEASE NOTE:

A good way to help your pupils remember the MDGs is to put up a poster of the MDGs in the classroom. Here are different posters for you to choose from:

- Change the World in 8 steps: downloaded from the MDGs Resources section of Oxfam
http://www.oxfam.org.uk/education/resources/change_the_world_in_eight_steps/?37
- Caritas Australia: downloaded from:
<http://www.bemore.org.au/attachments/db/bmp/140.pdf>

GLOSSARY

*Where words in the glossary appear in the lesson plans they are marked in by a **blue surround***

Agriculture	Growing crops and raising livestock (e.g. cows and sheep).
Agro-forestry	Growing crops and trees together. This helps the crops to grow better. It creates healthy soils and land, and allows the land to be farmed for longer.
Climate change	The changing temperature, rainfall, and wind of a particular place over a long time. Changes in the climate are happening now because of humans and our use of fossil fuels (see below). The changing climate is causing drought in some places and flooding in others. The world's poorest people are most affected by climate change.
Deforestation	The cutting, clearing, removal of forest to make way for other land uses, like farming or building.
Environment	The area where something/someone lives.
Fossil fuel	Oil, coal, or natural gas found in the earth; Made from dead plants and animals which would have lived millions of years ago and now used for fuel.
Grafting	Taking a bud or shoot from one plant, and putting it into a stem of another plant, in which it continues to grow. Doing this makes a better plant, which can provide more food.
Greenhouse effect	The air around the earth does a very important job. It lets the sun's warmth in and traps it, like a blanket. The gases which trap the sun's rays are carbon dioxide, water vapour, and methane. But now, there are too many of these gases in the air and they are trapping too much heat causing the earth's temperature to rise, and causing climate change.
Greenhouse gases	Gases that cause the greenhouse effect e.g. carbon dioxide, water vapour, and methane. Humans have put too much of these gases into the air by burning fossil fuels, causing climate change.
Interaction	A two – way action that occurs as two or more objects have an effect upon one another.
Irrigation	Bringing water to land or soil.
Malaria	A disease which causes a high fever and affects the red blood cells. The disease is given to humans by the bite of a type of female mosquito found in tropical countries.
Nutrients	Ingredients in food which are nourishing and healthy; that is, used by a body to grow and be healthy e.g. vitamins.
Nutrition	Food which provides the body with all the nutrients that is needed for growth and repair.
Undernutrition	When a person does not have enough food to eat and goes hungry.
Malnutrition	Malnutrition can occur when a person does not have good quality, nourishing food to remain healthy; the person can be either overweight or underweight.
Pollution	The damage to soil, water, or the air by harmful substances such as bacteria, chemicals and waste

Sanitation	What we use for getting rid of body waste safely or hygienically, e.g.: a toilet.
Siltation	The pollution of water by very fine (small) pieces of soil
Slum	Area of very poor and overcrowded housing in a city.
Soil erosion	The way that soil is removed from the earth's surface by nature e.g. rivers or by people e.g. when the soil is over used and the rain washes it away.
Soil fertility	Soil which has the right conditions, including nutrients, for growing plants
Smog	Fog that has become mixed and polluted with smoke
Species	A category of a particular plant or animal.
Subsistence farming	Farming that focuses on growing enough food to feed families.
Sustainability	The idea of living within the limits of the environment, so that it can support humans now, and in the future.

Lesson 2 – Introduction to environmental issues and MDG 7: Ensure environmental sustainability

Outline: *In groups, your class will examine photos and text relating to environmental issues or problems, in a way that demonstrates that the effects of environmental problems can be felt here in Ireland as well as in other countries. In their groups, they will participate in a round-robin discussion to explore the issues in more depth. This allows the groups to focus their discussion, and compare their ideas with others in the class.*

Learning outcomes

The children will:

- Be able to name different environmental problems
- Understand that many environmental problems happen across the world because of human activities; and also, that changing environment has impacts on people
- Recognise that governments and people make decisions on the environment
- Understand MDG 7 and its targets

You will need

- Photos of environmental issues (see following page)*
- Text boxes (see following page)*
- MDG 7 targets (see below)
- Pens/crayons
- 5 large sheets of paper (e.g. flip chart paper; A2 size)
- 5 black markers
- 10 sheets of stickers; 2 different colours
- Whiteboard/blackboard

**you will need to photocopy one set of images and one set of text boxes per group*

Learning experience

1. **Divide your class into groups of 5 and distribute one set of photos and one set of text boxes to each group.** Ask the group to discuss what is happening in each picture and match the images with the text boxes.
2. **Now, the groups find out if they have matched the right picture and text box. Taking one picture at a time, go through images and text boxes as they appear on the following pages.** If you want, the groups can count up the number they have got correct. **Note:** The

groups may have very good reasons for matching a different text to a picture and, if so, this should be acknowledged. **Ask the class to rearrange the images as shown on the following pages.**

3. **With all the photos matched to a text box, ask the groups if they can group the different photos together.** Which pictures are similar? Why? Give the groups 5 minutes to do this. Ask each group to call out how they grouped their pictures and why they grouped them this way. Explain that the photos and text can be grouped in a number of ways:
 - i. According to place: England/Ireland and the rest of the world
 - ii. According to different environmental problems e.g. air pollution, water pollution, climate change, slums and poverty, species loss
4. **Presentation exercise:** Ask each group to present the way that they grouped their photos and texts, and the reasons for this, to the rest of the class.
5. **Round robin group discussion – linking cause and effect.** Using 5 large (A1) sheets of paper, write one environmental problem (air pollution, water pollution, climate change, slums and poverty, species loss) at the top of each sheet
6. **Draw a line down the middle of the paper (vertically).** At the top of the sheet write 'Cause' on the other half write 'Effect'. Place the five sheets of paper around the room. Place a marker and 2 sheets of different coloured stickers at each sheet of paper.
7. **Ask each group to stand at one sheet of paper taking their pictures and texts with them.** Explain that each group will get 3 minutes at each environmental issue (each piece of paper) to write down as many causes and effects that they can think of. They may need to read the texts again for clues. After 3 minutes the groups will swap over to another environmental issue, and so on until they have visited all 5 environmental problems.
8. **At each subsequent environmental problem they have 3 minutes to read what the previous group has written.** They can add in additional comments if they wish. They must agree on what they consider is the most important 'cause' and 'effect' of each environmental problem and give each a tick. If they disagree with what the previous group(s) have written, they can put an X.
9. **Choose one colour of stickers to represent 'local' and the other 'global'.** Ask the groups to place a 'local' or 'global' sticker beside each of the causes and effects. NOTE: there is no right or wrong answer to aspect of the activity, as environmental problems can have both local and global causes and effects. This is the point to make once the activity is finished.
10. **Once the round robin has finished, ask each group to return to their first environmental issue.** Ask each group to read through what has been written by the other groups. Look for where other groups agreed and disagreed; and the causes and effects which were

considered local and global. Ask each group to present back: 1. their original cause and effects 2. The cause and effects which were considered most significant. 3. The local and global linkages. 4. Any additional comments made.

11. Linking to MDG 7: Ask the groups to sit down/ return to their class places. Teacher reminds students that MDG 7 is about protecting the environment. To meet this Goal all the countries that signed up to the MDGs are trying to meet some targets. When the teacher reads out the targets below, the groups must choose which of their pictures corresponds to which target and hold it up. The teacher should stress that protecting the environment is an important way to reduce the number of people living in poverty.

Targets for MDG 7:

- i. Reduce the loss of plants and animals
- ii. Reduce by half the proportion of people without long term access to safe drinking water and basic sanitation
- iii. Achieve a better life for at least 100 million slum dwellers, by 2020
- iv. Integrate the protection of the environment into all the things that governments do. Including, reducing the amount of carbon dioxide emissions and solid fuel use.

12. Additional follow up activity - Writing and research exercise linking with MDG7:

Ask each group to research and write a page on the environmental issue of their choice.

This could include:

- a. Who they think is most affected by the environmental problem and why
- b. The cause of the environmental problem
- c. Linking with MDG7: Why might it be important to have an MDG about the environment?
- d. Who should help solve environmental problems and why
 - i. e.g. identify how different organisations (and different types or organisations) are helping to solve environmental problems (e.g. government, NGOs, communities).

NOTES FOR TEACHER TO HELP WITH C. ABOVE: Ask the groups, from looking at the pictures, who do they think solves environmental problems? E.g. Why is there no longer smog in Dublin or London? Who might have given the people in Co. Clare water? Who might be able to stop the air pollution in China? Who might be able to stop the tiger becoming extinct? Who might be able to help the people in Ireland and across the world with climate change? We need people in the government to pass laws which help protect the environment for local problems, problems within our own country. But environmental problems like climate change are more difficult. The causes of climate change can take place in one part of the world, but the worst effects of climate change can often affect countries in other parts of the world. Therefore we also need ALL the governments to meet together to solve environmental problems that affect everyone.

AIR POLLUTION:



http://www.eoearth.org/article/London_smog_disaster,_England

Smog in London

This photo is from London, England in 1952 during **'The Great Smog'**. Smog gets its name from: 'smoky fog'. The smog was caused by all the homes in London burning coal to heat their houses. Over a few months in 1952, 12,000 people died of lung and breathing problems. In 1956 the government in England passed a law called the 'Clean Air Act' which stopped people burning coal that makes smoke. Smog was a big problem in Dublin until the 1980s when it became illegal to burn smoky coal.



Smog in China

This photo is from Lanzhou, China in 2009. Nearly 3.5 million people live in Lanzhou. It is very small compared with other cities in China. Smog is a big problem in Lanzhou and in other Chinese cities. Scientists think that over half a million Chinese people die each year from diseases caused by air pollution, like smog. Pregnant women, old people and young children are affected most. Smog in China comes from cars and factories. It also comes from power stations that burn coal to make electricity. A lot of the products we buy come from

CONDITIONS FOR THE POOREST PEOPLE LIVING IN CITIES



The Dublin Slums

This photo shows people living in the Dublin slums in 1901. At that time, Dublin had the worst slums in Europe. There were very few jobs and most people had very little money. The houses were overcrowded, with families living in one room, with no running water. These families often had a lot of health problems, from lack of food and clean water, but did not have enough money to go to the doctor. In the 1950's the government began to take action to try to improve the housing problems in the slums.

http://en.wikipedia.org/wiki/File:Dublin_Slum_dwellers_1901_cropped.jpg



The Nairobi Slums

This photo is from a slum area in the city of Nairobi, in Kenya. One billion people now live in city slums across the world. They are overcrowded, polluted and dangerous places. People do not have clean water and toilets (sanitation). People find it hard to get work and feed their families. Many children do not go to school because their families do not have enough money for books and uniforms. People build their houses out of any waste material that they find. Nearly all future population growth will be in the cities and towns of the developing world. The population living in slums is forecast to increase to 1.4 billion by 2020.

http://childrockinitiative.org/?page_id=48

SAFE DRINKING WATER:



Drinking water in Ireland

In 2011 the people of Ballyvaughan in Co. Clare Ireland could not drink the water coming from their taps. It had become polluted. There was bacteria in the water that makes people very sick. The government got big trucks to bring drinking water brought to the village. Later people were allowed drink their tap water, but only if they boiled it first. Boiling the water kills the bacteria.



Irish Aid

Drinking water in developing countries

1.2 billion people in the world do not have access to clean drinking water and 2.6 billion people don't have access to basic sanitation services, such as toilets. In some places, it is dry and water is hard to find. In other places water may be only a few feet below the ground but people do not have the tools to dig down and the pipes to carry the water to the surface. Irish Aid and development organisations work with governments to help people build and repair wells.

CLIMATE CHANGE



<http://www.epa.ie/whatwedo/climate/climatechangeresearch/imp>

Flooding in Ireland

This photo is from Cork City. Scientists now think that the world's climate is changing and that people are contributing to climate change. Most of the warmest years in Ireland have happened since 1990. We are also getting more rainfall. Burning **fossil fuels** for transport or heating homes, like coal, gas and oil, puts gases in the air which trap the sun's heat. This is called the **greenhouse effect** and it causes the earth's temperature to rise. When we use energy it helps to create **greenhouse gases** and causes the climate to change.



<http://endtimessigns.wordpress.com/2011/08/21/over-2-million-affected-by-monsoon-rains-flooding-in-pakistan/>

Flooding in Pakistan

Climate change is damaging Pakistan's environment and affecting millions of people. Climate change has caused flooding. In 2010 there were very bad floods. In some places 30cm of rain (the length of a standard ruler) fell in one hour. The floods covered one-fifth of the country, about the same size as England, and left millions homeless. Millions of people, more than the population of Ireland, needed food, drinking water and medicine. The effects of climate change are worse in countries like Pakistan where a lot of the people are very poor. Ireland and other countries have sent aid to help people affected by the flood in Pakistan.

For more information about climate change check out the Department of the Environment, Community and Local Government website:

<http://www.askaboutireland.ie/learning-zone/primary-students/3rd-+-4th-class/3rd-+-4th-class-environment/climate-change/>

Information on climate change for teacher:

Causes – burning fossil fuels e.g. coal, gas, oil for transport, electricity, home heating, manufacturing.

Consequences – changing weather patterns, more severe weather events e.g. flooding and droughts

Problem – developed/industrialised countries (e.g. Ireland, U.S.A. China) have caused climate change, but people in poor countries will experience the worse effects

Solution – energy saving; switching to renewable energy sources

SPECIES LOSS



<http://www.hdw-inc.com/lgtigercub.htm>

The Indian Tiger

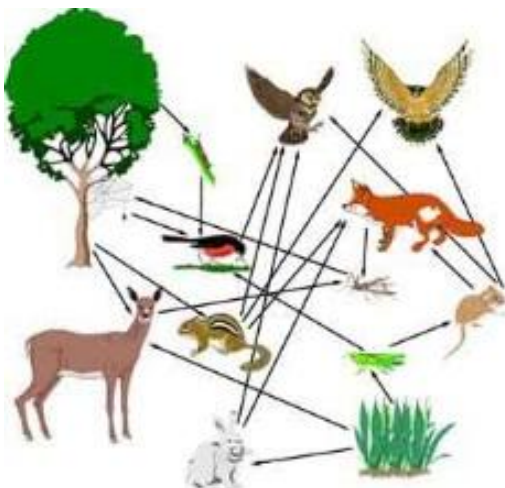
The Tiger is the National animal of India. Scientists think that there are between 3,000 and 4,000 left. Tigers are hunted for sport, trophies, their skins, and sources of traditional medicines. Tigers are also hunted by farmers to stop them killing farm animals like cows and goats. Tigers need a lot of room. Humans have started to move into forests where tigers live. They have cut down trees, polluted the water and air, and also hunted the animals tigers like to eat.



<http://www.noticenature.ie> (Richard Mills)

The Irish Hen Harrier

The Hen Harrier is a bird of prey, which eats small birds and mammals. In 2008 there were just over 300 hen harriers left in Ireland. Numbers of this bird have fallen in Europe because the places where it nests and hunts have been changed by humans. Hen harriers need boggy areas on mountains and hills to nest. In Ireland many of these areas have been turned into farm land to produce food.



http://www.bigelow.org/edhab/fitting_algae.html

Plants and animals are very important for people. Each plant and animal is part of a big jigsaw that makes up our environment. The interactions between animals and plants provide us with everything that we need to live. The environment provides us with food, water, air and shelter. Our environment is important because humans need a clean, healthy environment to survive.