

A2 LEVEL

Environmental Technology

# Ecological Footprint

For first teaching from September 2014

For first award in Summer 2015



environmental  
technology

## Sustainability and Future Development Fact File 3: Ecological Footprint



### Specification Content

#### Students should be able to:

- Define and explain the concept and measurement of an ecological footprint for individuals and nations and the link between an ecological footprint and a carbon footprint.
- Understand the concept of One Planet Living (OPL).



### Course Content

#### What is an ecological footprint?



An ecological footprint is the impact of a person or community on the environment, expressed as the amount of land and sea required to support their use of natural resources.

It is a measure of the demand for natural resources in relation to the earth's ability to restore or replenish the resources consumed.

An ecological footprint is based on consumption over a specific year and is calculated to tell us how much land and sea area, also known as

bioproductive area, would be required to support current consumption.

An ecological footprint is a means of comparing usage of natural resources and lifestyles, and checking this against nature's ability to provide for this.

Footprint values at the end of an ecological survey are categorized for Carbon, Food, Housing, and Goods and Services as well as the total footprint number of Planets needed to sustain the world's population at that level of consumption.

It is estimated that if everyone in the world consumed as many natural resources as the average person in the UK we'd need three planets to support us. If we all lived the average American lifestyle, we'd need five planets to support us.

By measuring the Footprint of a population—an individual, city, business, nation, or all of humanity—we can assess our pressure on the planet, which helps us manage our ecological assets more wisely and take personal and collective action in support of a world where humanity lives within the Earth's bounds.

#### An accounting balance sheet

Since ecological footprints measure the demand human



populations put on nature. It can be described to work like an accounting balance sheet for the world.

On the minus side are resource-consuming activities that support human life, such as energy

use, logging, building construction, farming, fishing and the waste created by all those actions.

On the plus side is the Earth's bio-capacity, its ability to replace those resources and absorb the waste.

#### How is ecological footprint calculated?

The measurement and calculation of an individuals or nations ecological footprint requires gathering quite a lot of data and entering it into a computer model or calculator. Examples of ecological calculators are available on-line. <http://efergy.com/blog/top-10-eco-footprint-countries-is-your-country-here/>

In simple terms ecological footprint can be calculated for example, for a region or population by taking into account

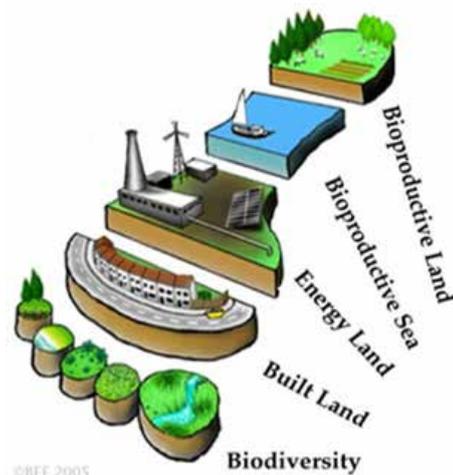
the following factors:

**Bioproductive land usage**- land required to produce 'bio' produce such as crops, grazing (pasture) and timber (forest).

**Bioproductive sea usage**- sea area required to provide fish and seafood.

**Energy land** - 'new' forest required for the absorption of carbon emissions to stabilise CO2 levels in the atmosphere.

**Built land usage**- such as buildings and roads. Once built on, land is no longer bioproductive in any year.



**Biodiversity requirement**- this refers to the area of land and water that would need to be set-aside to preserve biodiversity in the particular population or community that the ecological footprint is being calculated. This

area of land and water is allocated in proportion to the ecological footprint, for example, the larger the ecological footprint, the larger the responsibility to maintain biodiversity.

### What's the difference between ecological footprint and carbon footprint?



An ecological footprint, as explained earlier compares the total resources people consume with the land and water area that is needed to replace those resources.

A carbon footprint also deals with resource usage but focuses strictly on the greenhouse gases released due to burning of fossil fuels. Greenhouse gas calculations make up a portion of an ecological footprint, but are not used in the same way as those in a carbon footprint.

Both calculations illustrate the impact of human activity on the environment.



### One Planet Living

If everyone in the world consumed as many natural resources as the average person in Western Europe, we'd need three planets to support us. The aim of One Planet Living is for people everywhere to enjoy a high quality of life within their fair share of the one earth's resources. It has a vision of a sustainable world, in which people everywhere can enjoy a high quality of life within the productive capacity of the planet.

ZERO CARBON	Making buildings more energy efficient and delivering all energy with renewable technologies
ZERO WASTE	Reducing waste, reusing where possible, and ultimately sending zero waste to landfill
SUSTAINABLE TRANSPORT	Encouraging low carbon modes of transport to reduce emissions, reducing the need to travel
SUSTAINABLE MATERIALS	Using sustainable and healthy products, such as those with low embodied energy, sourced locally, made from renewable or waste resources
LOCAL AND SUSTAINABLE FOOD	Choosing low impact, local, seasonal and organic diets and reducing food waste
SUSTAINABLE WATER	Using water more efficiently in buildings and in the products we buy; tackling local flooding and water course pollution
LAND USE AND WILDLIFE	Protecting and restoring existing biodiversity and natural habitats through appropriate land use and integration into the build environment
CULTURE AND HERITAGE	Reviving local identity and wisdom, supporting and participating in the arts
EQUITY AND LOCAL ECONOMY	Creating bioregional economies that support fair employment, inclusive communities and international fair trade
HEALTH AND HAPPINESS	Encouraging active, sociable, meaningful lives to promote good health and well being

One Planet Living is a model based on ten simple principles which provide a framework to make sustainable living easy and affordable for all.



## Pupil Activity

### Activity 1: Watch the TED Talk

[www.ted.com/talks/paul\\_gilding\\_the\\_earth\\_is\\_full.html](http://www.ted.com/talks/paul_gilding_the_earth_is_full.html)

### Activity 2:

Using the web link <http://footprint.wwf.org.uk> calculate your environmental footprint.

### Activity 3:

Take the quiz at the following web link to find out how much nature your lifestyle requires [www.myfootprint.org](http://www.myfootprint.org)

### Activity 4:

Consider each of the ten actions for One Planet Living, list ways in which The One Planet model may be applied to your school or college environment.

### Internet Resources:

[www.sustainablescale.org](http://www.sustainablescale.org)

[www.wwf.panda.org](http://www.wwf.panda.org)

[www.earthday.org](http://www.earthday.org)

