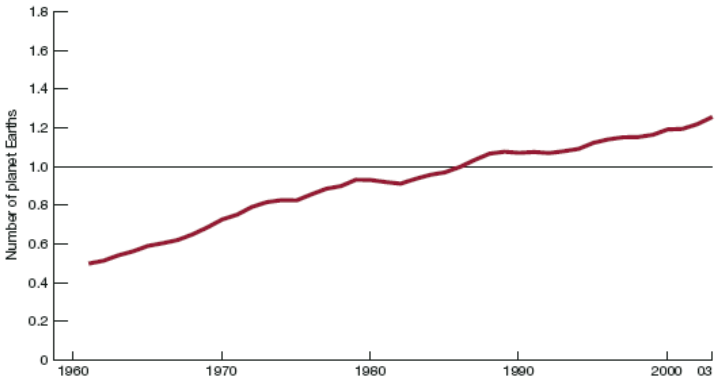
Activity 5: Ecological Footprints

Background:
In order to live our day to day lives we draw from the Earth's resources – for food and water, for transport, for homes and shelter, for goods and services. We depend on the earth to regenerate – the land, forests, air, water supplies etc. But the Earth has limited resources and limited capacity to regenerate…alarmingly since the 1980s we have been 'overusing' the earth – it is unable to keep producing and regenerating to meet our needs and thus our current lifesyles are not sustainable.

Fig. 2: **HUMANITY'S ECOLOGICAL FOOTPRINT,** 1961–2003



Taken from Living Planet Report, 2006 – available at
http://www.panda.org/news_facts/publications/living_planet_report/index.cfm

The Ecological Footprint measures humanity's demand on the Earth in terms of the area of biologically productive land and sea required to provide the resources we use and to absorb our waste.

By measuring the Ecological Footprint of a population (an individual, a city, a nation, or all of humanity) we can assess our overshoot, which helps us manage our ecological assets more carefully. Ecological Footprints enable people to take personal and collective actions in support of a world where humanity lives within the means of one planet.

FACTS

- In 2003 the Global Ecological Footprint was 14.1 billion global hectares. The total supply of productive area (biocapacity) in 2003 was 11.2 billion global hectares. This means we would need 1¼ planets to sustain life (without negatively impacting the earth).
- In 2003, each person would have needed 2.2 global hectares per person (a global hectare is a hectare with world-average ability to produce resources and absorb wastes). The capacity of the earth only allows 1.8 global hectares per person.
- A country's Ecological Footprint is determined by its population, the amount consumed by its average resident, and the resource intensity used in providing the goods and services consumed.
- In 2003 in Ireland we required ~5 global hectares per person (2003 figures).
- An individual's ecological footprint can be determined using the test below. Note that this is a simplistic test - footprints can be inaccurate due to simplifying assumptions, some aspects of the test may be argued e.g. per person calcuations.

Your Individual **Ecological Footprint** Calculator

YOUR TRANSPORT

1. Distance travelled annually by private car?

- More than 20,000 miles **20**
- Between 15,000 and 20,000 miles **12**
- Between 10,000 and 15,000 miles **10**
- Between 1,000 and 10,000 miles **6**
- Less than 1,000 miles **4**
- No car miles **0**

2. Distance travelled annually by public transport?

- More than 20,000 miles **12**
- Between 15,000 and 20,000 miles **10**
- Between 10,000 and 15,000 miles **6**
- Between 1,000 and 10,000 miles **4**
- Less than 1,000 miles **2**
- No public transport miles **0**

3. If you own a car, what kind of model is it?

- SUV or large vehicle **20**
- 1.4 to 2.0 car **10**
- 1.0 to 1.3 car **5**
- Electric/hybrid/biofuel car **3**

4. How many short-haul flights (UK and Europe) did you take?

- Three **18**
- Two **12**
- One **6**
- None **0**

Add 6 points for each additional flight

5. How many long haul flights did you take (e.g. Asia, America, Africa, Australia)?

- Three **60**
- Two **40**
- One **20**
- None **0**

Add 20 points for each additional flight

YOUR ENERGY USE

6. What is your average bi monthly gas or oil bill?

- More than €200 **8**
- Between €100 and €200 **5**
- Between €50 and €100 **3**
- Less than €50 **1**

7. What is your average bi monthly electricity bill?

- More than €200 **10**
- Between €100 and €200 **7**
- Between €50 and €100 **5**
- Less than €50 **2**

FOOD AND COMMODITY CONSUMPTION:

8. Are you

- Vegan **2**
- Vegetarian **4**
- A regular meat eater **8**
- A heavy meat eater **10**

9. The main type of food you consume is?

- Mostly fresh, locally grown **2**
- A mix of fresh and convenience **6**
- Mostly convenience **12**

10. How many newspapers or magazines do buy or have delivered each week?

- More than 10 **4**
- Between 5 and 10 **3**
- Between 1 and 5 **2**
- None **0**

11. How much furniture and other Commodities (e.g. Computer, kettle, clothes) **machines/gadgets** (mobile, i-pod, DVDs/CDs) **do you purchase each year?**

- More than 7 **10**
- Between 5 and 7 **8**
- Between 3 and 5 **6**
- Less than 3 **4**
- Hardly any or second hand **2**

YOUR HOUSE

12. What type of property do you live in?

- Large sized property (5 or more beds) **10**
- Medium sized property (3-4 beds) **7**
- Small sized property (1-2 beds) **4**
- Apartment - as above but subtract **2** points

13. How many other people live in your household?

- No other person **14**
- One other **12**
- Two others **10**
- Three others **8**
- Four others **6**
- Five others **4**
- More than five other people **2**

YOUR DOMESTIC WASTE AND RECYCLING

14. The amount of domestic waste you produce a week (a full wheelie bin is approx 30kg)

- More than 120 kg **50**
- Between 90kg and 120kg **40**
- Between 60kg and 90kg **30**
- Between 30kg and 60kg **20**
- Between 15kg and 30kg **10**
- Less than 15kg **5**

15.To dispose of waste you're going to use up valuable landfill land. You start this section with 24 points. Do you recycle the following items?

- Glass: subtract **4** points
- Plastic: subtract **4** points
- Paper: subtract **4** points
- Aluminum: subtract **4** points
- Steel cans: subtract **4** points
- Food waste (veg, egg shells, tea bags etc): subtract **4** points

YOUR WATER CONSUMPTION

16. If you have a dishwasher, how many times do you run it, on average, per week?

- More than 7 times **3**
- Between 3 and 7 times **2**
- Between 1 and 3 times **1**
- Not applicable – no dishwasher **0**

17. If you have a washing machine, how many times do you run it, on average, each week?

- More than 7 times **3**
- Between 3 and 7 times **2**
- Between 1 and 3 times **1**
- Not applicable – no machine **0**

18. How often do you use water outside your home (e.g. hosepipe for car wash, sprinkling)?

- Often use (once a week or more) **3**
- Occasionally use (once a month or more) **2**
- Rarely use (once every six months) **1**
- Never **0**

19. How often so you conserve water in your house for general purpose tasks (e.g. washing dishes, turning off taps)?

- Rarely **2**
- Occasionally **1**
- Always **0**

HOW DID YOU SCORE?

Less than 50	Between 50 – 100	Between 100 – 150	More than 150
Congratulations, Very little land and resources are needed to support your lifestyle. If everyone lives like you, then human existence and the earth would continue to prosper sustainably.	Your footprint has more of an impact on the earth's resources. This represents the European average. If everyone lived like this we would need 2 planets.	Your footprint uses a large share of the earth's resources. It is close to the UK average. If everyone lived like this, we would need 3 planets.	Your footprint is close to the North American average. If everyone lived like this we would need 4 planets.

Counting your Score

	YOUR SCORE	SCORE PER SECTION
YOUR TRANSPORT		
1. Car		
2. Public Transport		
3. Model of Car		
4. Short Haul Flights		
5. Long Haul Flights		
YOUR ENERGY USE		
6. Gas use		
7. Electricity use		
YOUR FOOD AND COMMODITY CONSUMPTIOMN		
8. Vegetarian/Meat Eater		
9. Local/Convenience Food		
10. Newspapers		
11. Commodities		
YOUR HOUSE		
12. House Size		
13. House Occupants		
DOMESTIC WASTE & RECYCLING		
14. Domestic Waste		
15. Recycling		
WATER CONSUMPTION		
16. Dishwasher		
17. Washing Machine		
18. Outside Water Usage		
19. General Water Usage		
TOTAL SCORE		

Discussion:

Are you surprised by any of the ratings above?

- Air travel scores very highly –
- Houses V Number of people -

Where do most of the greenhouse gas emissions come from in Ireland?
Greenhouse Gas emissions - 2004

- Agriculture – 29.0% (Nitrous oxide from spreading fertilizers, methane from livestock)
- Energy Generation – 23.2% (Power generation using hydro, peat, coal and oil refining)
- Transport – 18.4% (Burning of fuel and oil – cars, buses, trains etc)
- Residential – 10.4%
- Industry – 8.2%
- Commercial Institutions – 4.5%
- Processes – 3.7% (e.g. cement and lime manufacture)
- Waste Management – 2.7% (90% of this is from methane emitted from landfill)

Source: http://www.epa.ie/OurEnvironment/ClimateChange/GreenhouseGasEmissions/

What do we use most energy on in Ireland?

What do we use energy for? (measurement in kilo tonnes of oil equivalent (ktoe))

Transport 5,075 (including Road Freight, Road Private Car, Public Passenger Services, Rail, Domestic Aviation, International Aviation)
Industry 2,490 (including Food, beverages and tobacco, Textiles and textile products, Non-Energy Mining, Wood and wood products, Pulp, paper, publishing and printing, Chemicals & man-made fibres, Rubber and plastic products, Machinery and equipment, Electrical and optical equipment)
Residential 2,874
Commercial/Public Services 1,735
Agricultural 325
Source: http://www.sei.ie/index.asp?locID=70&docID=-1

What is happening if we are 'overusing' the earth?

- We're using up limited resources… oil, coal,
- We're causing irreversible ecological damage – overproduction of carbon, urbanization resulting in accumulating pollution (air, water, soil), climate change, possible shortage of water, logging and deforestation to make land for production of products such as palm oil and livestock production.

Why do vegetarians have a lesser ecological foot[print than meat eaters?
Every kilogram of beef costs on average:

- 50-100,000 litres of water,
- 5,900 joules of energy,
- 145 kg in topsoil loss,
- 40 kg of manure,
- 11.5kg of CO_2 equivalent,
- 10 kg of grain,
- 200 mg of antibiotics
- and a range of pesticides.

It takes six times the amount of land to feed a meat eater than a vegetarian. (McCarthy, 2004)