ENVIRONMENTAL ISSUES

Topics:

1. **Greenhouse Effect and Global Warming**
2. **'Hole' in the Ozone Layer**
3. **Acid Rain**
4. **Air Pollution**
5. **Water Pollution (includes Eutrophication)**
6. **Introduced Species (includes biological control)**
7. **Biological Magnification**
8. **Soil Salinity**
9. **Population Explosion**
10. **Energy Crisis and Energy Alternatives**

- **Greenhouse Effect and Global Warming – The earth's atmosphere allows a lot of sunlight to reach the earth's surface, but reflects much of that light back into s____. Some gases trap more sunlight, so that less light r_____ back into space. These gases are called Greenhouse Gases, because the effect is like being in a plant glasshouse, or in a car with the windows wound up. The result is a gradual i_____ in earth's temperature or Global Warming. The major greenhouse gases are water, carbon dioxide, methane, nitrous oxide, ozone and chlorofluorocarbons (CFC's). Possibly, the main man-made causes are thought to be carbon d_____ and methane from factory, power station and car emissions, the w____ products of respiration, logging, the mining of fossil f____ and the breakdown of plant matter in swamps. The long-term effects may include m_____ of ice-caps and a rise in sea l____, and a global change in climate and type of vegetation.**

- **"Hole" in the Ozone Layer – Ozone is a gas in the earth's upper atmosphere whose chemical formula is O_3. Ozone acts to block out much of the sun's ultraviolet r_____ which causes skin c_____ and contributes to the fluctuations of global climatic conditions that affect the e_____. Above Antarctica is a thinner layer of ozone caused by the destruction of ozone gas by e_____ of chlorofluorocarbons and hydrochlorofluorocarbons that are propellents in pressure-pak spray c___ and refrigerants in refrigerators and air-conditioning units. In 1987, a treaty called the Montreal Protocol was introduced to reduce usage of ozone-destroying gases. Australia has b_____ CFC's, but many nations such as China still use them.**

- **Acid Rain – When gases such as sulphur dioxide and nitrogen oxides r____ with water in the atmosphere to form sulphuric acid and nitric a___, they form an acidic 'rain' which can destroy vegetation. Some of these gases are from natural sources such as lightning, decomposing plants and volcanoes. However, much of these gases are the result of emissions from cars, power stations, smelters and f_____.**

- **Air Pollution – Air pollution is the release into the atmosphere of excessive amounts of harmful g____ (e.g. methane, carbon dioxide, sulphur dioxide, nitrogen oxides) as well as particles (e.g. dust, tyre rubber, lead from car exhausts). To reduce emissions, the Australian government has legislated that**

all new cars use unleaded p_____ and have catalytic converters fitted to the e_____.

- **<u>Water Pollution</u> –**
  1. **<u>Sewage</u> is all household waste water. Many detergents contain phosphates which act as plant fertilisers. When these p_____ and the sewerage reach rivers, they help water plants to g___ in abundance, reducing the dissolved o_____ in the river water. The result is death of aquatic animals due to suffocation by the algal blooms. This harmful effect is called <u>eutrophication</u>.**
  2. **<u>Biodegradable detergents</u> are more environmentally friendly because they are readily broken d___ to harmless substances by decomposing bacteria.**
  3. **<u>Suspended Solids</u> in water such as silt reduce the amount of l____ that reaches the depths of the water in lakes and rivers. This reduces the ability of aquatic plants to p_____ and the result is less plant and animal l___. <u>Turbidity</u> is the measure of 'cloudiness' or the depth to which light can reach in water.**

  - **<u>Introduced Species</u> are species of plants or animals that have migrated or been brought to A_____. Many fit into the natural ecosystems and are kept in c_____ by natural predators and parasites. However, some become pests as they are well-adapted to our e_____, readily obtain nutrients, and lack natural predators or parasites. Examples include rabbits, foxes, carp, and prickly pear cactus plant.**
    <u>Biological Control</u> is an environmentally-f_____ method to control these pests by the introduction of species-specific, living organisms to control their numbers. Successful examples include the myxoma virus and the calici virus for rabbits, and the cactoblastis moth feeding on the prickly pear. Unsuccessful examples include the introduction of the cane t___ to reduce the numbers of natural cane beetles.

- **<u>Biological Magnification</u> is the accumulation in body tissues of certain chemicals such as DDT pesticide and mercury. The higher along the food c____, the greater is the accumulation, sometimes to toxic levels, causing birth defects and d____.**

- **<u>Soil Salinity</u> has increased greatly since the widespread logging of t____ by farmers. Deep tree roots normally draw water from the underground water table. However, when logging of trees occurs, the water table rises close to the surface bringing with it salt from rocks. This creates soil that is so s____ that vegetation cannot grow effectively. The result is loss of vegetation and e_____.**

- **<u>Population Explosion</u> is the rapid increase in p_____ in developing countries causing famine, and also in developed countries causing more demand for energy and with that, increased pollution and d_____ of the environment.**