Atmospheric Pollution

Q1 **Atmospheric pollution** and **deforestation** both have harmful effects on Earth's atmosphere. There are **two** main sources of atmospheric pollution.

a) **Name** two main sources of air pollution, by choosing from the list below.

the oceans **burning of fossil fuels** **respiration**

CFCs **deforestation** **pesticides**

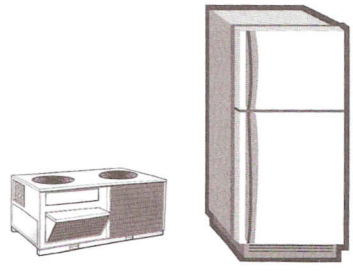
b) Which source of air pollution causes **holes** in the **ozone layer**?

c) The following parts of sentences are mixed up.
Write down **three** correct sentences by matching up the parts.

Cars and power stations...	**...increases the greenhouse effect.**
CFCs...	**...mainly burn fossil fuels.**
Carbon dioxide...	**...are used in aerosols.**

Q2 **Skin cancer** can be caused by the harmful effects of **UV rays**.

Explain how an increase in the use of **fridges** and **air-conditioning** units might affect the number of skin cancer cases.

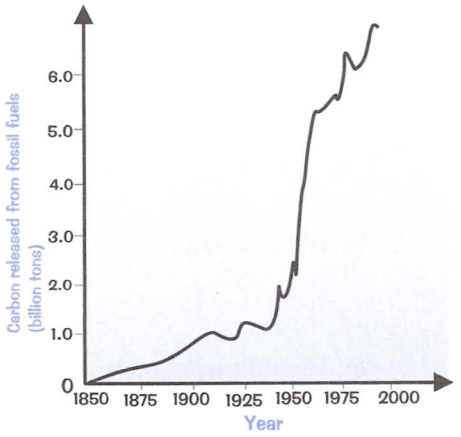


The Greenhouse Effect

Q1 Some gases in the atmosphere known as greenhouse gases are good at absorbing heat energy. These include carbon dioxide and methane, which both occur naturally in the atmosphere.

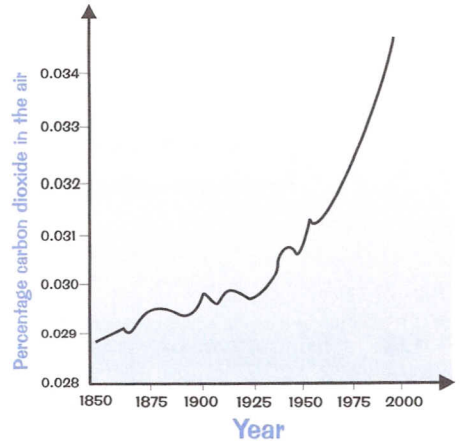
a) Name a **natural source** of carbon dioxide.

b) Ever since the start of the Industrial Revolution in the 19th century, humans have been burning large quantities of fossil fuels.
Name a greenhouse gas **released** by **burning fossil fuels**.



c) Study the **top graph** on the right, which shows the amount of carbon released from burning fossil fuels since 1850. **Describe** the graph — how has the amount of carbon released from fossil fuels **changed**? Suggest **why** this change happened.

d) Study the **bottom graph** on the right, which shows the amount of carbon dioxide in the atmosphere since 1850. **Describe** the graph — how has the amount of carbon dioxide in the atmosphere **changed**? Suggest **why** this change happened.



e) There are natural processes that can absorb the carbon dioxide released from fossil fuels.
Name one of these processes.

f) Explain what the **changes** in the amount of carbon dioxide in the atmosphere could do to the temperature of Earth.

g) Suggest **how** changes in Earth's temperature ("global warming") could cause a **change in sea level**.

h) Explain what you think **might happen** if the amount of carbon dioxide in the atmosphere continues to rise. Make sure you consider the possible effect on **low-lying** areas of the world.

Modern industrial life is warming up Earth...

You've got to understand the factors that lead to the greenhouse effect and global warming. Global warming might sound nice, but it'll mess up the climate and melt the ice caps.

Acid Rain

Q1 Answer these questions about the formation of acid rain:

a) Which **gases** dissolve in clouds to make acid rain?

b) **Where** do these gases come from?

Q2 Research has shown that acid rain can damage trees, especially conifers like spruce and pine, causing their leaves or needles to fall off. It also reacts with minerals in the ground, such as aluminum, magnesium and potassium, causing them to dissolve and be washed into the ground water.

a) What life process will be affected if a tree loses some of its leaves or needles because of acid rain? Explain your answer.

b) Aluminum is toxic to trees, but is usually insoluble.
Explain how acid rain could poison trees.

c) Magnesium is found in chlorophyll. What would you **expect** to happen to plants growing in areas where acid rain is falling? **Explain** your answer.

d) The **roots** of trees growing in acidic soils can grow poorly.
What effect will this have on the trees?

Q3 As acid rain falls into rivers and lakes, they become increasingly acidic. Water flowing off the land contains high levels of aluminum and mercury released by the acid rain.

a) **What** will happen to the water plants in acidified lakes and rivers?

b) Small crustaceans at the bottom of the aquatic food chain die if the pH falls below about 6.
What will eventually happen to the other animals in the lake if the pH falls **below 6**?

c) The dissolved aluminum can react with sulfuric acid to make aluminum sulfate.
This clogs the gills of fish with sticky mucus. Suggest the **likely effect** of this on the fish.

d) In some parts of Europe, fish caught from acidified lakes are condemned as unfit for human consumption. Using what you know about the food chain, suggest a **reason** for this ban on the fish.

Deforestation

Q1 In some parts of the world, large areas of forest have been **cut down** to make way for **farms**.

a) **Why** might some countries need to remove **large areas of forest** in order to provide more farmland?

b) Photosynthesis causes carbon dioxide to be removed from the atmosphere and to be locked up in plants. **What** will happen to the **uptake** of carbon dioxide from the atmosphere in deforested areas? **What** will happen to the **production** of oxygen in these areas?

c) Trees are often burnt after being cut down. Which **gas** does this release into the atmosphere?

d) What effect does the burning of wood have on **global warming**?

Q2 Trees have a significant effect on the **water cycle**.

a) **Explain** why deforestation can lead to a decrease in **rainfall**.

b) What effect does deforestation have on the rate of **evaporation** of water from the soil?

c) This change in evaporation rate can affect the **salt/water** balance of the soil. What **effect** does this have on plant life?

Q3 **Explain** why deforestation can cause the land to become **less fertile**.

Q4 **Conservation** can help to protect biodiversity.

a) Explain what **biodiversity** means.

b) Describe how **replacement planting** in rainforests helps maintain biodiversity.

Learn all the effects of deforestation on the environment...

Yep, that's right, learn them <u>all</u> — climate change, reduced rainfall, soil erosion, loss of habitat for animals. Make sure you can answer all these questions — if not, keep learning until you can.