
CARBON MANAGEMENT

What is the problem?

1. Increasing levels of carbon in the Earth's atmosphere are causing our climate to change.

What is Carbon?

2. Carbon is a very important building block of life on Earth. Carbon exists in the Earth's atmosphere primarily as the gas carbon dioxide (CO₂). Although it is a very small part of the atmosphere overall it plays an important role in supporting life.
3. Carbon also cycles through the oceans and the biosphere over both short and long-term time scales.
4. The global carbon cycle can be divided into two categories: the geological, which operates over large time scales (millions of years), and the biological - physical, which operates at shorter time scales (days to thousands of years).
5. The global carbon cycle refers to the movements of carbon, as it exchanges between reservoirs (sinks), and occurs because of various chemical, physical, geological, and biological processes.

Where is carbon found?

6. Carbon is found in the atmosphere, the oceans and freshwater ecosystems and in the sediments (which include fossil fuels).

What produces carbon?

7. Human activities on Earth are beginning to interrupt and upset the balance between the levels of carbon stored in the geological carbon cycle and the biological carbon cycle.
8. Human beings tap into the geological carbon cycle by extracting oil and coal, which are both hydrocarbons, for use in automobiles and power plants. A by-product of this combustion is CO₂ gas. Since the Industrial Revolution began, carbon dioxide levels in the atmosphere have increased measurably, mostly as a result of human use of fossil fuels.
9. Humans have also altered the biological carbon cycle, increasing atmospheric CO₂ levels, through forest clearing and land use. Trees store large amounts of carbon; when they die and decompose, much of this stored carbon is released as CO₂. However, when humans clear large expanses of forest, primarily through the use of fire, the levels of atmospheric carbon are increased in two ways. First, during combustion, stored carbon is released directly into the air as CO₂, and second, the clearing of land takes away a key mechanism for removing carbon dioxide from the atmosphere (via photosynthesis).

What's good/bad about it?

10. There is now more carbon in the atmosphere than at any time previously recorded. This is resulting in a changing global climate. Since the beginning of industrialization, 200 years ago, concentrations of carbon in the atmosphere has increased substantially. It is estimated that the Earth's average temperature has risen by 0.5 to 0.6°C since 1880 because of emissions of greenhouse gases from human activity.
11. Since carbon dioxide is a primary greenhouse gas, many scientists argue that the increase in atmospheric CO₂ from human activities has resulted in an enhanced greenhouse effect and could result in corresponding changes in our global climate, including higher global temperatures.

What is the Greenhouse effect?

12. The temperature on Earth is controlled by greenhouse gases in the atmosphere, which make life on Earth possible. These gases balance the amount of energy from the sun that enters the atmosphere and the amount of energy from the sun that is released back into space. Without naturally occurring greenhouse gases such as water vapour, carbon dioxide, methane and nitrous oxide, the Earth's surface temperature would be 33°C cooler - a chilly - 18°C rather than the tolerable 15°C.

If we do nothing about carbon what will happen?

13. If we do nothing about the increased levels of carbon in our atmosphere then the climate will continue to change. In Britain this means that we will see changes in the weather patterns that we are used to. Scientists predict that we will have hotter, wetter summers and milder, wetter winters.
14. Climate Change will change weather patterns and effect people all over the world.

What are we doing in Darlington?

15. There have been target reduction levels set at the international, national and local level. Local areas all have a very important role in reducing the levels of carbon in the atmosphere. Darlington Council has developed a carbon management plan to reduce the amount of carbon it produces from running its offices, the Dolphin Centre, Arts Centre and Civic Theatre, the recycling and refuse collection services.
16. The Council also works with businesses, schools, residents to encourage everyone to reduce the carbon they produce from heating homes, using cars and buses, heating and lighting offices and factories.
17. The UK Government recently announced that they were going to start charging for the production of carbon. The Council is responsible for making sure that this bill is paid.

What is a Carbon Footprint?

18. A carbon footprint includes all of the carbon produced by the activities we do everyday. This will include every time we use anything electrical, such as turning a light on, using the TV, playing music, using the computer, each time we take a bath or shower as power is needed to warm the water we use, each time we get a lift in someone's car or take the bus.

The Solution

19. We all need to reduce the amount of energy we use by making small changes to our lifestyle.

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