SUBJECT: Science
UNIT: Year 8 Climate

While you were away.

Lesson one: Carbon cycle

1. Name the process that removes carbon from the atmosphere
2. What is a decomposer?
3. What is respiration.

Lesson Two Composition of the atmosphere

1. Which is the most abundant gas in our atmosphere
2. What is the percentage of oxygen in our atmosphere today
3. What is the percentage of Carbon dioxide in our atmosphere.

Lesson Three: Greenhouse Effect

1. Name the three main greenhouse gases
2. Explain how the green house effect works
3. Explain why sulphur Dioxide being released is a problem.

Lesson Four: Global warming and climate change

1. How can deforestation cause climate change.
2. What is the link between carbon Dioxide and Global warming,
3. Name three things we can do to reduce climate change.

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The greenhouse effect

The earths and its atmosphere are very similar to a greenhouse. The greenhouse gases in the atmosphere trap the heat and keep the earth warm. The main greenhouse gases are Carbon dioxide, water vapour and methane. During the daylight, the sun warms up the earth's surface. During the night, as the earth begins to cool and release the heat back into the atmosphere, some of the heat is trapped by the greenhouse gases in the atmosphere.

If the greenhouse effect becomes too strong, the earth will get too warm and melt the artic ice.

The human impact and the greenhouse effect.

Scientists believe that human activities have resulted in the increased amount of greenhouse gases in the atmosphere.
Burning fossil fuels – producing CO_2
Deforestation – excess CO_2 not being absorbed by photosynthesis.

Carbon Cycle

The main focus of the carbon cycle is its transfer to and from the atmosphere. When carbon is in the atmosphere, it combines with oxygen to form carbon dioxide, a greenhouse gas.

Carbon is transferred from the atmosphere through respiration by animals, plants and bacteria and by combustion of fossil fuels (coal, oil and natural gas).

Dead animals and plants are decomposed and their matter is broken down by microbes and fungi release carbon dioxide int the atmosphere through respiration.

Carbon can be locked away in the formation of sedimentary rocks and when carbon dioxide is dissolved in the ocean.

Ambitious Vocabulary

Global warming, Carbon cycle, green house gas.

Combustion

Complete combustion occurs when there is enough oxygen for a fuel to burn.
Propane + oxygen → Carbon dioxide + water

Incomplete combustion occurs when there isn't enough oxygen for a fuel to burn. The products in this reaction are water and poisonous carbon monoxide. Carbon particles (soot) may also be seen.

Ethane + oxygen → carbon monoxide + water.

Carbon monoxide is a poisonous gas. Carbon monoxide works by binding to the red blood cells. This prevents them from carrying oxygen to the cells around your body.

Particulate carbon irritates the lining of the lungs making asthma worse and could cause cancer.

Sulfur Dioxide

SO_2 is an atmospheric pollutant. It is a gas produced from burning coal.
It will dissolve in rainwater and produces acid rain. Acid rain causes damage to forests, kills plants and animals that live in aquatic environments.
$S + O_2 \rightarrow SO_2$

Nitrogen

Nitrogen and oxygen react together to make oxides of nitrogen. This occurs inside car engine where there is a high temperature and pressure.
Nitrogen compounds along with sulphur dioxide are responsible for acid rain.
Nitrogen oxides react in the atmosphere with UV light from the sun to produce photochemical smog. The smog can have a major impact on human health. Particularly to those with asthma.

Link between carbon dioxide and global warming

There is a strong correlation between the percentage concentration of carbon dioxide in the atmosphere and the increased global temperatures.

Composition of the atmosphere

Earths atmosphere has
21% oxygen, 78% Nitrogen, 0.04% carbon dioxide and 0.9% Argon.