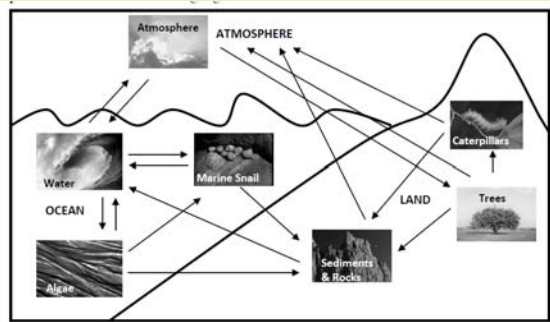


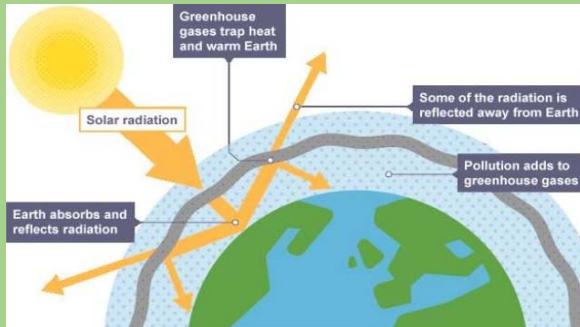
1. The Carbon Cycle

- Carbon is an element found in all parts of our world including being found in all living things.
- Where carbon is found it is called a **STORE** of carbon. Some stores of carbon exist for long periods of time (e.g. in rocks) whilst others are only short term (e.g. in water)
- Carbon **FLOWS** (moves) between these different parts in many ways and this movement is called the **CARBON CYCLE**.
- Carbon flows from and into living things through **respiration** (animals) and **photosynthesis** (plants)
- Erosion** and **weathering** as well as **volcanoes** release carbon from rocks and sediment.



3. Human impacts to the Carbon Cycle- GLOBAL WARMING

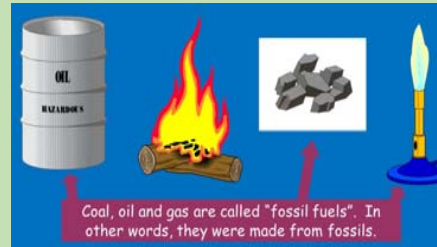
- Through burning fossil fuels humans are releasing more **CARBON DIOXIDE (CO₂)** which is a greenhouse gas and is warming our atmosphere.
- Other greenhouse gases are **methane** and **nitrous oxide (NO_x)**.
- Greenhouse gases prevent the sun's incoming heat energy from escaping back to space and therefore act like a greenhouse warming our atmosphere. This warming is increasing due to burning fossil fuels.



CARBON & ENERGY

Memory Organiser

2. Fossil Fuels



- Fossil fuels are **oil, gas and coal** that have been formed over millions of years by decomposition and pressure acting on dead animals and plants (i.e. fossils!).
- Because they are made from ancient **dead animals and plants** they all contain **Carbon**.
- Because they take millions of years to be made they are **FINITE** and will run out as we are using them so fast.
- Humans are now burning these fuels to provide energy to make electricity and support modern human life.
- When fossil fuels are burnt they releasing **carbon dioxide (CO₂)** as a gas into the atmosphere.

4 Wider impacts from fossil fuels

- Apart from fossil fuels being finite and the environmental worries of global warming, fossil fuels also have other concerns.



WAR



RISE IN ENERGY PRICES

SOCIAL IMPACTS



5. Viewpoints on fossil fuels

- Different groups of people have **different viewpoints** on using fossil fuels. Some people think **they are great** and give lots of energy and money whilst others think **they are bad** and using them is destroying the environment.
- Different groups with opinions will include:
 - GOVERNMENTS**
 - OIL COMPANIES**
 - US (THE PUBLIC)**
 - ENVIRONMENTAL GROUPS**

Pros & Cons

Pros:

- Relatively cheap and plentiful
- Advanced technology have been developed to allow safe extraction
- The means for controlling pollution from the fuels already exist
- The technology already exists for the fuels use e.g. petrol driven cars
- The income from the sale of the fuel can help a country's economy
- At present, no other energy source can fully and safely replace fossil fuel

Cons:

- Fossil fuels will become more and more expensive to extract
- Extracting the fuel will be more dangerous as the mines get deeper or if the oil rigs go further out to the sea
- Pollution from the fuels is said to be responsible for global warming, acid rain, and oil spillage
- Its very expensive to control the pollution and the price of the fuel would have to rise

6. Alternatives to fossil fuels

- Other energy resources can be used instead of fossil fuels including **NUCLEAR** or **RENEWABLE ENERGIES** such as **WIND** and **SOLAR**.
- Renewable energies are **INFINITE** and so will not run out.
- These alternatives **DO NOT** produce Carbon Dioxide and lead to Global Warming.
- They do though have some challenges including:
 - If they are available in all areas (is it sunny everywhere?)
 - Not as reliable (is it always windy?)
 - Cost (£)
 - Other dangers to the environment (nuclear waste / leaks), noise, visual pollution etc.
 - Modern life is based on fossil fuels – cars and planes use petrol or diesel.

