Earth and Beyond 3 – Climate

Must Remember

- Carbon stores include the atmosphere, oceans, sedimentary rocks, fossil fuels, and organisms.
- The carbon cycle shows how carbon compounds enter and leave carbon stores.
- Carbon dioxide enters the atmosphere by respiration and combustion.
- Carbon dioxide is removed from the atmosphere by photosynthesis and dissolving in the oceans.
- The atmosphere is the mixture of gases around the Earth. It is mainly nitrogen and oxygen, with smaller amounts of argon and carbon dioxide.
- There are 5 layers of the atmosphere, the closest layer of the atmosphere to the Earth is called the troposphere.
- Pollution is the introduction of harmful materials into the environment.
- Harmful materials that cause pollution are known as pollutants.
- The greenhouse effect is the way in which heat is trapped close to the Earth's surface by greenhouse gases.
- Greenhouse gases include carbon dioxide, methane, water vapour, sulfur dioxide and nitrous oxide.
- The concentration of carbon dioxide in the atmosphere is increasing because of deforestation and burning fossil fuels.
- Extra carbon dioxide in the atmosphere causes climate change.
- Climate change refers to changing weather and climate as a result of human activity.

Maritime Futures – Ocean Carbon Cycle

A carbon sink is anything that accumulates and stores some carbon-containing chemical compound for an indefinite period, removing carbon dioxide from the atmosphere. Carbon dioxide dissolves into the ocean from the atmosphere. Phytoplankton use this dissolved carbon dioxide in photosynthesis. Phytoplankton are then eaten and the carbon passes through the food chain. When organisms die in the ocean, they decompose releasing some carbon dioxide, but most is stored as ocean sediments at the bottom of the ocean.

Key Terms

- **Acid Rain** - Acid rain is rain or any other precipitation that is unusually acidic.
- **Atmosphere** - The mixture of gases surrounding the Earth.
- **Carbon Cycle** - The carbon cycle shows stores of carbon, and summarises how carbon and its compounds enter and leave these stores.
- **Carbon Footprint** - The amount of carbon dioxide released into the atmosphere as a result of a particular individual.
- **Carbon Sink** - A carbon sink is anything that accumulates and stores carbon for an indefinite period and thereby removes carbon dioxide from the atmosphere.
- **Carbon Store** - A place where carbon and its compounds may remain for a long time. Carbon stores include the atmosphere, oceans, sedimentary rocks, fossil fuels, the soil, and living organisms.
- **Climate Change** - A long-term change in weather patterns.
- **Combustion** - A burning reaction, in which a substance reacts quickly with oxygen, and gives out light and heats the surroundings.
- **Deforestation** - The cutting down or burning of trees in forests.
- **Global Warming** - The gradual increase in the Earth's mean air temperature.
- **Greenhouse Effect** - The absorbing of energy by gases in the atmosphere, such as carbon dioxide.
- **Greenhouse Gas** - A gas that contributes to climate change, such as carbon dioxide.
- **Photosynthesis** - The process plants use to make their own food, glucose. In photosynthesis, carbon dioxide and water react together to make glucose and oxygen.
- **Pollutant** - The harmful material that causes pollution.
- **Pollution** - The introduction of harmful materials into the environment.
- **Respiration** - The process that transfers energy from plants and animals. In respiration, glucose reacts with oxygen to make carbon dioxide and water.
- **Troposphere** - The part of the atmosphere nearest the Earth.