

# Earth

# 3. Climate

## CONCEPT 1

## LESSON GUIDE

### EARTH'S ATMOSPHERE

#### PRECISE LEARNING POINTS

##### KNOW

I know that the Earth's atmosphere is made and some of its properties.

##### APPLY

I can apply my knowledge of burning fossil fuels to explain how the Earth's atmosphere is changing.

##### EXTEND

I can extend my knowledge to explain where all greenhouse gases come from.

#### NOTES

The atmosphere is a layer of gases around the Earth.

The Earth's atmosphere contains 78% Nitrogen, 21% Oxygen, 0.9% Argon, 0.04% Carbon Dioxide, variable water vapour and traces of other gases.

The atmosphere has remained the same composition for the last 200 million years.

Fossil Fuels include gas, oil and coal. They are formed from the remains of living things that lived millions of years ago. This material was changed by chemical processes deep underground.

Peat can also be used as a fuel and forms in a similar way. Peat is formed from plant material in acidic or anaerobic conditions over a period of thousands of years.

Fossil fuels are a useful source of energy and can be extracted and burnt. Burning fossil fuels releases large amounts of thermal energy. This thermal energy can be harnessed in order to generate electricity or provide heating.

The amounts of different gases in the atmosphere can vary. Sometimes this may be due to a natural event, such as a volcano erupting. At other times they can change because of human activities. Gases may be produced or removed and this can lead to negative effects.

Combustion (burning) of fossil fuels releases gases like carbon dioxide. Burning so many fossil fuels is altering our atmosphere's composition on a large scale. This leads to things like the greenhouse effect and global warming.

Methane also contributes to the greenhouse effect. This can be released via natural processes. However, it is also being released in higher amounts due to human activities such as from farming livestock, rice production, and decomposition at landfill sites, water treatment processes and burning plant material.