

GREENHOUSE EFFECT (PowerPoint)

THE CLIMATE SYSTEM

The _____ moderates Earth's energy balance. The climate system is composed of:

- _____
- _____
- _____
- _____

Even without the climate system, Earth would reach a _____ of energy although it would be much _____ than it is.

The greenhouse effect causes the Earth to _____ up. It is caused by both _____ processes and human activities (_____).

WHAT IS THE GREENHOUSE EFFECT

1. _____ energy radiation from the _____ hits the Earth's _____.
2. The surface of the Earth heats up (molecules _____ more).
3. _____ energy, _____ radiation, is emitted by the Earth and trapped by _____ gas molecules in the _____.
4. Greenhouse gas molecules _____ some of the energy back towards _____.

COMPOSITION OF ATMOSPHERE

_____%	_____%	_____%	_____%	Trace amounts of
Nitrogen	Oxygen	Water Vapour	Carbon Dioxide	Methane, Ozone, Nitric Oxide

GREENHOUSE GASES

Most of the air in the atmosphere is made up of _____ and _____ which do NOT absorb radiation from the Earth's surface.

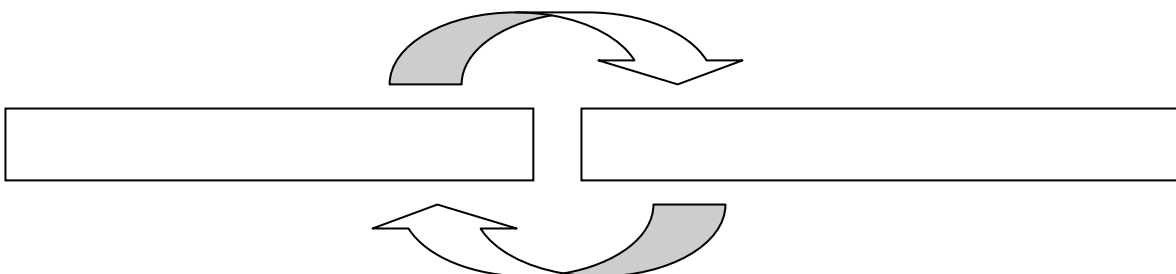
The greenhouse gases DO absorb radiation from the Earth:

- _____
- _____
- _____
- _____

Normally these gases are in _____ concentration in the atmosphere but they are increasing causing more _____ to be trapped and radiated back to the Earth.

WATER VAPOUR

_____ temperatures cause more water to _____ and form water vapour. Since water vapour traps heat in the atmosphere, more water vapour increases the _____ further. This kind of relationship is called a _____ Loop.



CARBON DIOXIDE

CO₂ is just a small percentage of all gases in the atmosphere but it causes _____ of the greenhouse effect.

Natural sources include:

- _____
- _____
- _____
- _____

Human (Anthropogenic) sources include:

- _____
- _____

METHANE

There is much less methane, _____, in the atmosphere than carbon dioxide but methane is a more _____ greenhouse gas than CO₂ since it can absorb more _____.

Natural sources include:

- _____
- _____

Human (Anthropogenic) sources include:

- _____
- _____
- _____
- _____
- _____

OZONE

Ozone, _____, exists naturally in the _____ where it forms a layer protecting the Earth's surface from the Sun's higher-energy _____ radiation. Lower down in the _____, ozone acts as a greenhouse gas trapping heat. Some industrial and consumer products released into the atmosphere break down ozone. While this may reduce some of the greenhouse effect it allows more UV radiation to reach the Earth's surface.

NITROUS OXIDE

A molecule of nitrous oxide, _____, is much more effective than a molecule of _____ as a greenhouse gas. However there is much less nitrous oxide in the atmosphere.

Natural sources include:

- _____

Human (Anthropogenic) sources include:

- _____
- _____
- _____
- _____