

APES- Carbon Cycle and the Greenhouse Effect go to:

http://www.esrl.noaa.gov/gmd/education/carbon_toolkit/basics.html

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Influential Greenhouse Gases: **For each of the following, list WHAT they are, WHERE they are found and HOW they affect climate**

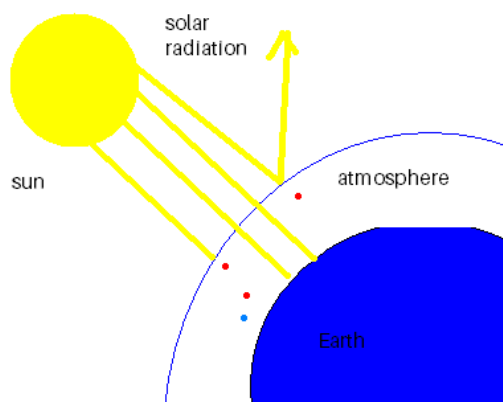
Carbon Dioxide (CO₂): Colorless, odorless gas comprised of 2 oxygen, and 1 carbon atom. Found in combusted organic matter and respiration. Saturates in water and creates dead zones.

Methane (CH₄): Colorless, odorless gas comprised of 4 hydrogen, and 1 carbon atom. Combustible, found in decomposing organic matter and as natural gas. Major greenhouse gas that heats up atmosphere dramatically

Nitrous Oxide (N₂O): Colorless, non-flammable gas with sweet odor. N₂O is produced in oceans and rainforests naturally. Man-made processes such as the use of fertilizer and nylon production produce N₂O. Broken down in the atmosphere by chemical reactions by sunlight

Sulfur Hexafluoride (SF₆): Potent greenhouse gas, very persistent (<1,000 year lifetime). SF₆ is man-made, and is found in electrical insulation, current interruption, and arc quenching. Stays in atmosphere longer, thus affects atmosphere more

Draw a diagram and label to EXPLAIN the greenhouse effect:



The greenhouse effect refers to the warming of the Earth's atmosphere due to the absorption of radiation in certain gases, which reaches the Earth's surface as heat.

Explain how the Carbon Cycle is involved in global climate change:

-The carbon cycle is involved in global climate change because it cycles Carbon Dioxide in both sources and sinks. Sinks absorb CO₂, and Sources emit CO₂. More sources and less sinks can lead to more CO₂, and more climate change.

What are Carbon SOURCES and SINKS?

-Sources are processes which release CO₂, Sinks are processes that remove CO₂.

How does deforestation increase the amount of CO₂ in the atmosphere? Explain.

-Since trees act as carbon sinks during photosynthesis, deforestation would increase the amount of CO₂ in the atmosphere because more CO₂ will have less sinks to be absorbed into.

How do the oceans absorb excess CO₂ from the atmosphere and how does this affect the oceans?

-Oceans absorb excess CO₂ because it is highly soluble in water. Since water can store CO₂ so easily, much of it remains in oceans and acidifies the ocean, which in turn harms organisms.

Explain how the *industrial revolution* has increased the amount of carbon dioxide in the atmosphere.

-The industrial revolution increased CO₂ in the atmosphere because it popularized fossil fuel usage in order to supply the growing population. Fossil fuel burning caused CO₂ to increase dramatically.

According to the graph, which country is the biggest contributor to global carbon emissions worldwide?

-China