

GREEN HOUSE EFFECT

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What is Greenhouse Effect?

Def: *Green House effect is a naturally occurring phenomenon that is responsible for heating of Earth's Surface and atmosphere*

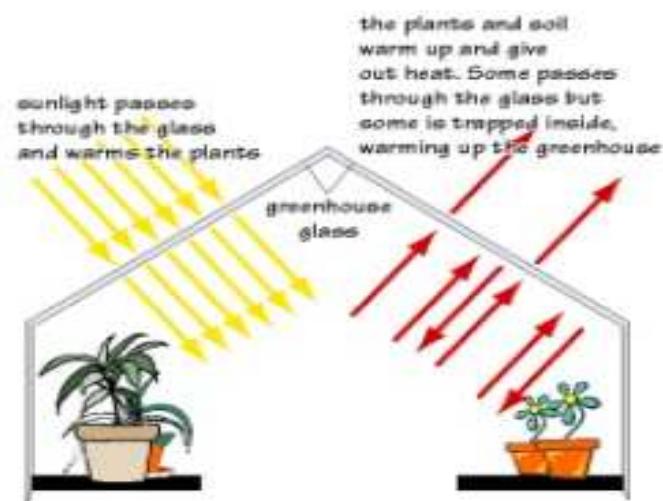
Greenhouse Effect, the capacity of certain gases in the atmosphere to trap heat emitted from Earth's surface, thereby insulating and warming the planet. The greenhouse effect has warmed Earth for over 4 billion years. Now scientists are growing increasingly concerned that human activities may be modifying this natural process, with potentially dangerous consequences.

Greenhouse Effect

The greenhouse effect is a process by which thermal radiation from a planetary surface is absorbed by atmospheric greenhouse gases, and is re-radiated in all directions.

Since part of this re-radiation is back towards the surface, energy is transferred to the surface and the lower atmosphere.

As a result, the temperature there is higher than it would be if direct heating by solar radiation were the only warming mechanism.





| | Natural greenhouse | | Artificial greenhouse |
|----|---|----|--|
| a) | It is created naturally. | a) | It is created by humans. |
| b) | The greenhouse gases in the atmosphere trap the solar radiations to warm the earth. | b) | The transparent glass allows the radiations to pass through and traps the radiations by not letting them escape. |
| c) | It occupies a large area. | c) | It occupies a relatively small area. |
| d) | It creates the heating effect in the whole earth. | d) | It creates the heating effect only in a certain specified area. |

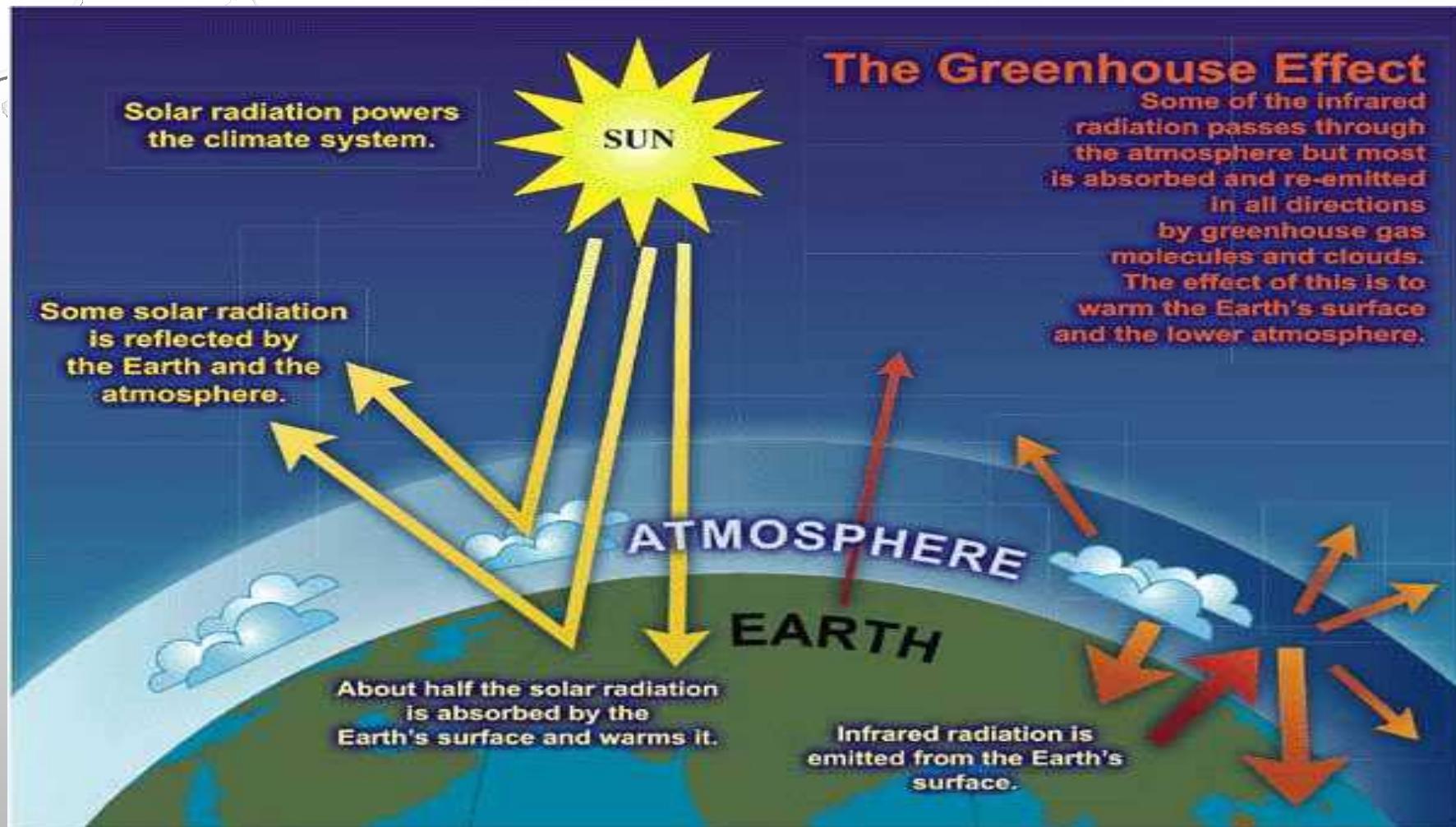
WHAT IS GREEN HOUSE EFFECT?

- THE GREENHOUSE EFFECT IS A PROCESS THAT OCCURS WHEN GASES IN EARTH'S ATMOSPHERE TRAP THE SUN'S HEAT. THIS PROCESS MAKES EARTH MUCH WARMER THAN IT WOULD BE WITHOUT AN ATMOSPHERE. THE GREENHOUSE EFFECT IS ONE OF THE THINGS THAT MAKES EARTH A COMFORTABLE PLACE TO LIVE.

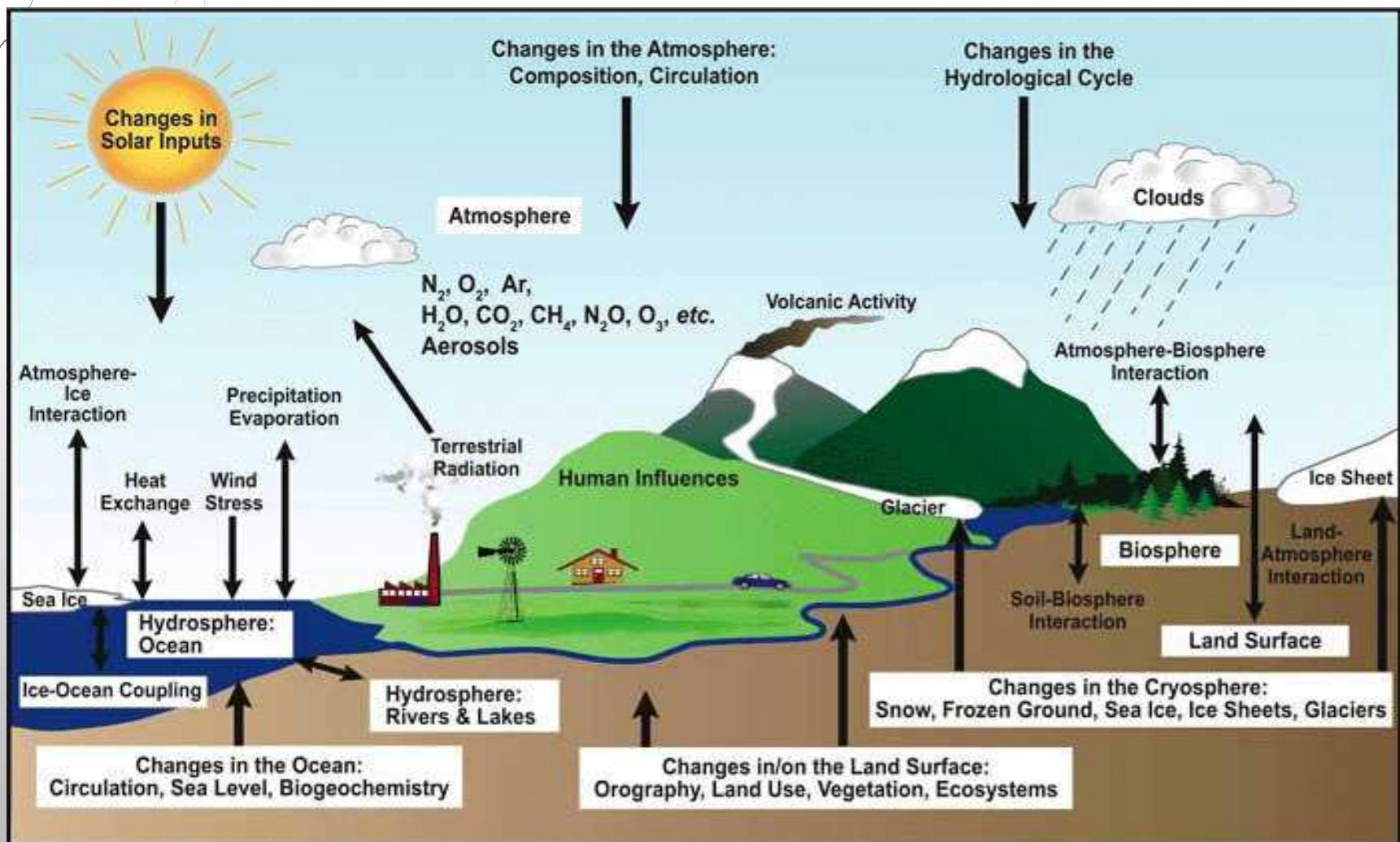
HOW DOES GREEN HOUSE EFFECT WORKS?

- A GREENHOUSE IS A BUILDING WITH GLASS WALLS AND A GLASS ROOF. GREENHOUSES ARE USED TO GROW PLANTS, SUCH AS TOMATOES AND TROPICAL FLOWERS.
- A GREENHOUSE STAYS WARM INSIDE, EVEN DURING THE WINTER. IN THE DAYTIME, SUNLIGHT SHINES INTO THE GREENHOUSE AND WARMS THE PLANTS AND AIR INSIDE. AT NIGHTTIME, IT'S COLDER OUTSIDE, BUT THE GREENHOUSE STAYS PRETTY WARM INSIDE. THAT'S BECAUSE THE GLASS WALLS OF THE GREENHOUSE TRAP THE SUN'S HEAT.

- THE GREENHOUSE EFFECT WORKS MUCH THE SAME WAY ON EARTH. GASES IN THE ATMOSPHERE, SUCH AS CARBON DIOXIDE, TRAP HEAT JUST LIKE THE GLASS ROOF OF A GREENHOUSE. THESE HEAT-TRAPPING GASES ARE CALLED GREENHOUSE GASES.
- DURING THE DAY, THE SUN SHINES THROUGH THE ATMOSPHERE. EARTH'S SURFACE WARMS UP IN THE SUNLIGHT. AT NIGHT, EARTH'S SURFACE COOLS, RELEASING HEAT BACK INTO THE AIR. BUT SOME OF THE HEAT IS TRAPPED BY THE GREENHOUSE GASES IN THE ATMOSPHERE. THAT'S WHAT KEEPS OUR EARTH A WARM AND COZY 58 DEGREES FAHRENHEIT (14 DEGREES CELSIUS), ON AVERAGE.



- **HOW ARE HUMANS IMPACTING THE GREENHOUSE EFFECT?**
- HUMAN ACTIVITIES ARE CHANGING EARTH'S NATURAL GREENHOUSE EFFECT. BURNING FOSSIL FUELS LIKE COAL AND OIL PUTS MORE CARBON DIOXIDE INTO OUR ATMOSPHERE.
- NASA HAS OBSERVED INCREASES IN THE AMOUNT OF CARBON DIOXIDE AND SOME OTHER GREENHOUSE GASES IN OUR ATMOSPHERE. TOO MUCH OF THESE GREENHOUSE GASES CAN CAUSE EARTH'S ATMOSPHERE TO TRAP MORE AND MORE HEAT. THIS CAUSES EARTH TO WARM UP.



WHAT REDUCES THE GREENHOUSE EFFECT ON EARTH?

JUST LIKE A GLASS GREENHOUSE, EARTH'S GREENHOUSE IS ALSO FULL OF PLANTS!

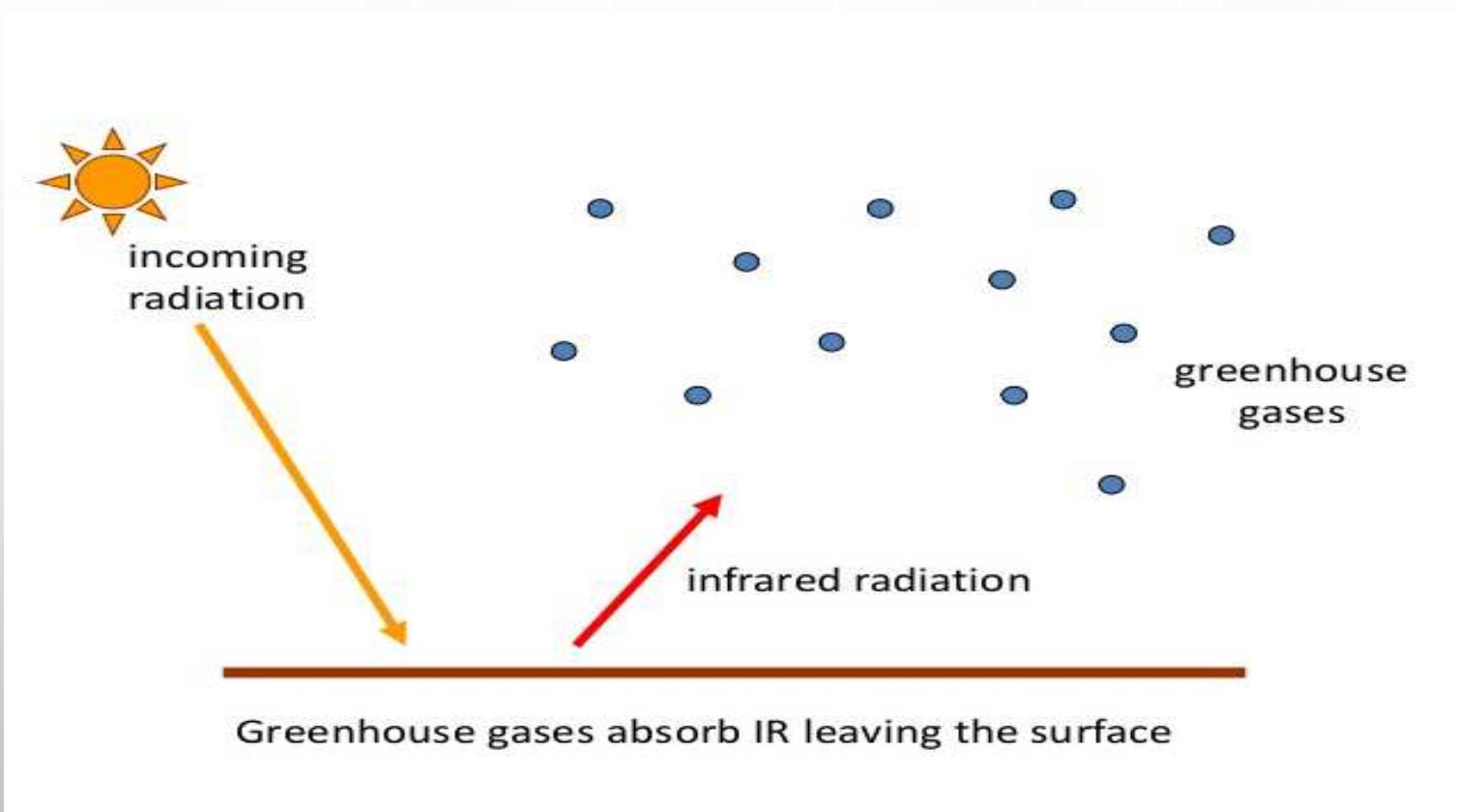
PLANTS CAN HELP TO BALANCE THE GREENHOUSE EFFECT ON EARTH. ALL PLANTS — FROM GIANT TREES TO TINY PHYTOPLANKTON IN THE OCEAN — TAKE IN CARBON DIOXIDE AND GIVE OFF OXYGEN

What does Green House Gases Do?

Greenhouse gas works like a great space blanket that keeps the heat in. So the sun's rays heat up the earth, and the greenhouse gases stop the heat reflecting back out to space. So the earth gradually gets warmer

Global Warming





Causes of Green House Effect:

Greenhouse gases

Deforestation

Burning of Fossils

Population Growth

Ozone Layer Depletion

Formation of clouds

Greenhouse gases

By their percentage contribution to the greenhouse effect on Earth the four major gases are

water vapor, 36–70%

carbon dioxide, 9–26%

methane, 4–9%

ozone, 3–7%

Selected Greenhouse Gases

- **Carbon Dioxide (CO₂)**

- Source: Fossil fuel burning, deforestation
 - ⌘ Anthropogenic increase: **30%**
 - ⌘ Average atmospheric residence time: **500 years**

- ⌘ **Methane (CH₄)**

- Source: Rice cultivation, cattle & sheep ranching, decay from landfills, mining
 - ⌘ Anthropogenic increase: **145%**
 - ⌘ Average atmospheric residence time: **7-10 years**

- ⌘ **Nitrous oxide (N₂O)**

- Source: Industry and agriculture (fertilizers)
 - ⌘ Anthropogenic increase: **15%**
 - ⌘ Average atmospheric residence time: **140-190 years**