“THE GASEOUS PART OF THE EARTH”

"THE GASEOUS PART OF THE EARTH"

1. THE EARTH´S ATMOSPHERE

The atmosphere is a thin layer of gases which sourround the Earth.

- **COMPOSITION:**

  - Nitrogen (N_2): 78%. This gas doesn´t have taste, colour or smell.

  - Oxygen (O_2): 21%. This gas is produced by plant´s photosyntesis, and it is necessary for combustion and respiration.

  - Carbon dioxide (CO_2): It is produced by animal and plants respiration and the combustion of certain substances. It is essential for photosyntesis.

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1. THE ERATH´S ATMOSPHERE

- **COMPOSITION:**

  - Water vapour (H_2O): This comes from the evaporation of oceans, lakes, and rivers and also from plant transpiration.

  - Ozone (O_3): This gas is composed of three oxygen atoms. This gas protect the life from the UV Sun rays.

  Nowadays, the air has also gases from industry, cars, heating,etc.

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1. THE EARTH´S ATMOSPHERE

- **ESTRUCTURE:**

  The atmosphere has three main layers:

  - Troposphere: This layer is from Earth´s suface to 12 kilometres high. In it is the most of the gases and occurs the meteorological phenomena.

  - Stratosphere: This has horizontal layers of gas, including the ozone layer.

  - Ionosphere: This layer doesn´t contain many gases.

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1. THE EARTH´S ATMOSPHERE

- **ATMOSPHERIC PRESSURE**

  The weight of the atmosphere on the Earth is called atmospheric pressure.

  - It decresses with altitude and varies with temperature (cold air is denser).

  - The normal pressure at the sea level is 1 atmosphere. Pressure above this is high pressure, and below this is low pressure.

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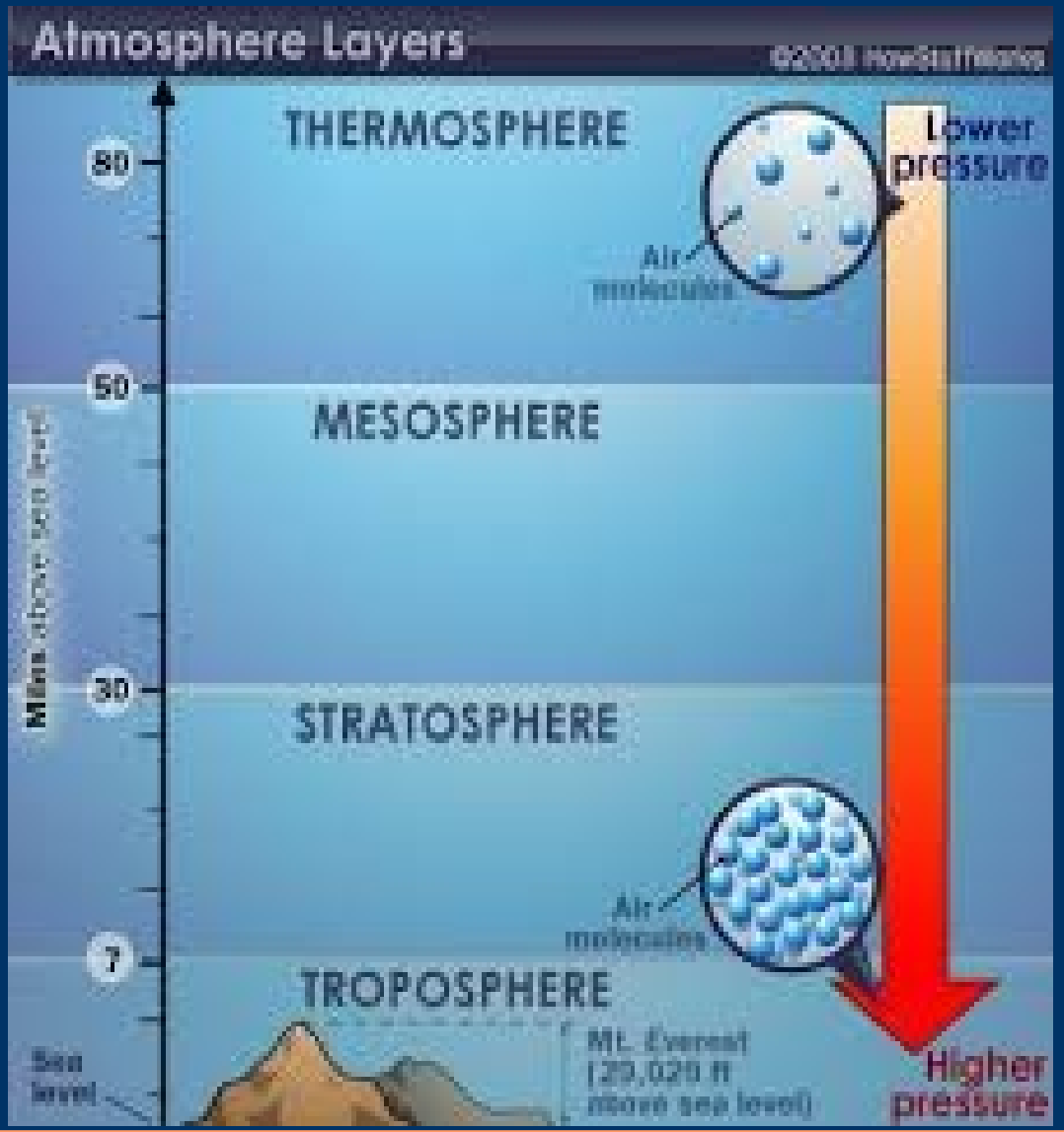
1. THE EARTH´S ATMOSPHERE



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2. THE ATMOSPHERE REGULATES TEMPERATURE.

- The Earth´s surface absorbs some solar radiation which heats up and warm the nearest layer of air. (Air temperature decresses 6ºC per 1000 metres higher).

- Part of the radiation is reflected by the ground and part of it is absorbed by carbon dioxide, increasing the air temperature too. This natural process is called Green House Effect.

- During the nigths, atmosphere stops the surface heating scaping to the space, controling the daily temperature changes.

In this ways the air temperature is controled, and the average of this is 15ºC.

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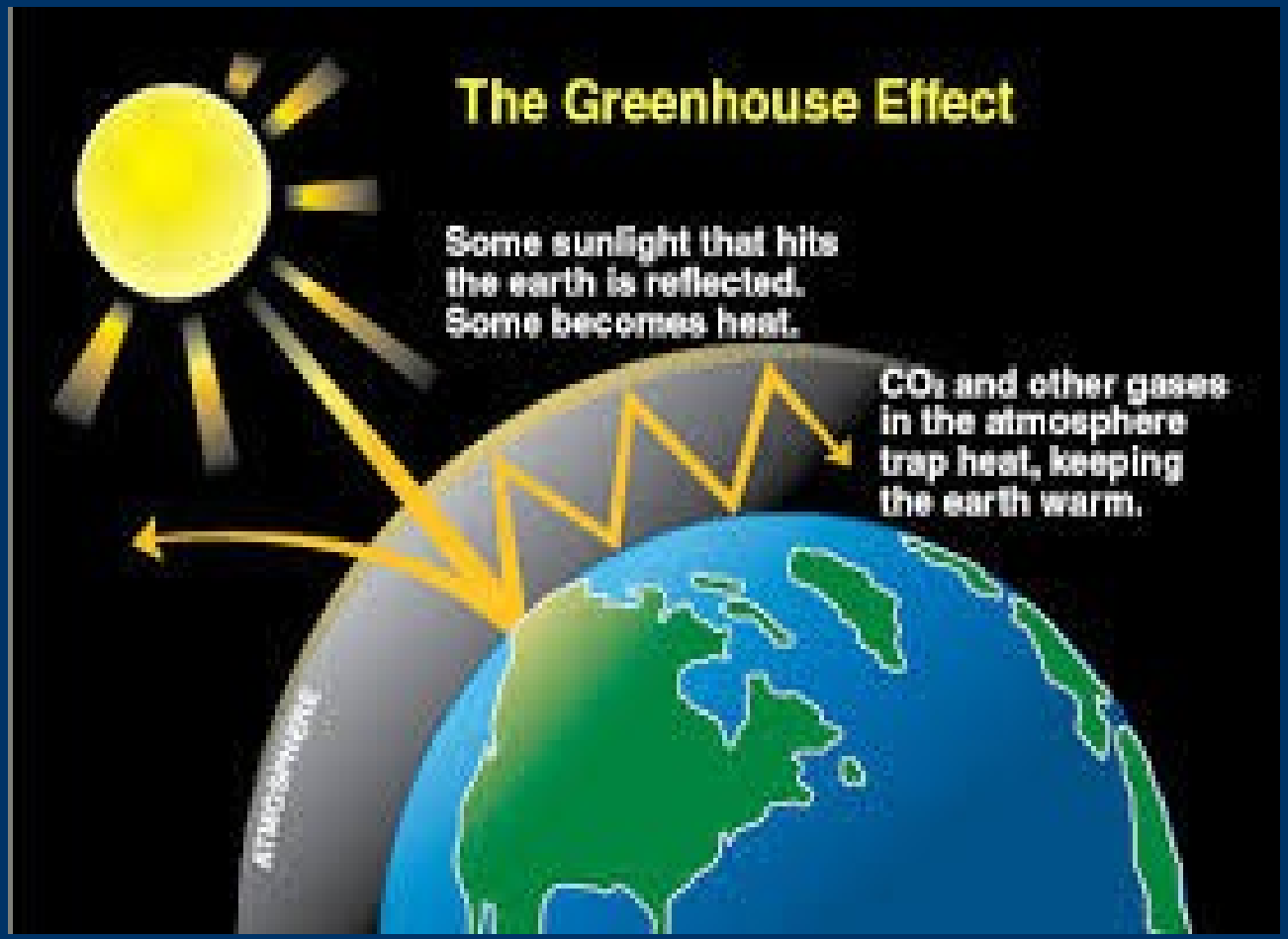
2. THE ATMOSPHERE REGULATES TEMPERATURE.



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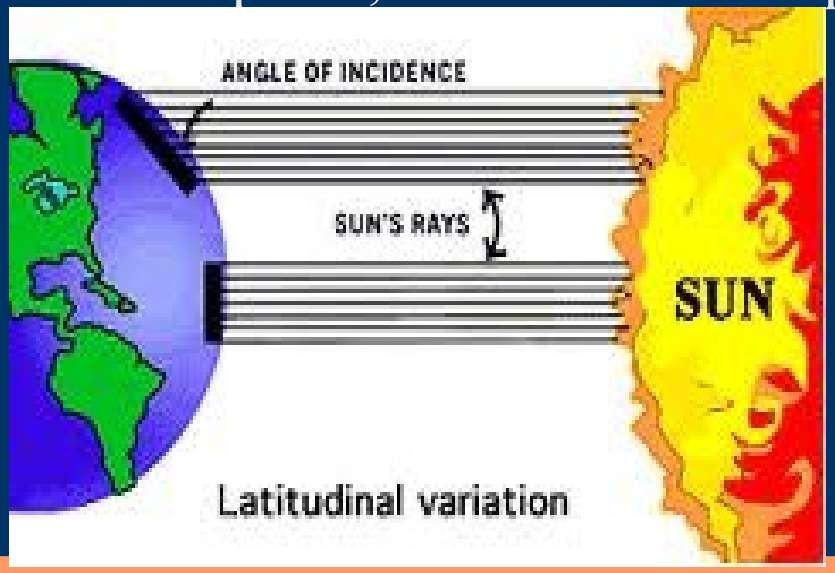
2. THE ATMOSPHERE REGULATES TEMPERATURE.

- **UNEQUAL WARMING OF THE PLANET.**

  - The average temperature of the Earth is 15ºC, but it varies with latitude.

  - Equator is warmer bacause Sun´s rays hit the ground at 90º, and towards the poles, Sun´s rays become more inclined and so the temperature decreses.

  - Air is less dense at the poles, so more heat scapes to the space.



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3. ATMOSPHERIC PHENOMENA.

Atmospheric phenomena occur in the troposphere changing the weather.

- **ATMOSPHERIC PHENOMENA CAUSED BY THE WIND.**

The unequal warming of the Earth´s surface causes differences in pressure, producing that large masses of air move (wind).

- **Hurricanes**: They consist of a central area (the eye) around which, clouds and winds revolve at great speed.

- **Whirlwinds or dust storm**: The Earth heats up; this then heats up the air. The air rises in a spiral and collects sands and dust particles.

- **Tornadoes:** They start inside large storm clouds and have an inverted cone shape when they leave the clouds, and reach the ground or the sea.

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3. ATMOSPHERIC PHENOMENA.

- **ATMOSPHERIC PHENOMENA CAUSED BY THE WIND.**

HURRICANE

WHIRLWINDS

TORNADOES

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3. ATMOSPHERIC PHENOMENA.

- **ATMOSPHERIC PHENOMENA CAUSED BY WATER VAPOUR.**

Water vapour can produce two types of phenomena:

1. Condensation:

- Clouds: They are formed when air charged with water vapour rises, cools, and condenses around dust particles.

- Fog: It is low clouds close to the ground when the air cools.

- Dew: It is condensed water vapor on solid surfaces when temperatures drop.

- Frost: It is frozen water vapour on solid surfaces when temperature drop below 0ºC.

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3. ATMOSPHERIC PHENOMENA.

- **ATMOSPHERIC PHENOMENA CAUSED BY WATER VAPOUR.**

2. Precipitation:

- Rain: When the water drops, in a cloud, join together and are big enough, gravity makes them fall.

- Snow: When the temperature inside of a cloud fall below 0ºC, water drops freeze, and they fall to the ground when are heavy enough.

- Hail: When there are strong rising air currents inside the clouds which deep freeze the water drops (-50ºC).

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4. CLIMATE AND TEMPERATURE.

- **CLIMATE:** It refers to the main atmospheric phenomena in a specific region, which occur every year.

  - The climate of a region depends on the latitude and how near or far it is from the sea. It is expressed in terms of temperature an rainfall.

  - Around the world there are large air masses in the troposphere, which determine the climate in these areas because of its temperature, humidity and pressure.

  - The air masses move around the world, and where cold air meets with warm air is called front.

  a. A Warm front: It occurs when a mass of warm air moves towards a mass of cold air.

  b. A Cold Front: It occurs when a mass of cold air moves towards a mass of warm air.

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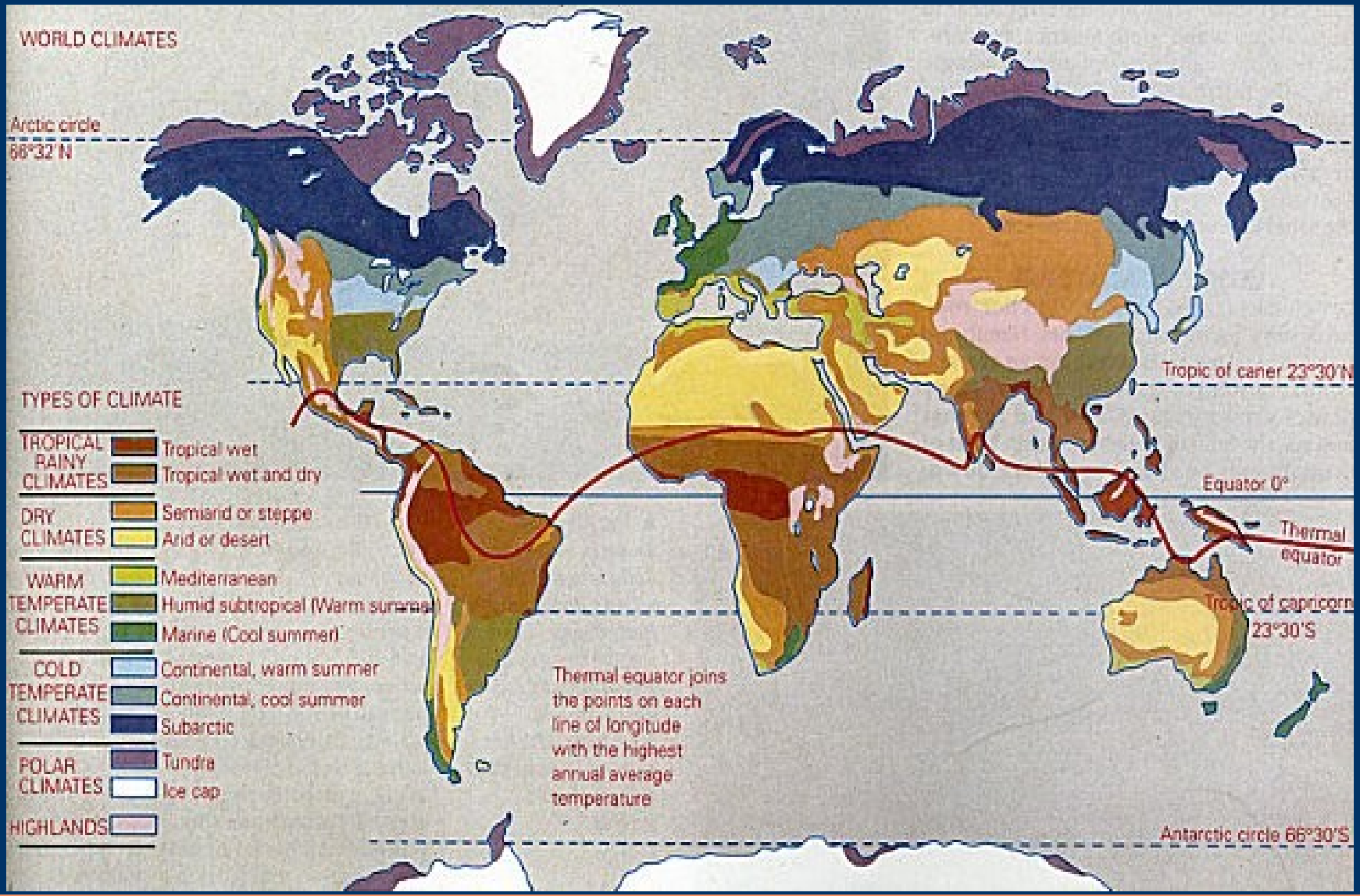
4. CLIMATE AND TEMPERATURE.



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4. CLIMATE AND TEMPERATURE.

ATMOSPHERIC WEATHER: It refers to a series of atmospheric phenomena that occur at a specific moment in a specific place.

The most common scientific instruments to mesure the weather are:

- Thermometer: Measures atmospheric temperatures.
- Barometer: Meassure atmospheric pressure.
- Pluviometer: Messure the quantity of rain or snow that falls in a place in a specific time.
- Hygrometer: Meassure atmospheric humidity.
- Weather vane: Shows the direcction of the wind.
- Anemometer: Meassure the strength of the wind.

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5. THE ATMOSPHERE AND LIVING THINGS: THE GREEN HOUSE EFFECT.

Our planet is the rigth environment for life, because here there are the raw material necessary for life and our atmosphere protect us from harmful radation and mantain optimal condition of temperature and humidity.

- **CHANGES IN THE COMOPSITION OF THE ATMOSPHERE.**

1. The destruction of the Ozone Layer:

The use of CFCs gases (chlorofluorocarbons) is gradually destroying the ozone layer, which protects from solar radiadion and has serious consequences as:

- A decrease in the number of algae, planktom, and larvae.

- An increase in skin cancer, eye irritations, cataracts, and blindness.

- A reduction in our defences against allergies and infection deseases.

CFCs are often used in fridges, air conditioning units, and aerosols.

Every spring a large amount of ozone desapears in Antarctica, creating the **Ozone Hole.**

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- **CHANGES IN THE COMOPSITION OF THE ATMOSPHERE.**

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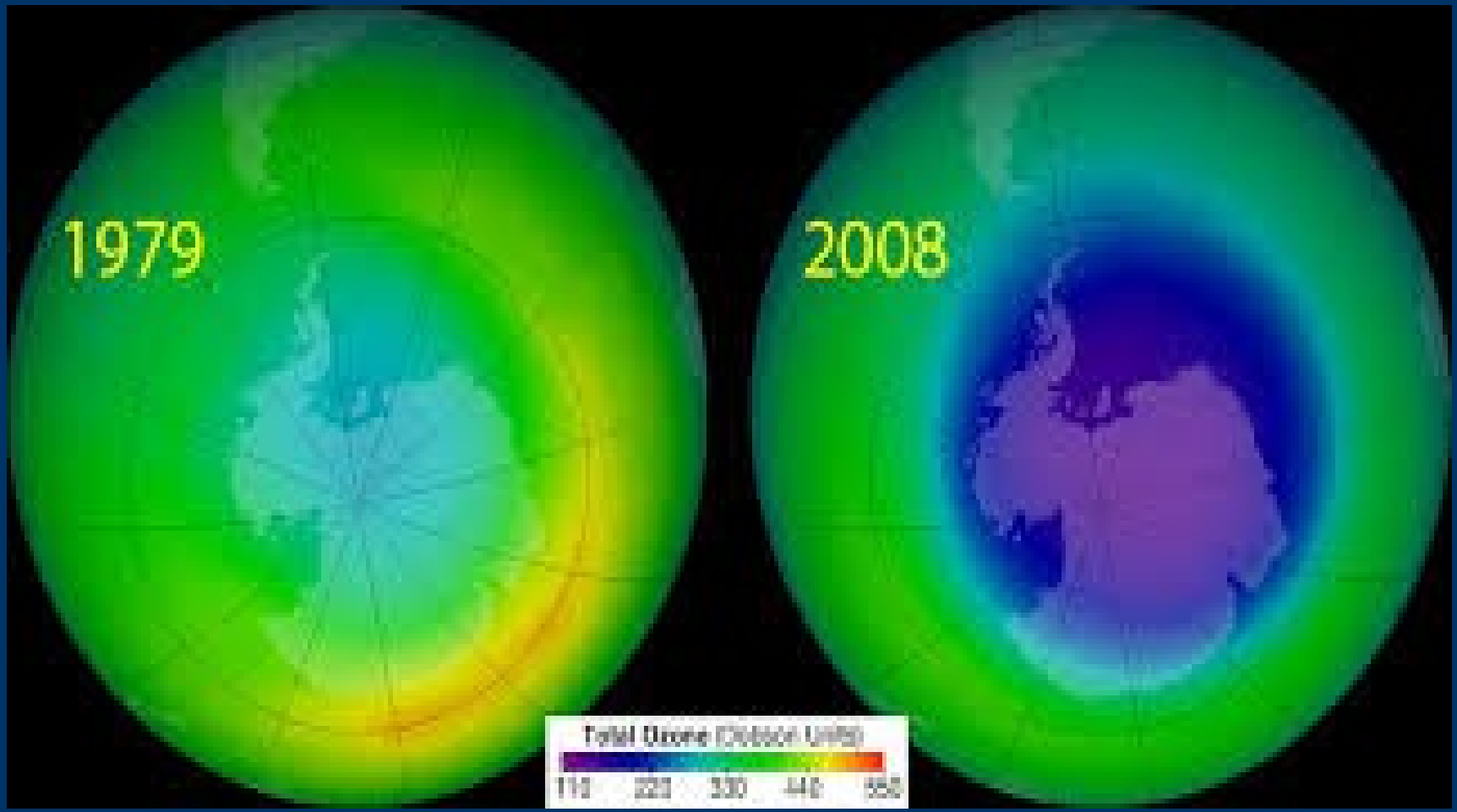

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5. THE ATMOSPHERE AND LIVING THINGS: THE GREEN HOUSE EFFECT.

- **THE INCREASE IN THE GREENHOUSE EFFECT.**

  The increase in the greenhouse effect has two main causes:

  - The release of large quantities of carbon dioxide into the atmosphere from the combustion of carbon and petroleum.

  - **Deforestation:** The destruction of large areas of forest, that could have consumed this excess of carbon dioxide through photosyntesis.

- This process is producing an increase of the global temperature of the planet wich could cause a rise in the sea levels, destroying cities and agricultural land.
- The **Climate change** can produce the disapearance of many species of animals and plants.
- **Air pollution** is producing an increase of diseases in the human beings.