OGUN DIGICLASS

SUBJECT: GEOGRAPHY

TOPIC: CLIMATE CHANGE

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Climate Change

What is Climate?

The long-term average of a region's weather:

- Average rainfall
- Average hours of sunshine
- Average temperature

Q. Is there a difference between Climate and Weather?

- Weather describes whatever is happening outdoors in a given place at a given time.
- Climate describes the total of all weather occurring over a period of years in a given place.
- Climate tells us what it's usually like in the place where you live at a certain time of year.

Climate Change

CLIMATE CHANGE IS A CHANGE IN THE STATISTICAL PROPERTIES OF THE CLIMATIC SYTEM WHEN CONSIDERED OVER A LONG PERIOD OF TIME.

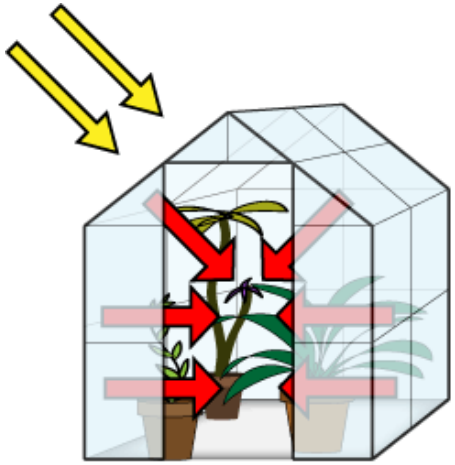
IN OTHER WORDS, IT IS A SIGNIFICANT ANDLASTING CHANGE IN THE STATISTICAL DISTRIBUTION OF WEATHER PATTERNS OVER PERIOD RANGING FROM DECADES TO MILLIONS OF YEARS.

Causes of Climate Change

A NUMBER OF FACTORS CAN BE IDENTIFIED TO BE THE CAUSES OF CLIMATE CHANGE. THESE ARE:

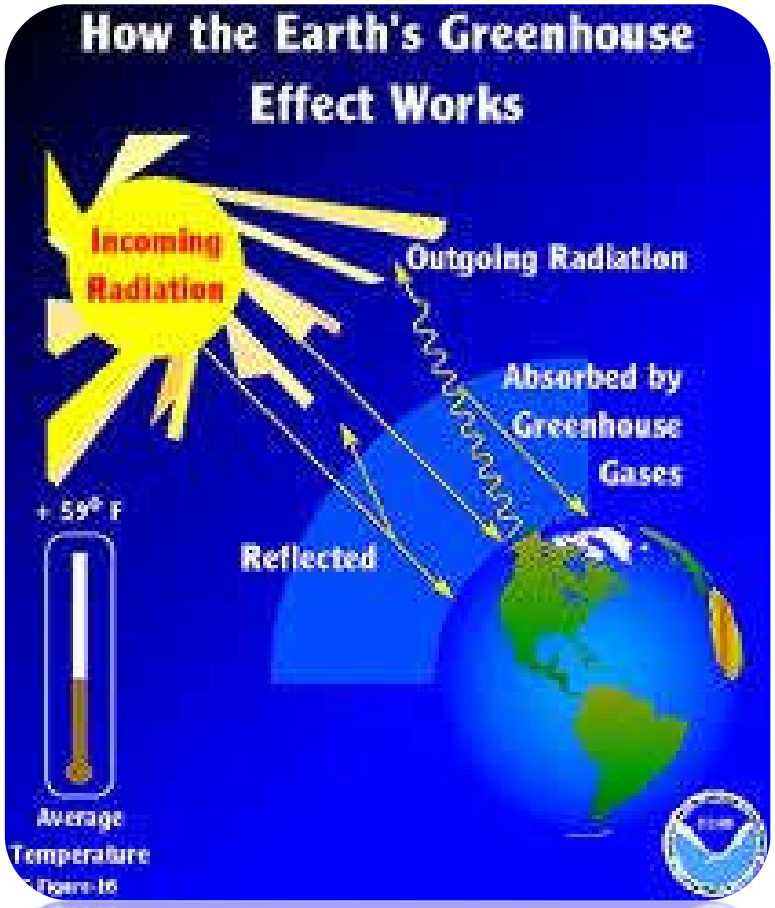
1. GREEN HOUSE-EFFECT
2. OZONE LAYER DEPLETION
3. CHLORO-FLORO-CARBON (CFC)
4. VOLCANIC ACTIVITIES
5. CARBON EMISSION
6. INCREASE IN POPULATION
7. DEFORESTATION
8. GAS FLARING

1. The greenhouse effect



The glass lets the sunlight in but stops the heat from escaping.

On Earth, the atmospheric gases allow sunshine to pass through but absorb heat that is radiated (bounced) back from the warmed surface of the Earth

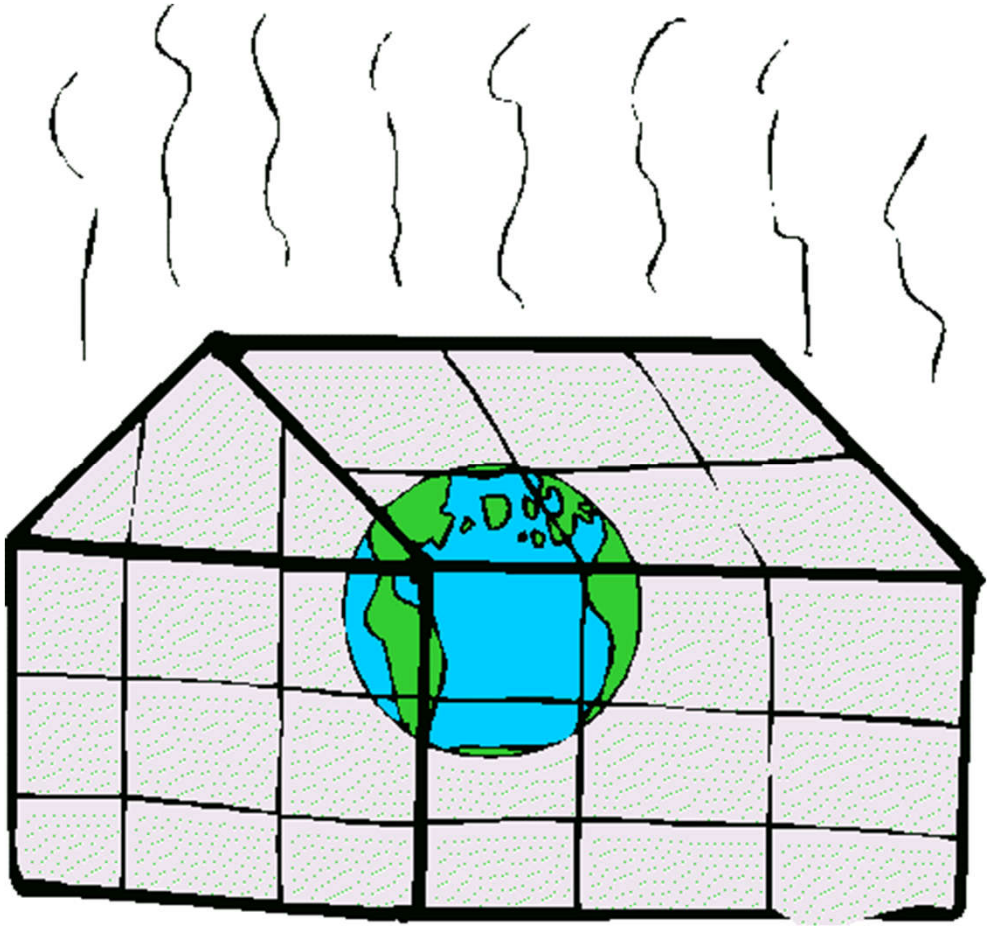


The Greenhouse Effect

- The gases in the atmosphere act like a blanket around our planet which traps in heat, making the temperature rise

- This is called the Greenhouse Effect and is a natural process that keeps the planet warm and sustains life

- If the greenhouse effect didn't exist, the average temperature on earth would be around -18ºC



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The Greenhouse Effect

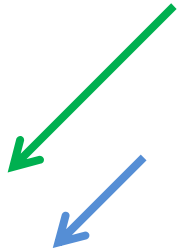
Q. What are the gases we associate with global warming?

- carbon dioxide (CO_2)
- methane (CH_4)
- sulphur dioxide (SO_2)
- ozone (O_3)
- water vapour (H_20)
- nitrogen dioxide (NO_2)

These gases behave like the glass panes in a greenhouse, trapping heat in.

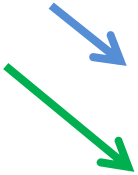
The Greenhouse Effect

Incoming shortwave radiation from the sun



- Sunlight (short wave solar radiation) enters the earth's atmosphere.
- Most of this solar radiation is absorbed by the earth's surface (land and sea) and warms it.
- Some of it is reflected by the earth back into the atmosphere.

Outgoing longwave (infrared) radiation from the earth

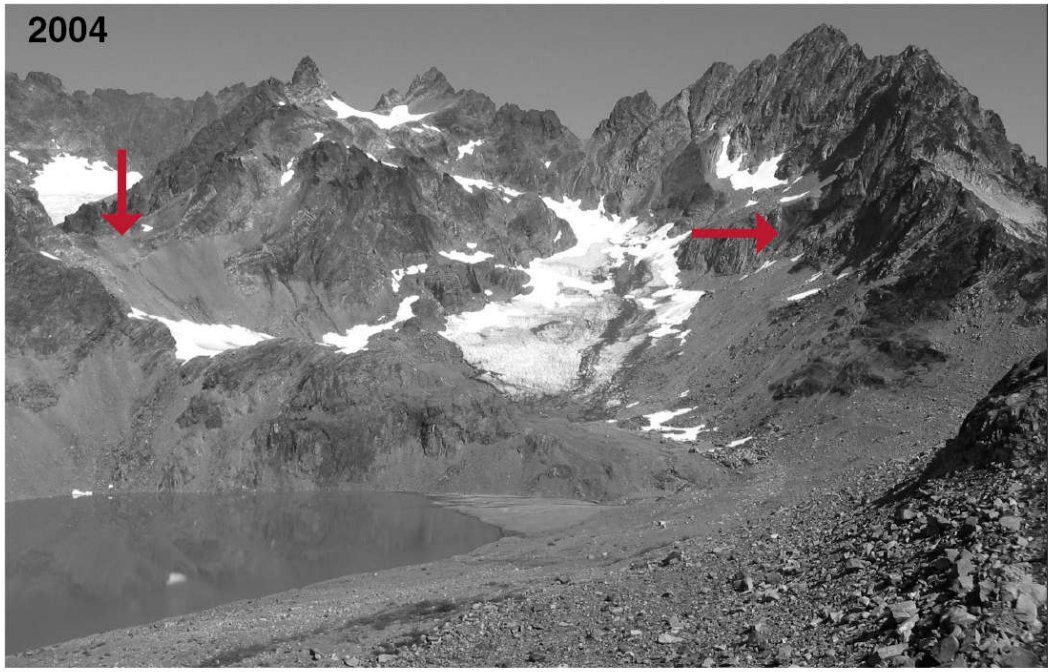


- In return the earth admits long wave energy back into the atmosphere.
- Because it is longwave energy (not shortwave like the energy carried by the rays from the sun), some of it gets trapped by the greenhouse gases.
- This causes the earth to be warmer than it would without the greenhouse gases.
- The thicker the blanket of greenhouse gases, the more the outgoing energy gets trapped and the greater the warming effect.

What does this mean for the Earth?

- A warmer earth is causing glaciers and ice sheets to melt. It is also leading to rising sea levels
- The summer ice in the arctic is predicted to disappear completely between 2013 and 2040; a state not seen on earth for more than a million years
- The eleven years 1995-2006 rank amongst the twelve warmest years since records of global surface temperature began in 1850

Olympic National Park - Anderson Glacier



As the Earth heats up

Sea levels around the world could rise.

Cities on coasts would be liable to flooding.

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As the Earth heats up

Temperate places that now receive frequent rain and snowfall might become hotter and drier, leading to more drought.

As the Earth heats up

Frequent periods of drought would make it hard to raise crops for food, leading to famine.

As the Earth heats up

Forest fires could occur more often.

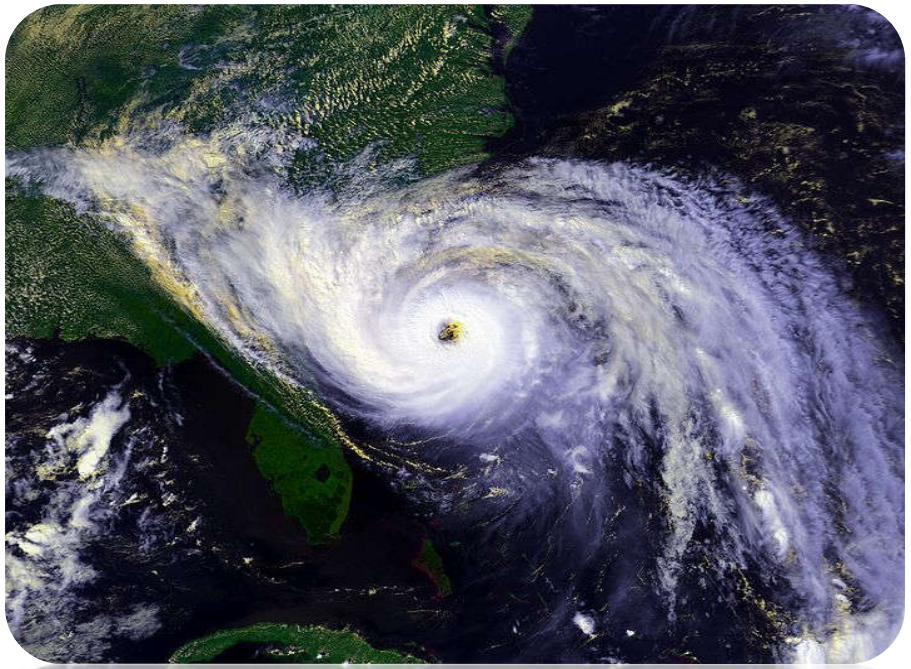
As the Earth heats up

Plants and animals unable to take the heat may go extinct, and be replaced by heat tolerant species.

As the Earth heats up

Hurricanes, tornadoes and other storms caused by changes in heat and water evaporation might occur more frequently and be more intense.

pantherfile.uwm.edu



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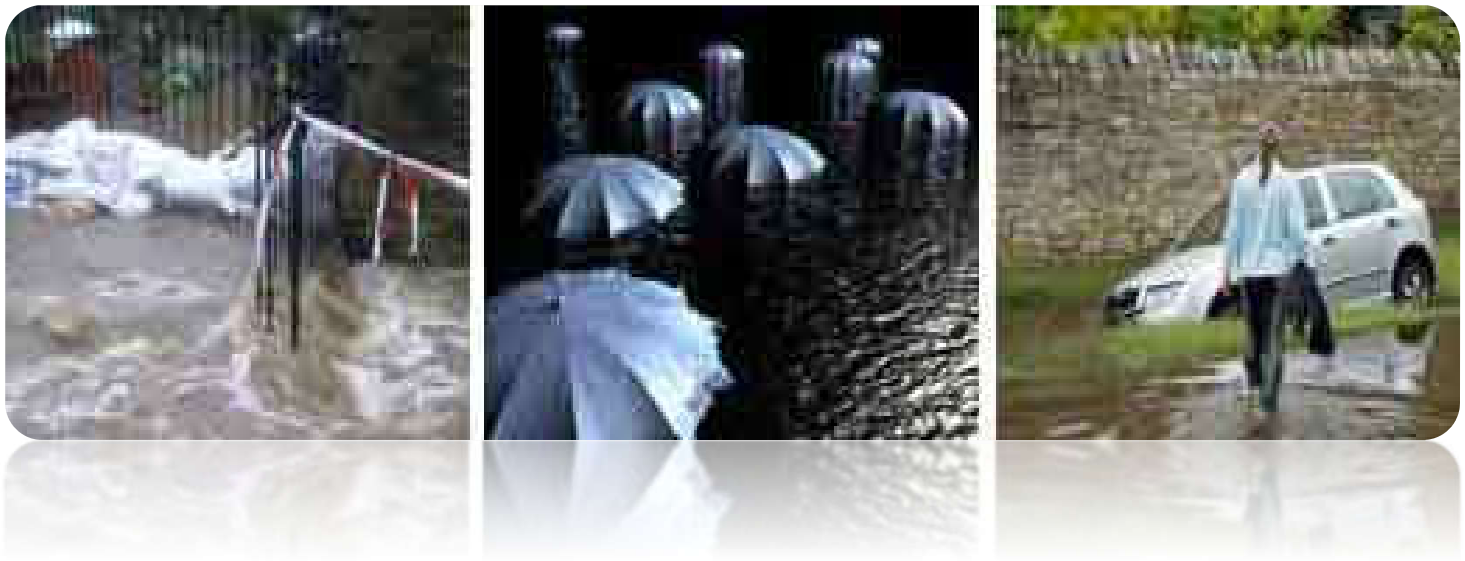
The effects of Climate Change

In Nigeria, we expect that because of climate change:

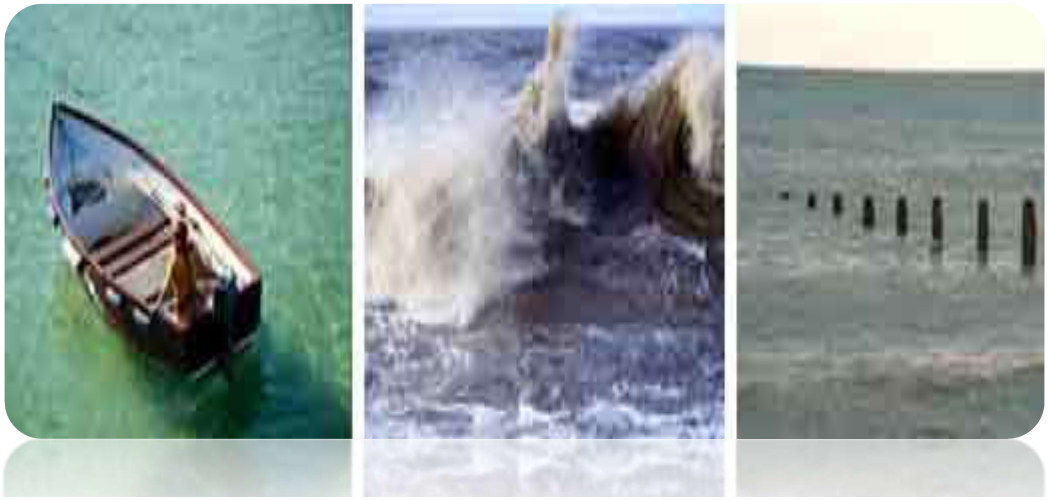
- Temperatures will increase
- Rainfall will get heavier during rainy season, increasing the risk of flooding



The effects of Climate Change

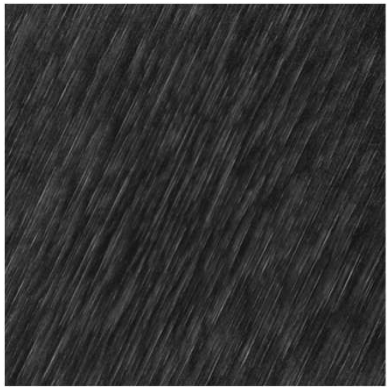
- **Desertification**

- **Melting of Ice caps**



The effects of Climate Change

- **High Rainfall**



- **Submergence of coastal cities**

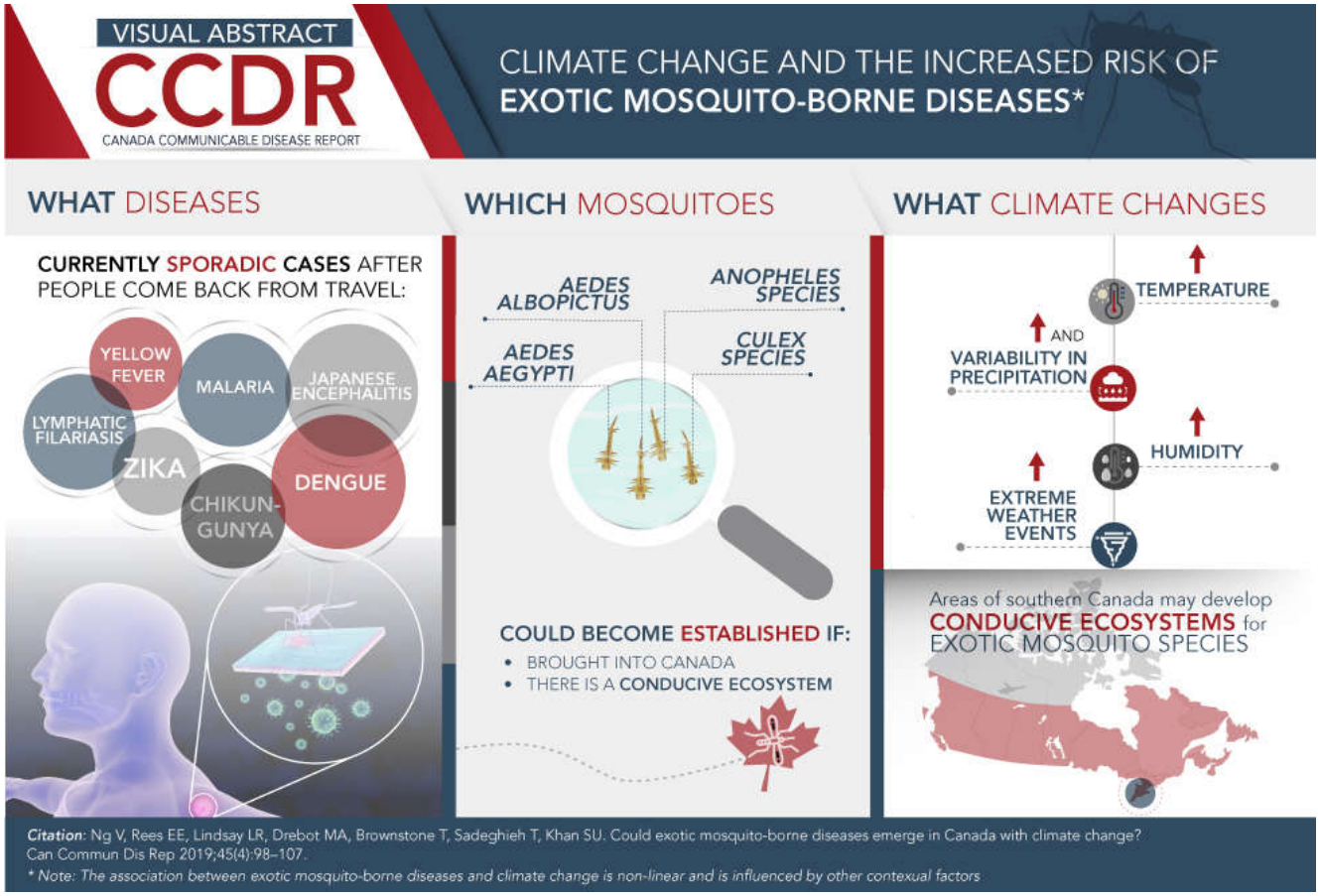
The effects of Climate Change

- **Occurrence of Wild fire**

- **Extinction of some plants and animals.**

The effects of Climate Change

- **Emergence of new diseases**



- **Cancer and eye cataract.**

Remedies to the problems of climate change

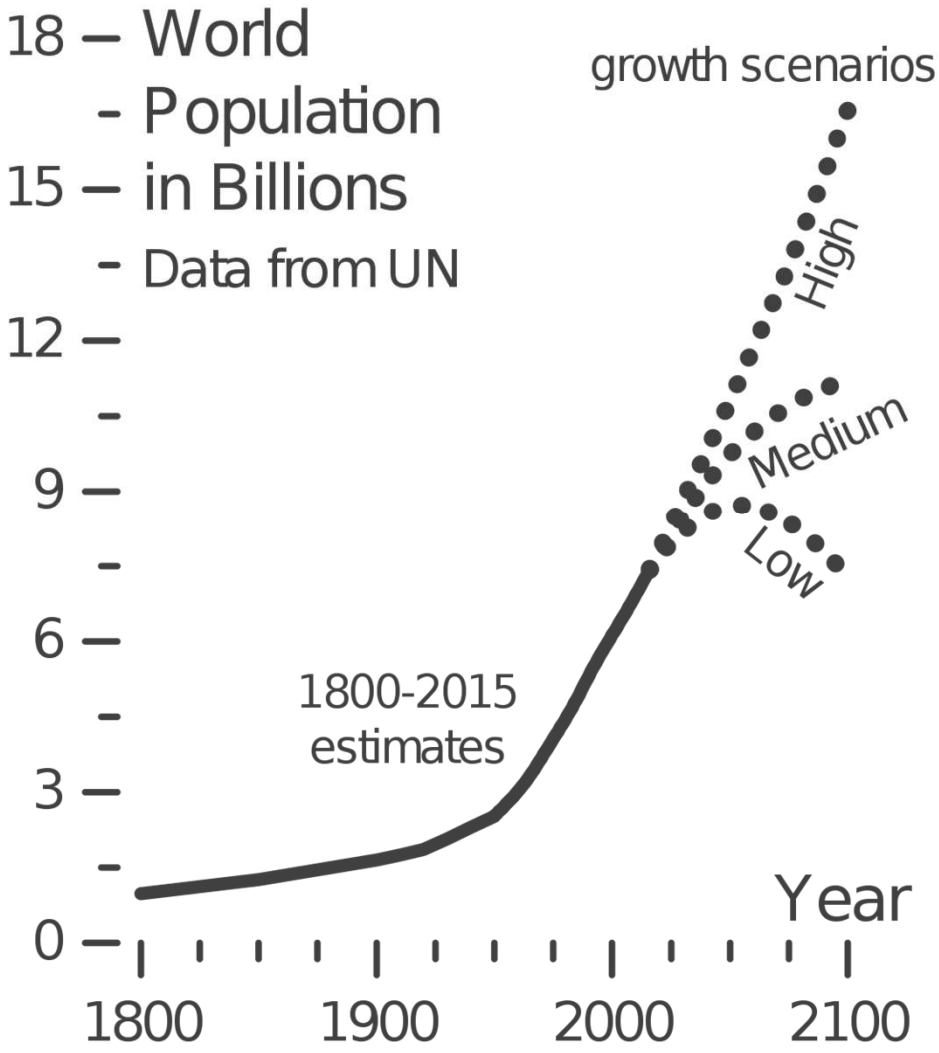
- **Reforestation**

- **Zero carbon emission**

Remedies to the problems of climate change

- **Education**

- **Population reduction**



Remedies to the problems of climate change

- Introduction of Gas driven cars

- Stop use of aerosols

Assignment

1. What do you understand by the term
    a. Climatic Change
    b. Global warming
    c. Climatic forces
2. List and discuss 6 causes of climatic change