

Unit 3



What do you know?

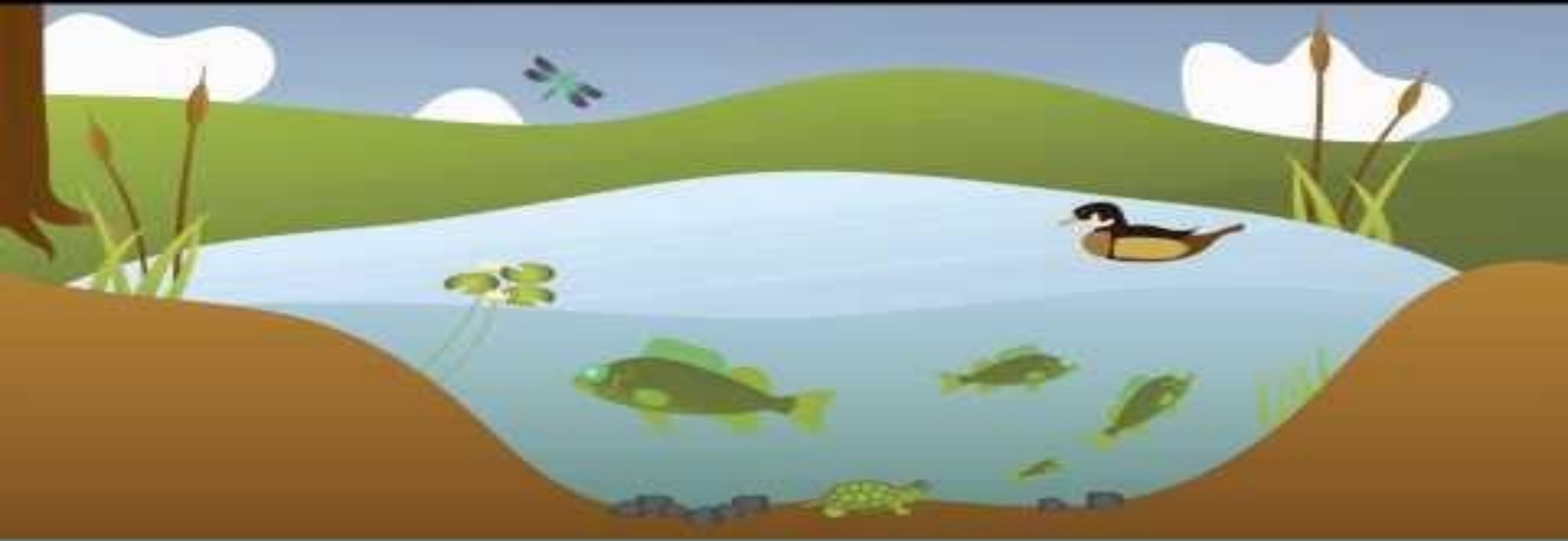
You may have heard the term 'Eco-Friendly'

Do you know what 'Eco' stands for?

What is Ecology?

What do you think they mean by 'Eco-Friendly'?





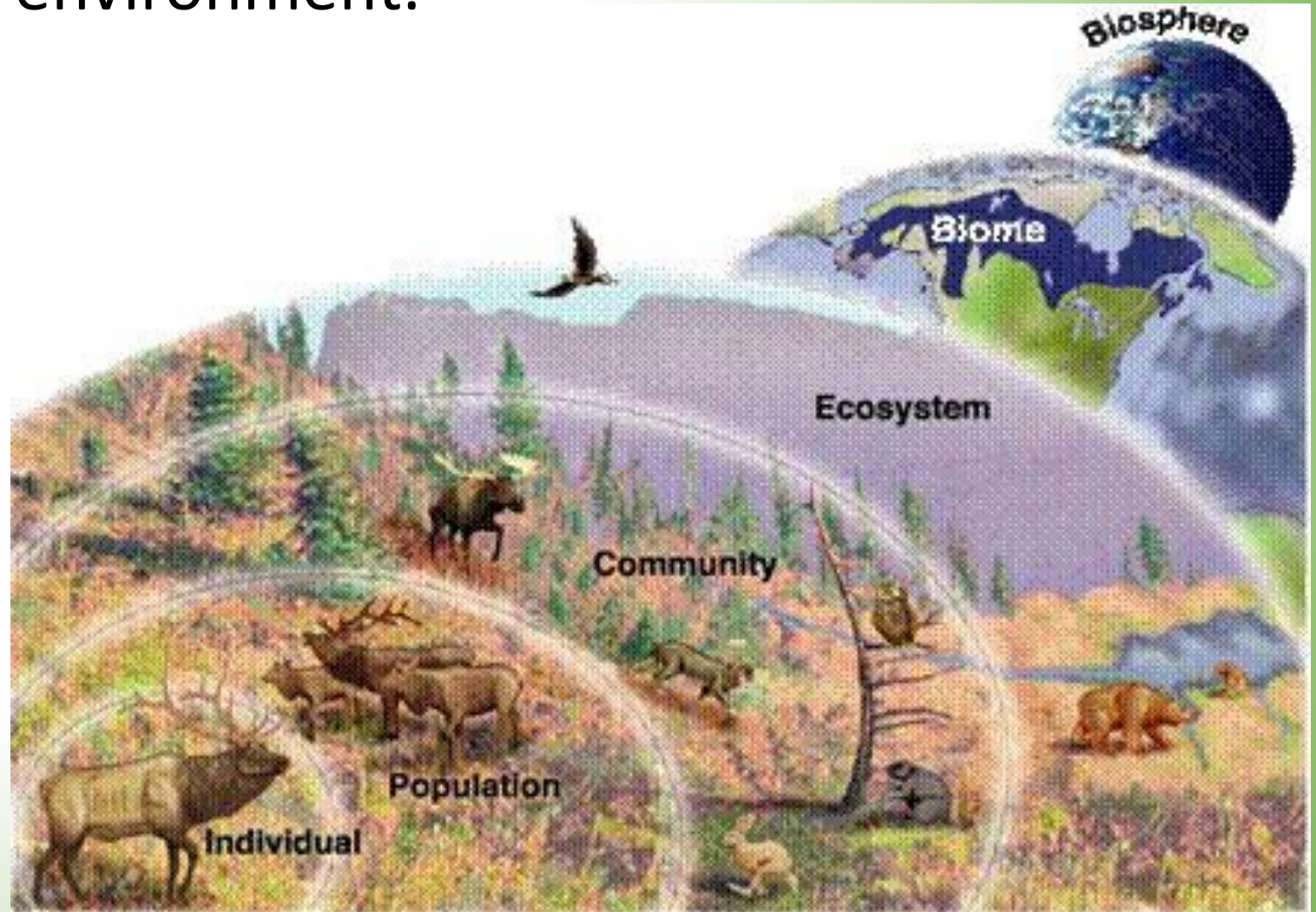
ecosystem

ECOLOGY

Ecology is the scientific study of organisms and the interactions between them and the environment.

- Levels of organization

- Biosphere
- Biome
- Ecosystem
- Community
- Population
- Individual



Factors in an Ecosystem

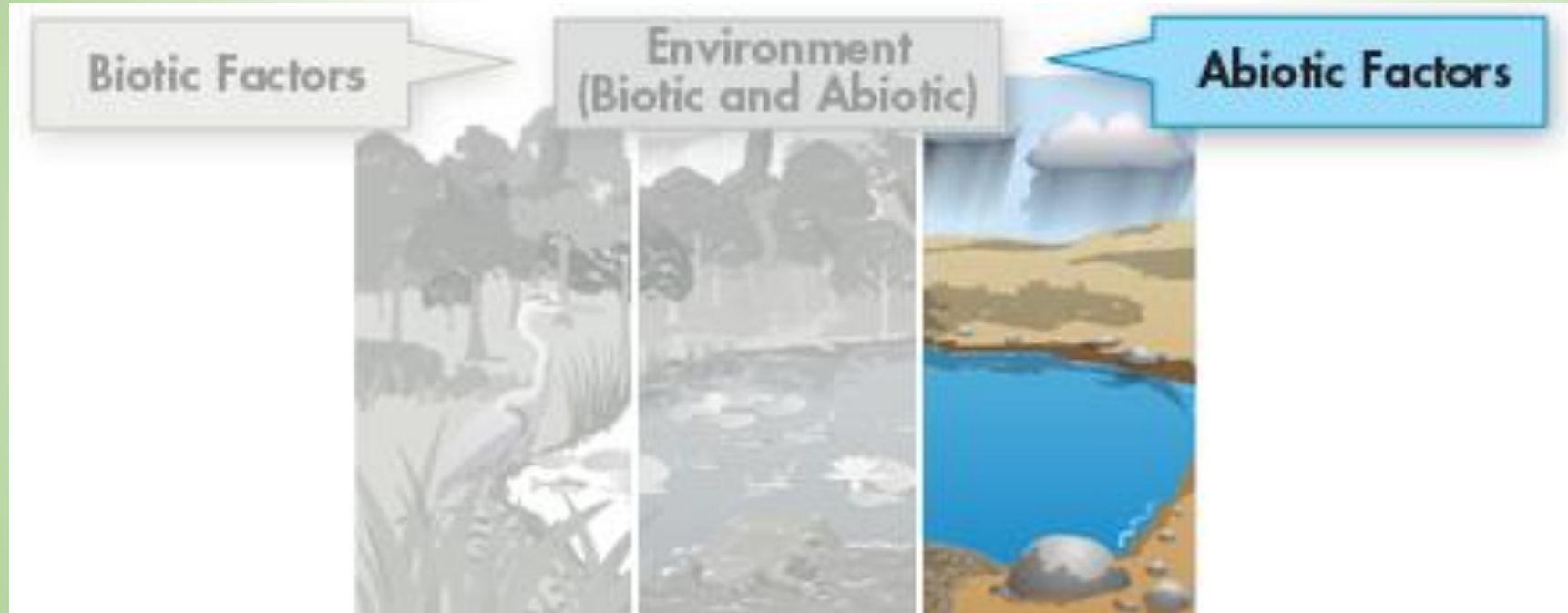
biotic factors- biological influences on organisms
(living factors)



Examples of biological influences on a bullfrog- algae it eats as a tadpole, herons that eat bullfrogs, & other species competing for food or space.

Factors in an Ecosystem

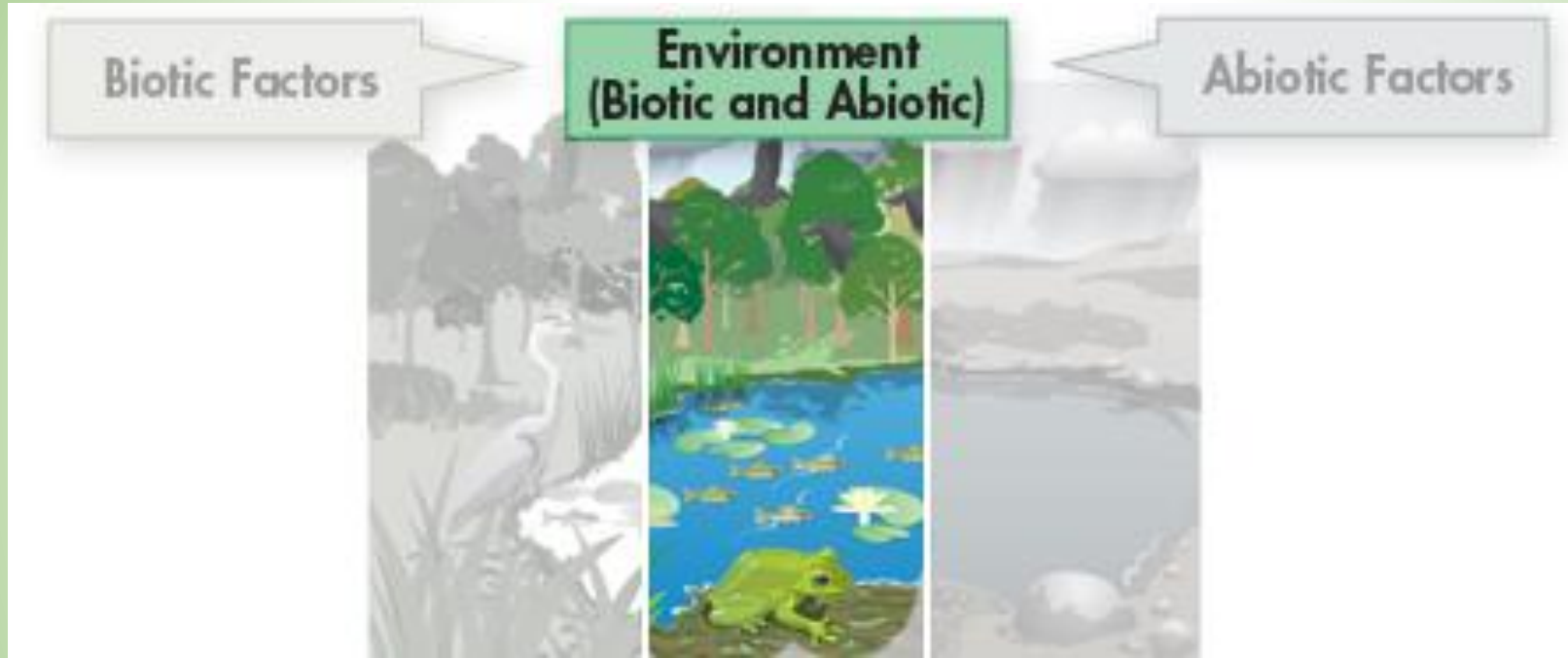
Abiotic factors- physical components of an ecosystem
(nonliving factors)



Ex: a bullfrog could be affected by abiotic factors such as water availability, temperature, & humidity.

Factors in an Ecosystem

abiotic & biotic factors- some substances may be a mix of both



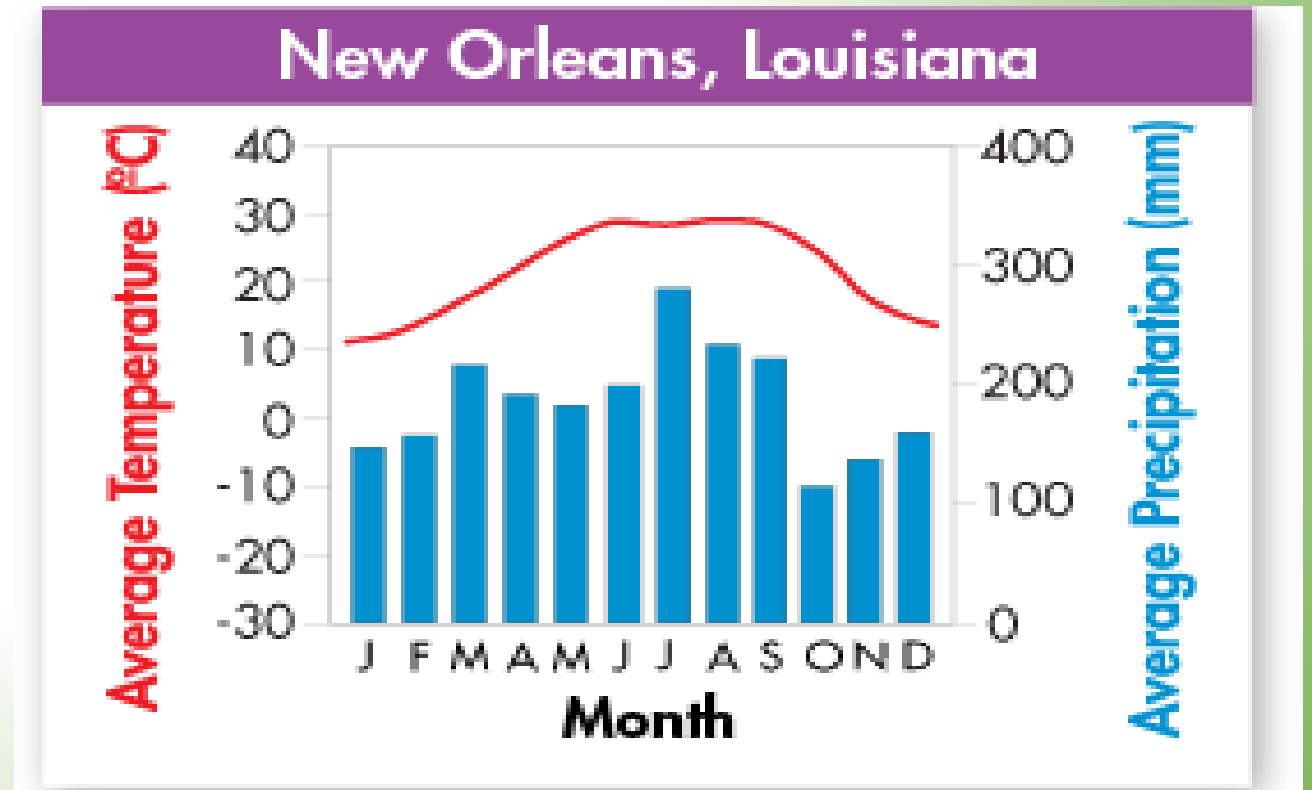
Ex: pond muck contains nonliving particles, mold, & decomposing plant material that is food for bacteria & fungi

Biomes

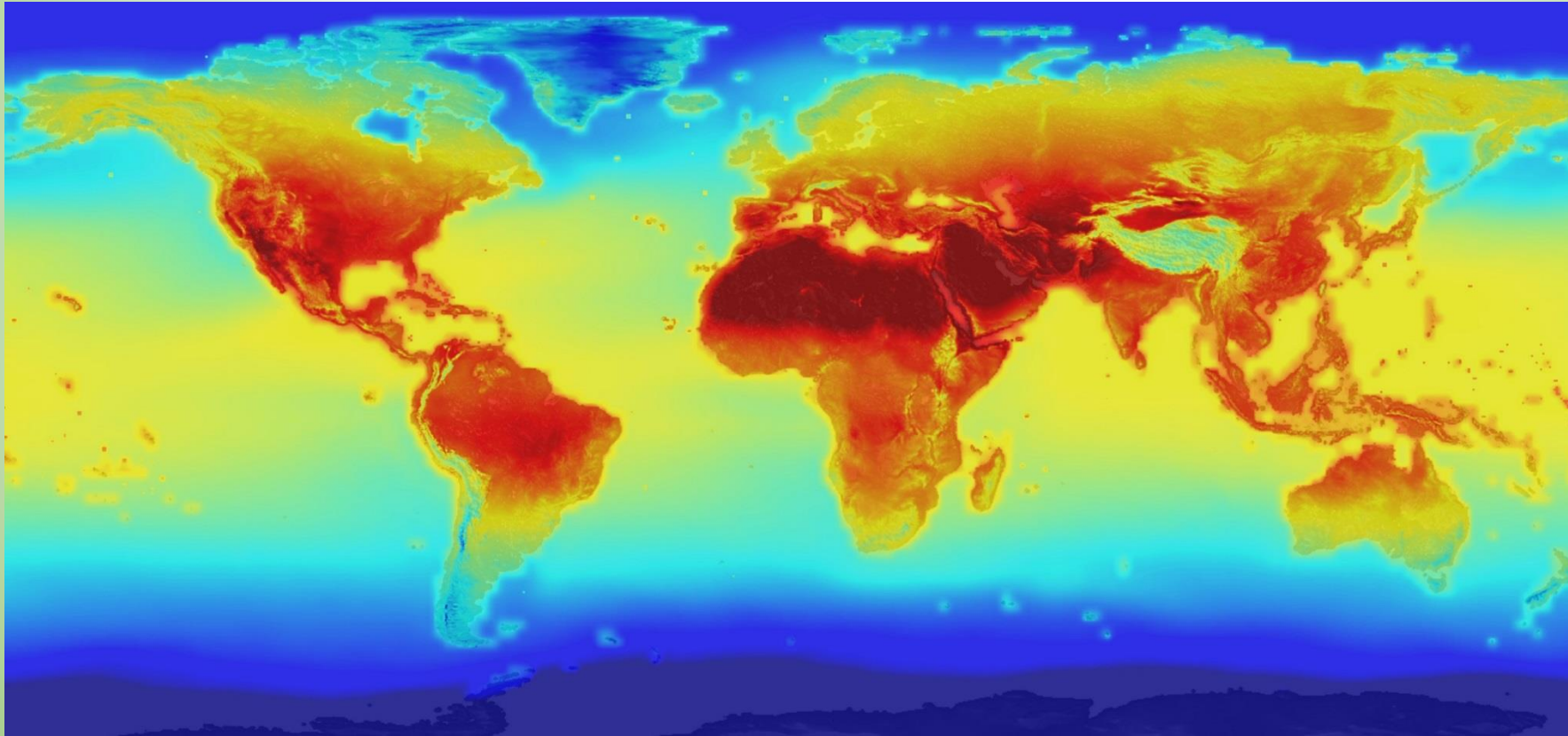
- Biomes- consist of abiotic & biotic factors
 - Seasonal patterns of temp & precipitation
 - Cover large areas of land
 - *Ex: Desert/Rainforest/Tundra*

Climate Diagram:

- Temp- line graph
- Precipitation- bar graph



Weather and Climate



What do you know?

Is there a difference between weather and climate?

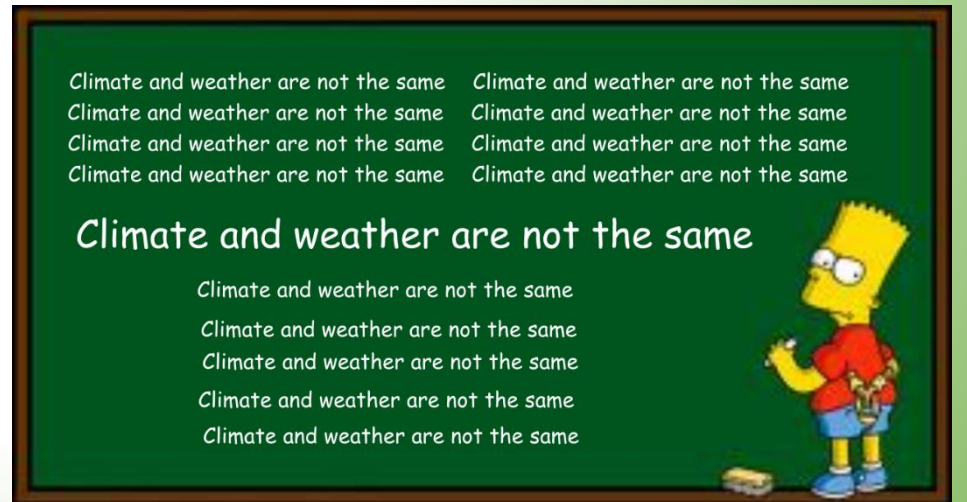
What do you think causes climates to be different in different parts of the world?



Climate vs. Weather

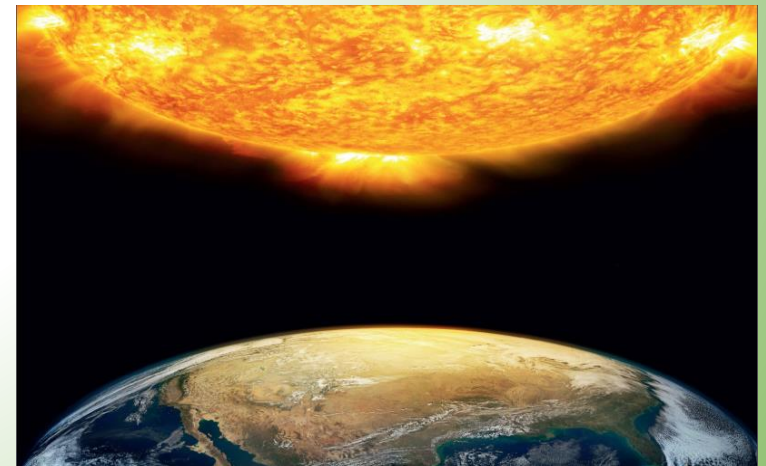
Weather - day-to-day conditions of Earth's atmosphere

Climate - year-after-year patterns of temperature & precipitation.



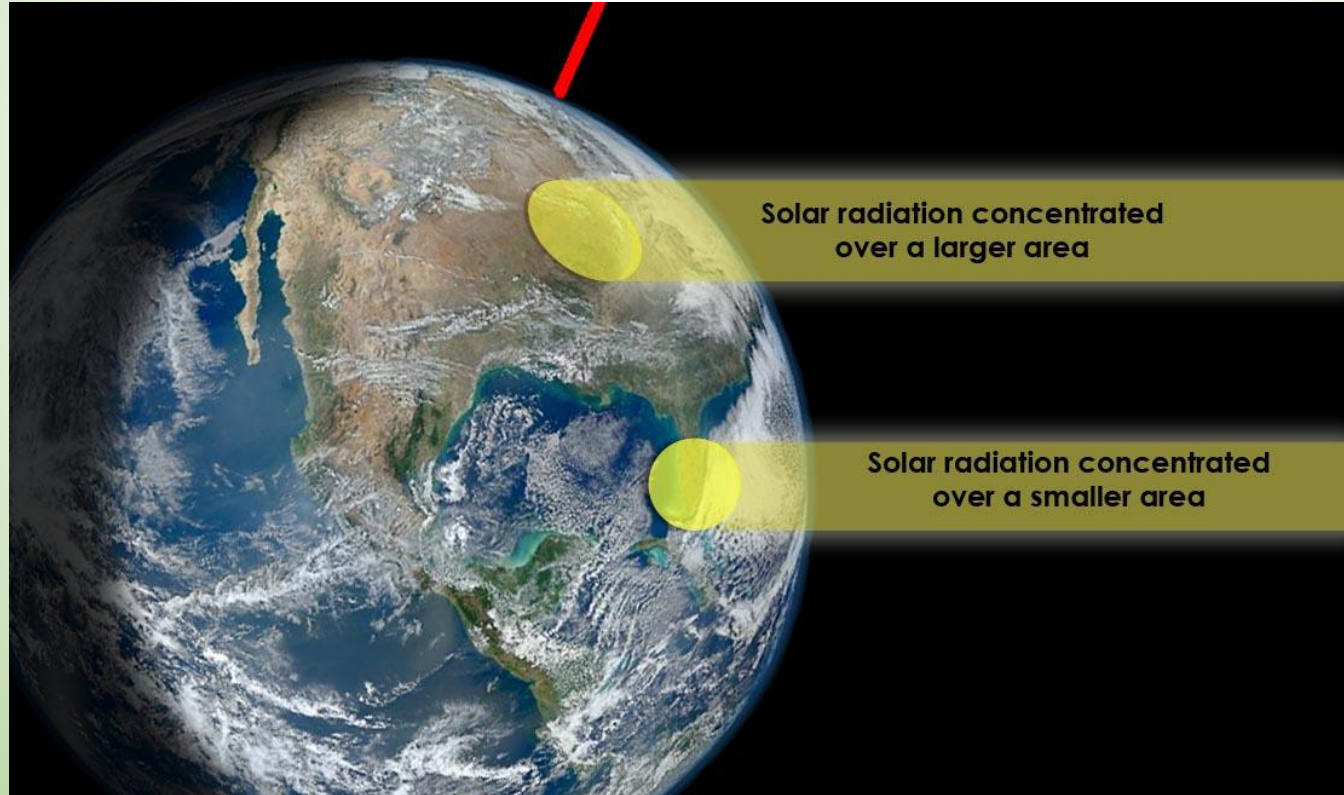
Climate-Solar Radiation

- main force in climate= solar energy from sun
- Some **energy** absorbed & converted into heat
- Some **heat** is trapped in the biosphere & determines average temperature



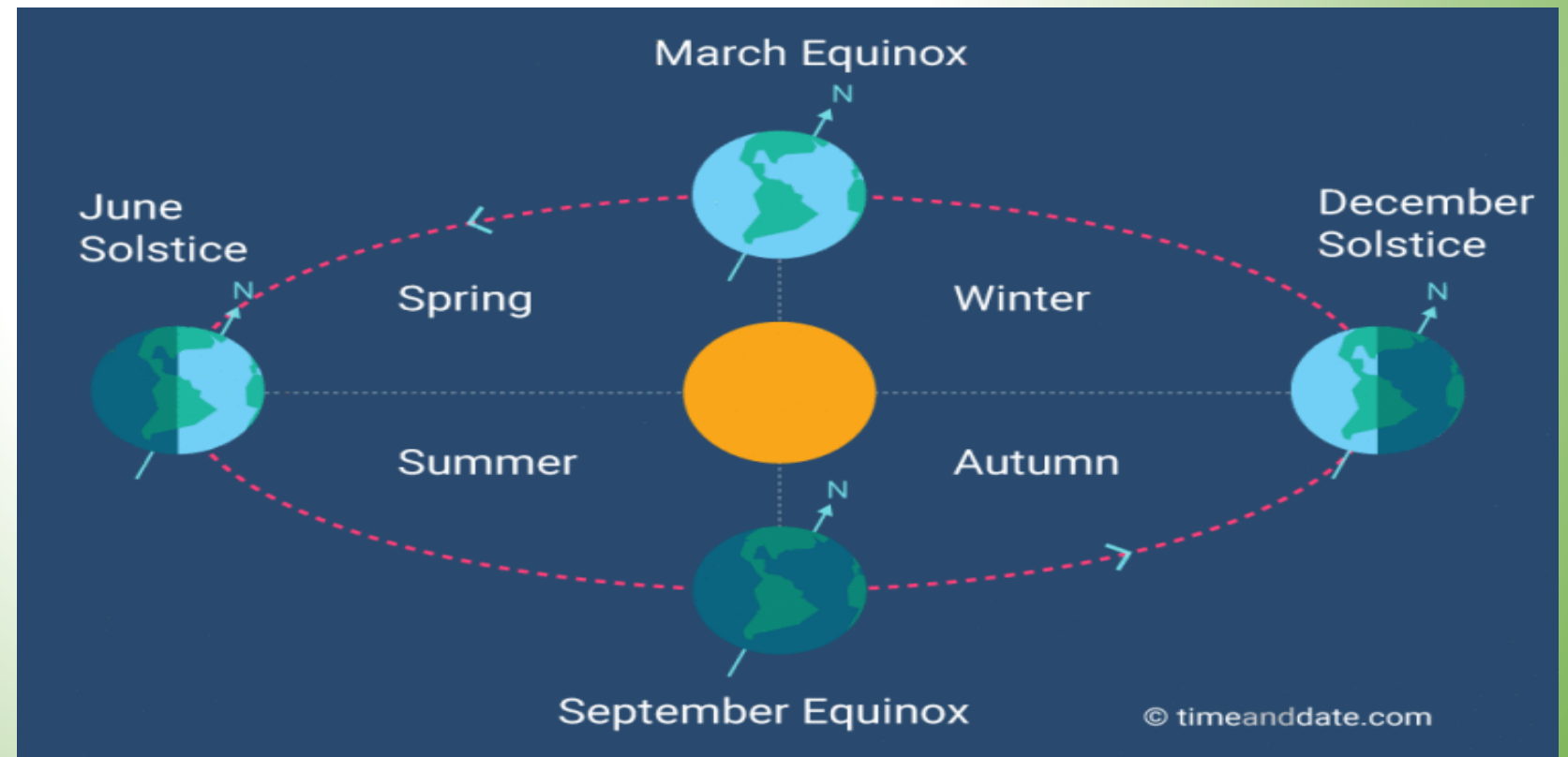
Climate-Solar Insolation

- More direct sunlight at the equator = hotter!
- Less direct sunlight near the poles = cooler!

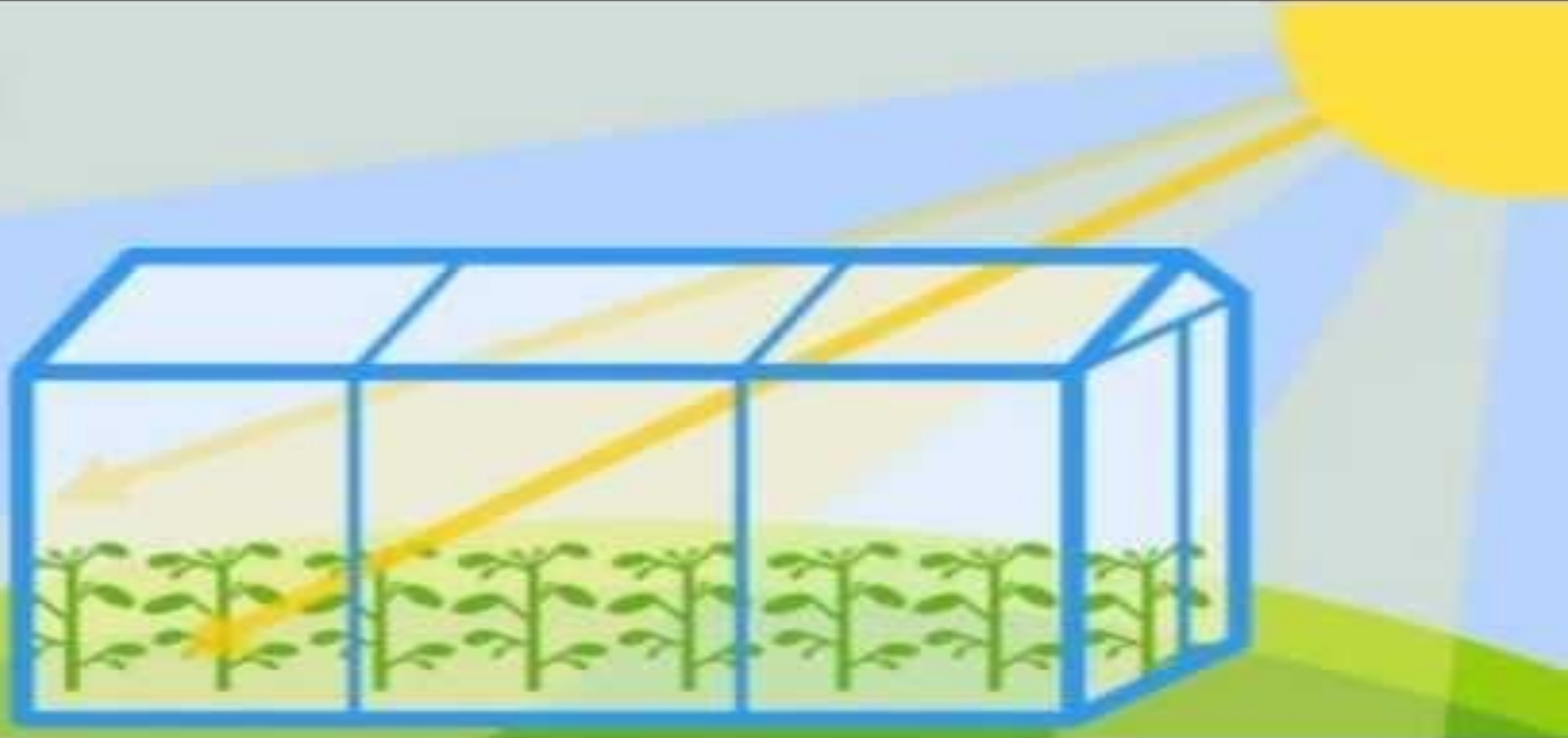


Climate-Solar Insolation

- For the Northern Hemisphere:
 - Summer = Earth is tilted toward sun so there's more direct sunlight
 - Winter = Earth is tilted away from the sun so there's less direct sunlight.



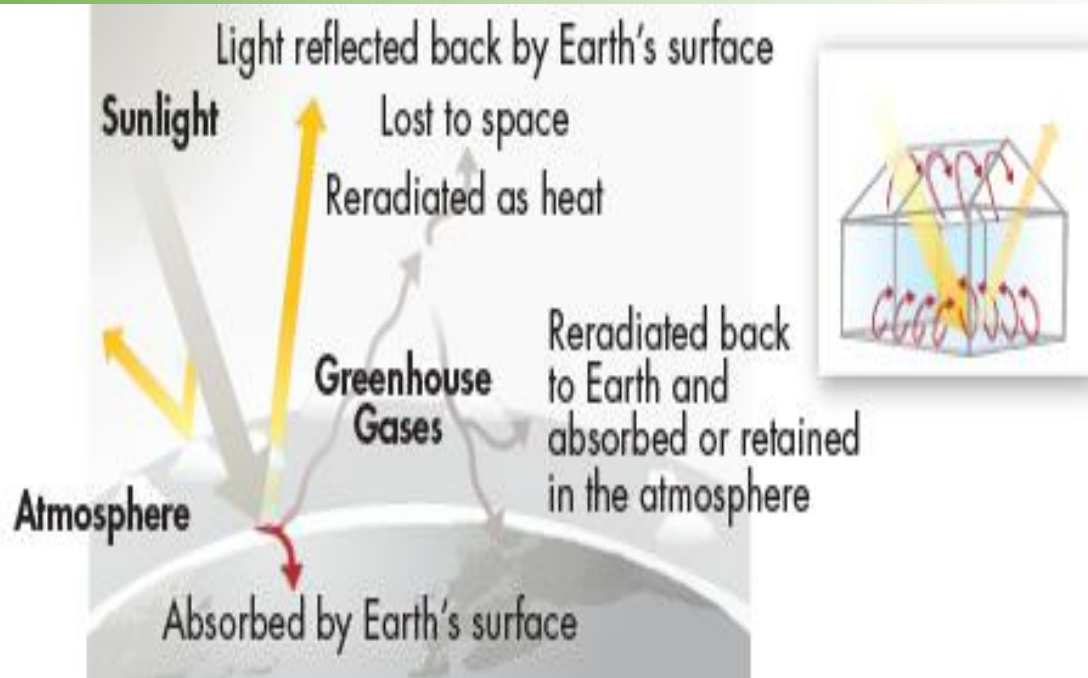
Greenhouse Effect



Greenhouse effect

- Earth's temperature controlled by 3 atmospheric gases:
 - CO₂
 - Methane
 - Water vapor
 - Called “greenhouse gases” - allow light to enter but trap heat (via the **greenhouse effect**)
- Without greenhouse effect, Earth would be 30°C cooler than it is today. (*WE HAVE TO HAVE GREENHOUSE EFFECT TO LIVE!*)\
- More Greenhouse Gases= more heat trapped= Earth warms
 - More Carbon Dioxide = Earth warms (*CLIMATE CHANGE!*)

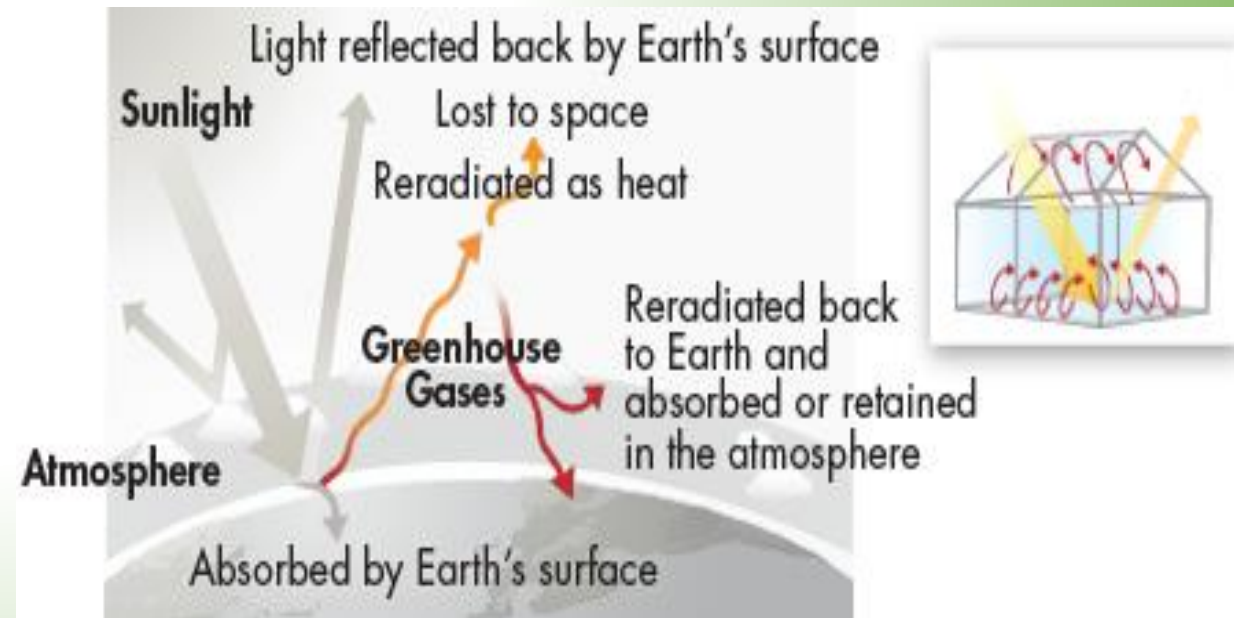
Greenhouse Effect



Some light from the Sun is reflected back to space and some is absorbed by the surface

Absorbed light is then reradiated from the ground as heat.

- This is where most heat on Earth comes from.
- Greenhouse gases help keep this heat from being all lost to space.



Show me!

- **Draw a picture of the greenhouse effect!**

