

NATURAL SELECTION



NATURAL SELECTION

“SURVIVAL OF THE FITTEST”

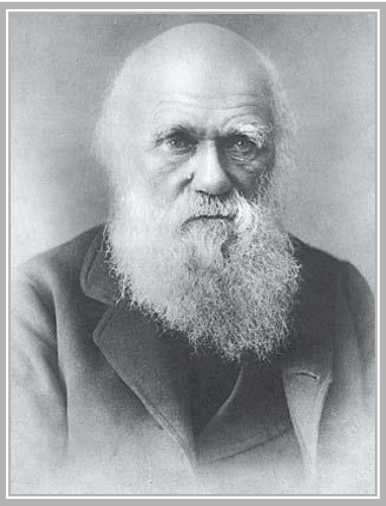
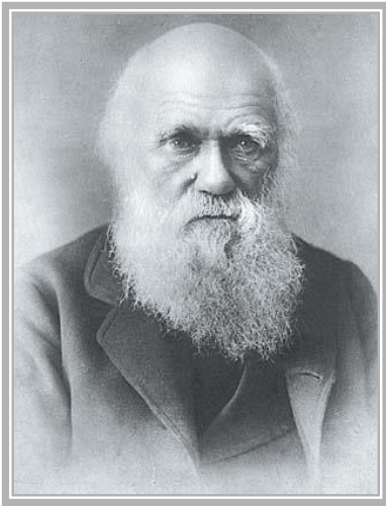
NATURAL SELECTION



QUESTION

**WHO PROPOSED
NATURAL SELECTION?**

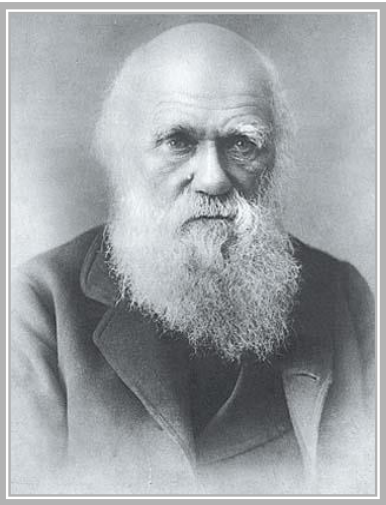
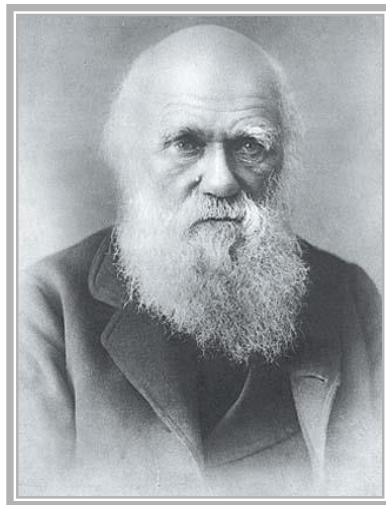
QUESTION

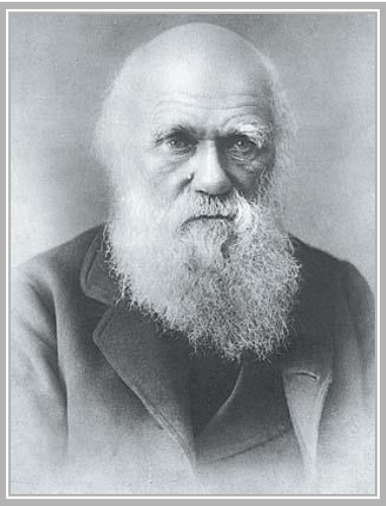
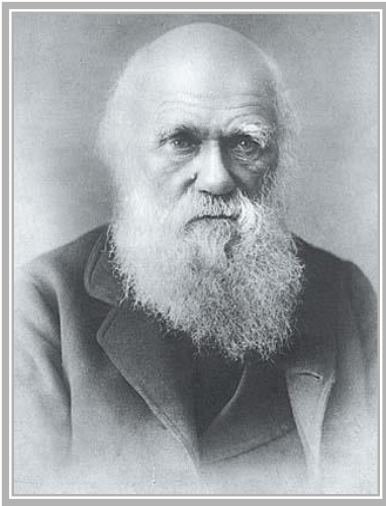


D

BIOLOGIST

BIOLOGIST

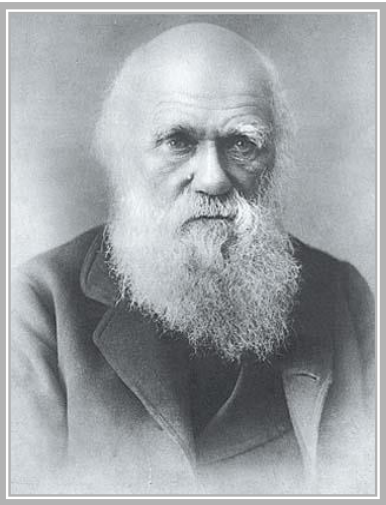
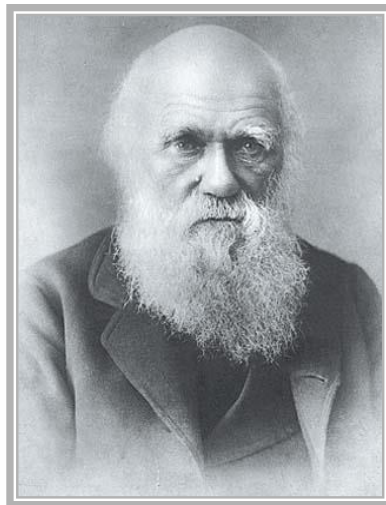


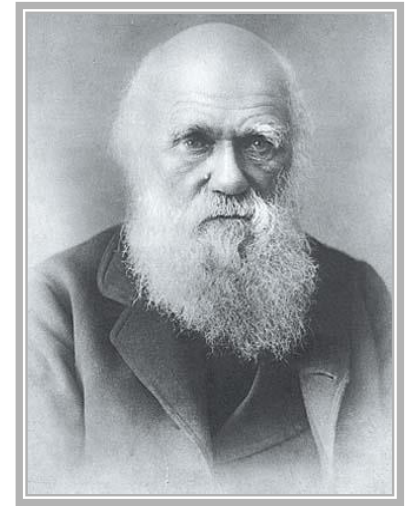
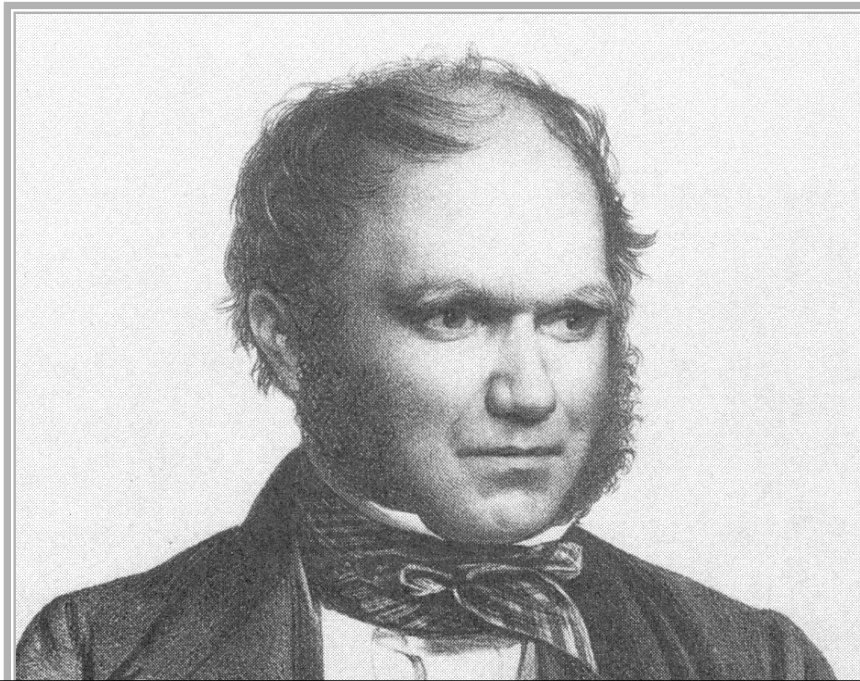
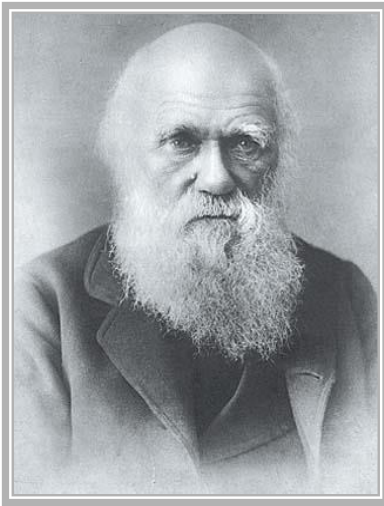


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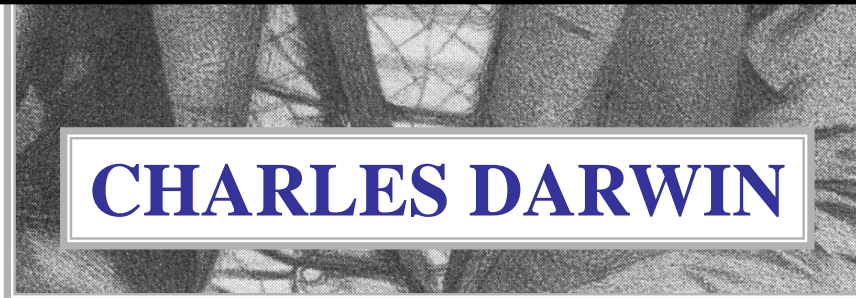
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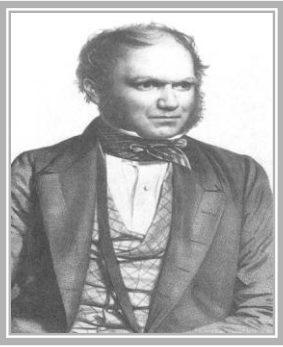
CHARLES DARWIN



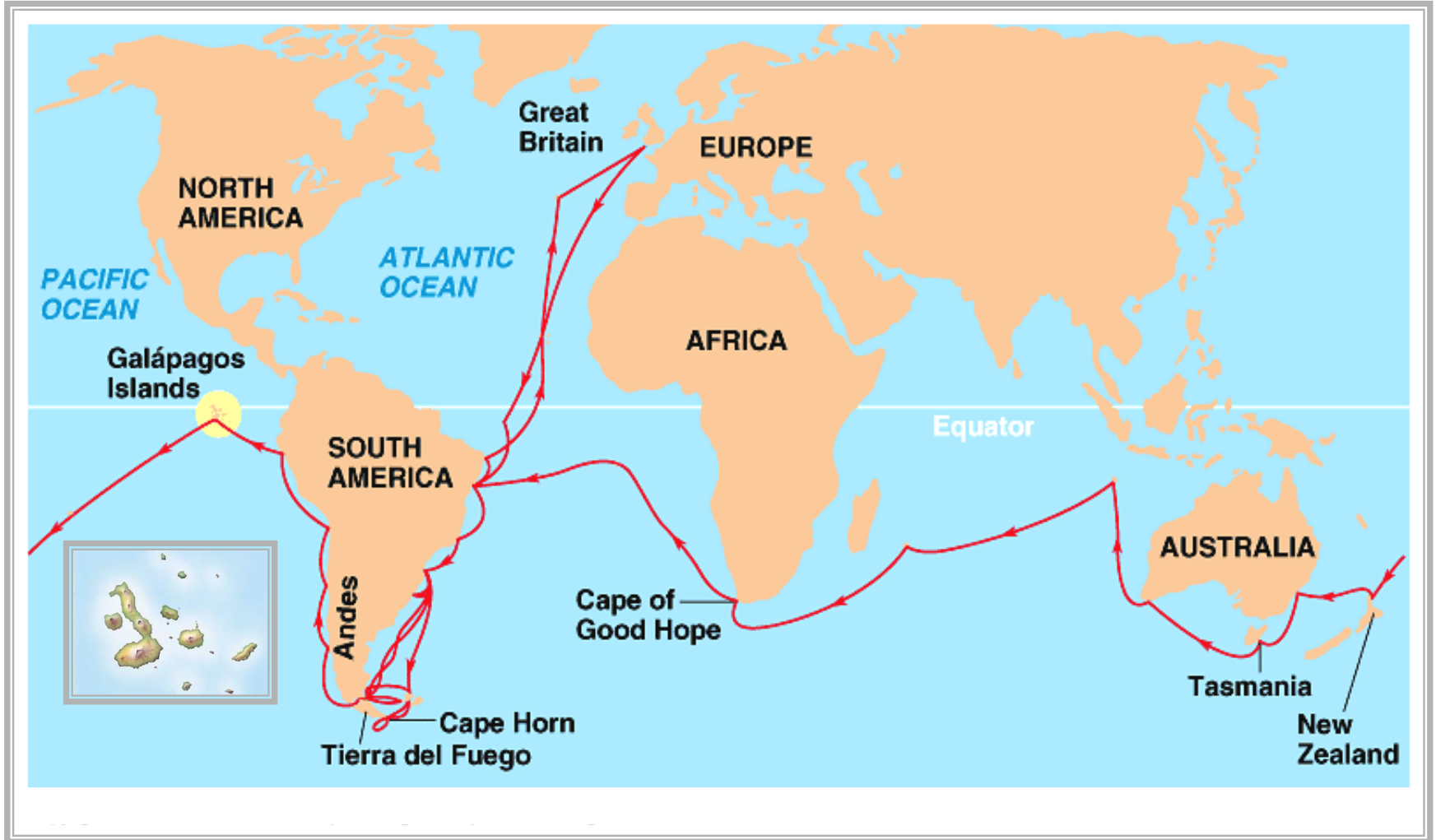
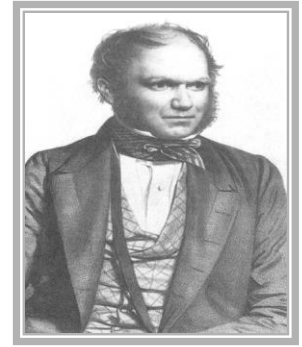


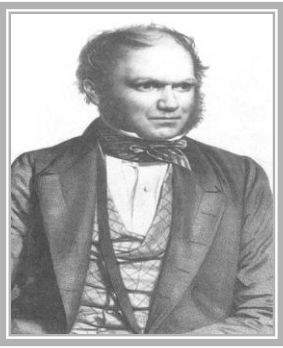
PROPOSED NATURAL SELECTION



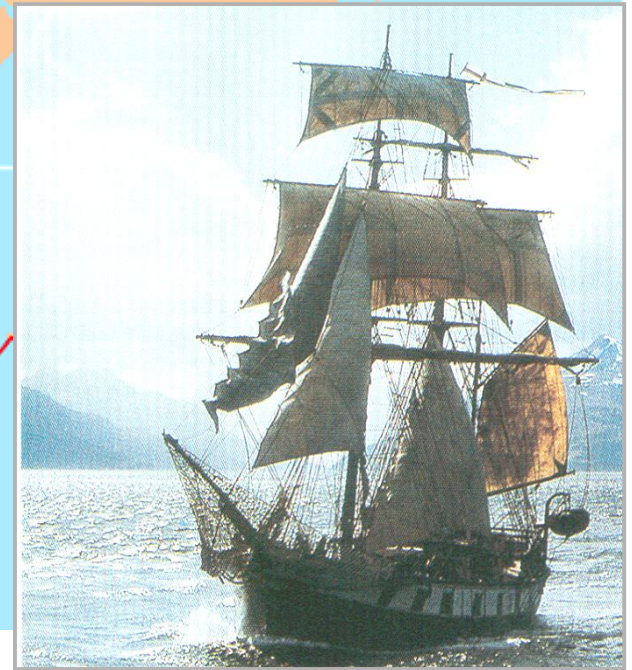
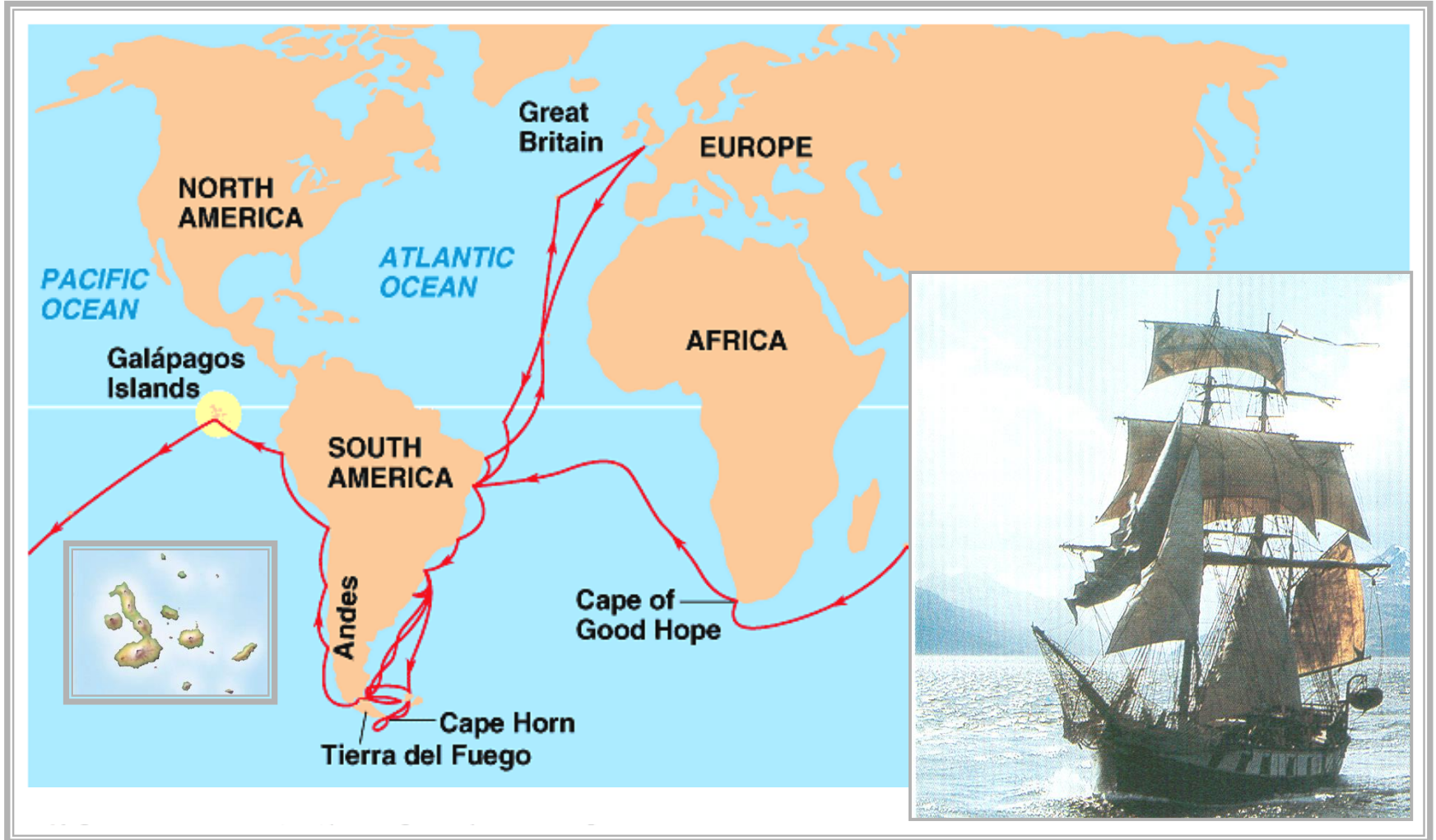
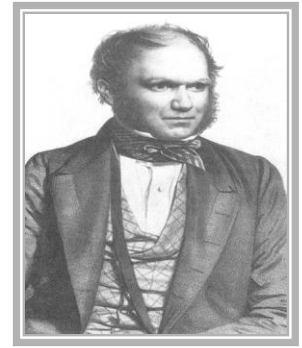


VOYAGE HMS BEAGLE 1831 → 1836





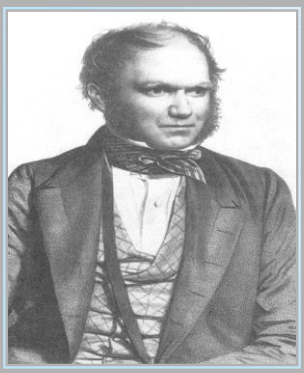
VOYAGE HMS BEAGLE 1831 → 1836



NATURAL SELECTION



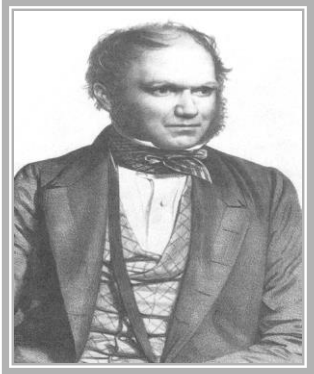
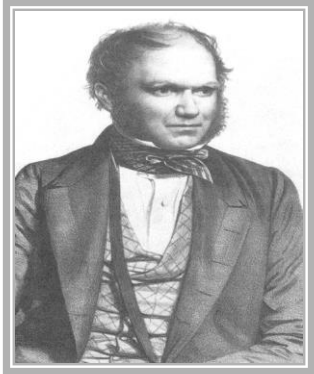
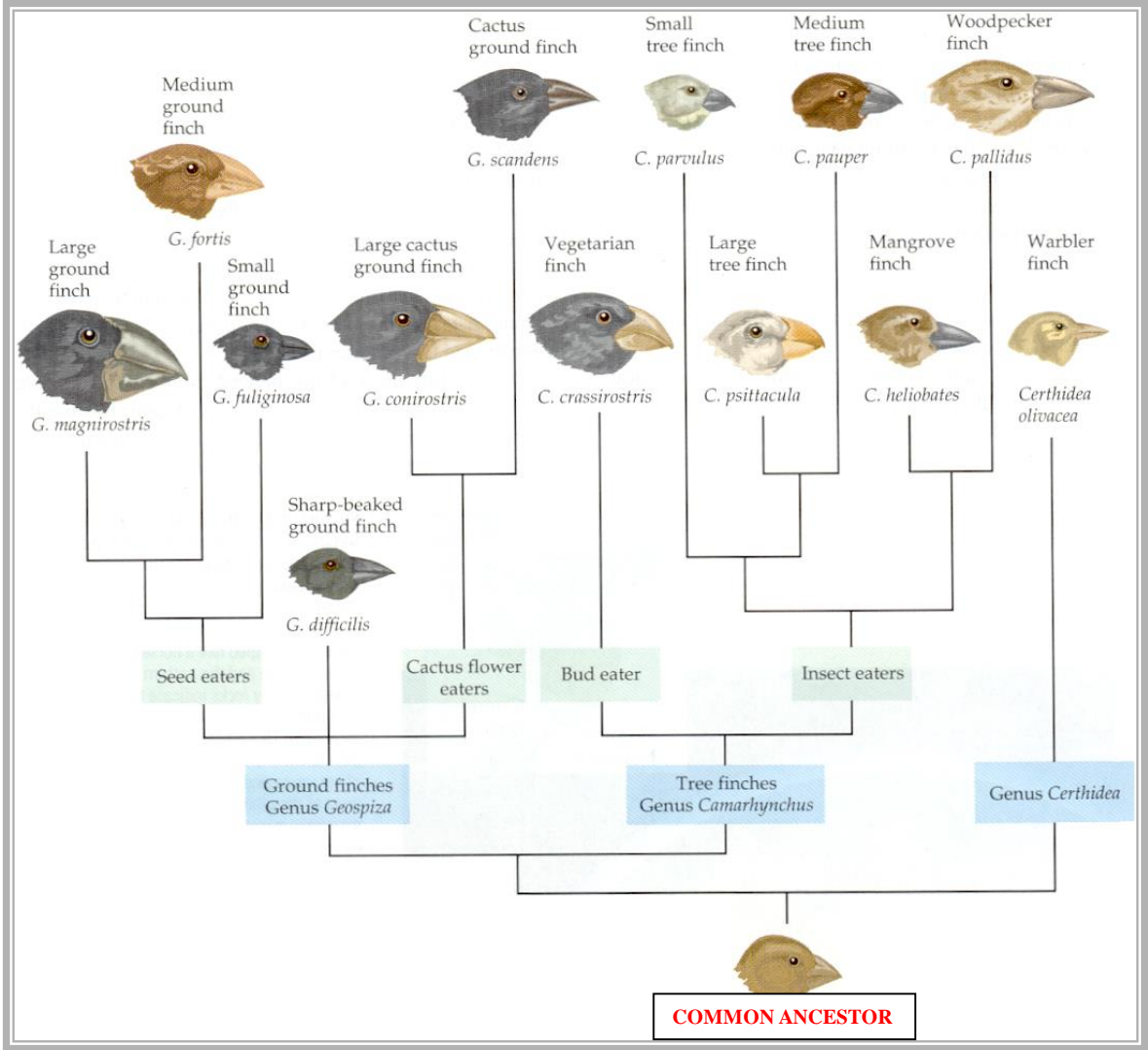
GALAPAGOS ISLANDS



CHARLES DARWIN



DARWIN'S FINCHES



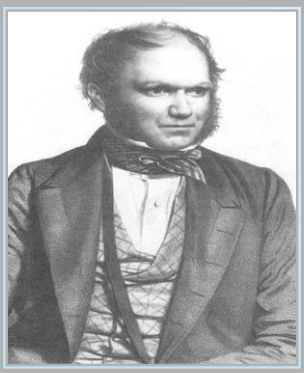
COMMON ANCESTOR



COMMON ANCESTOR

M

GALAPAGOS ISLANDS



CHARLES DARWIN

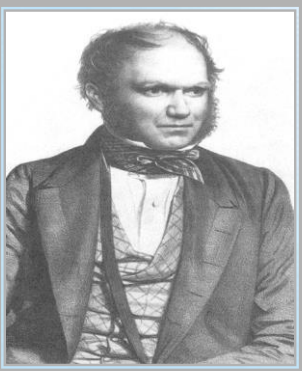
MUTATIONS



COMMON ANCESTOR

N

GALAPAGOS ISLANDS



CHARLES DARWIN

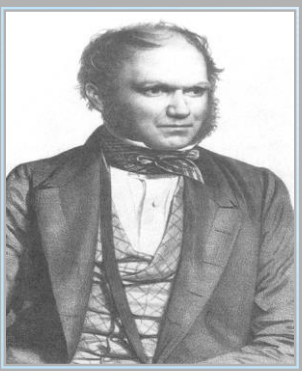
NATURAL SELECTION

S



COMMON ANCESTOR

GALAPAGOS ISLANDS



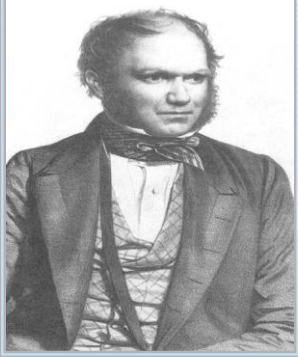
CHARLES DARWIN

SPECIATION



COMMON ANCESTOR

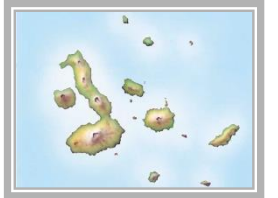
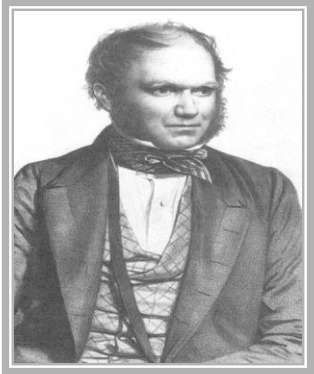
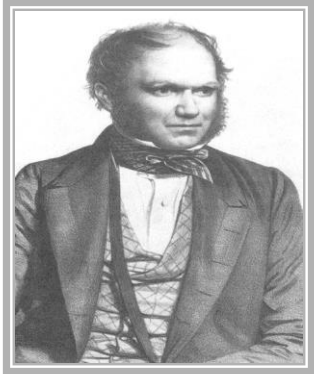
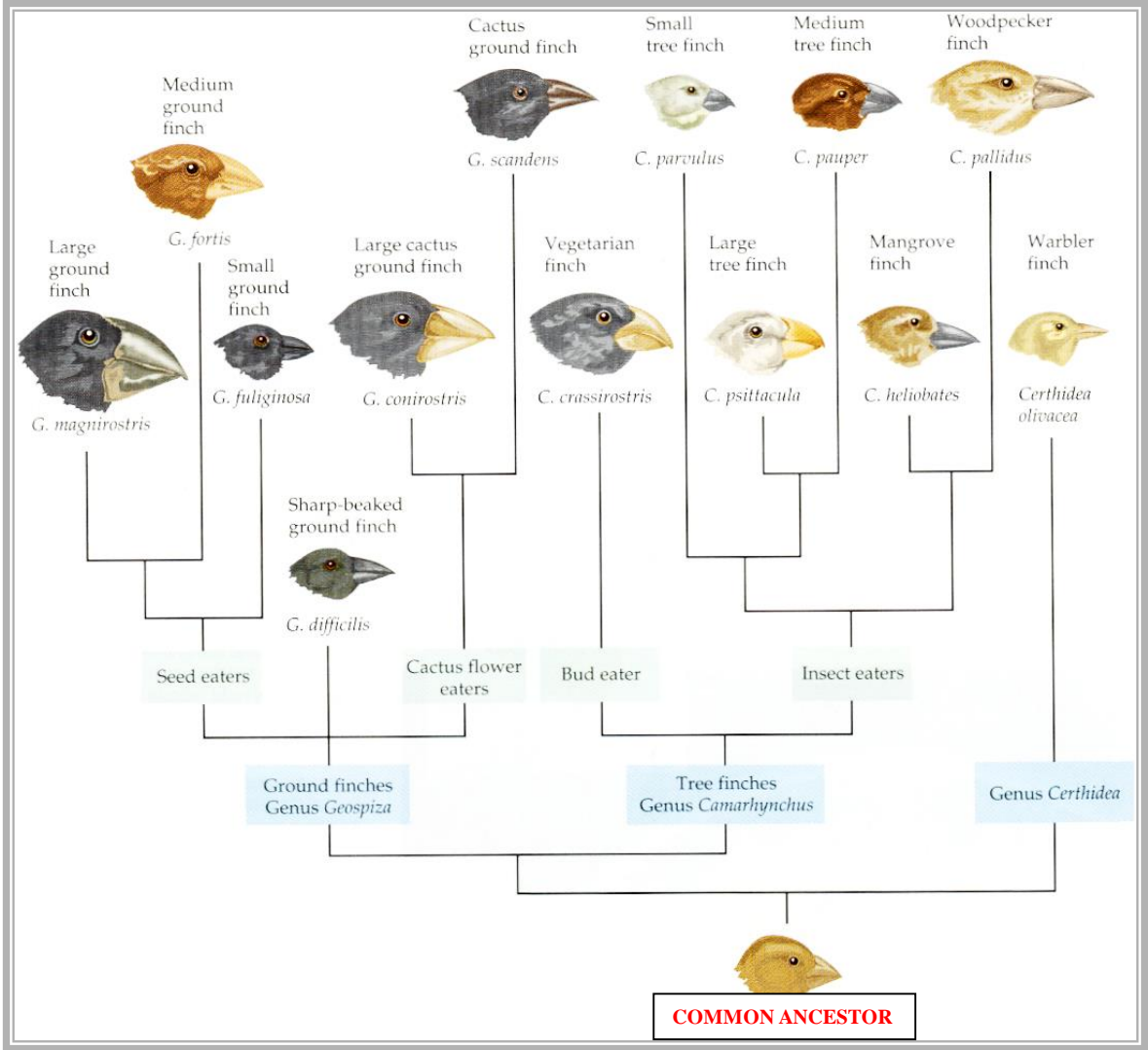
GALAPAGOS ISLANDS



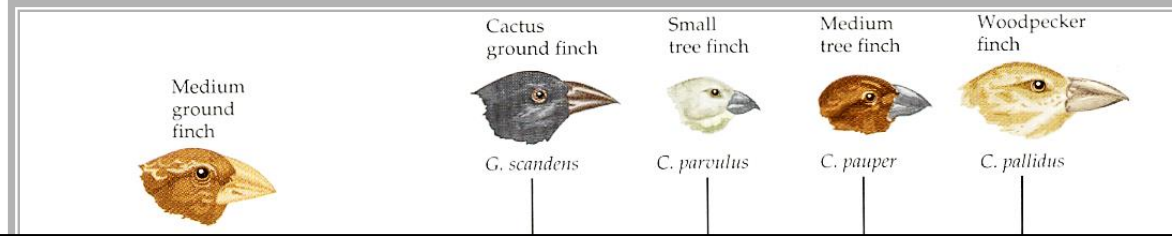
CHARLES DARWIN



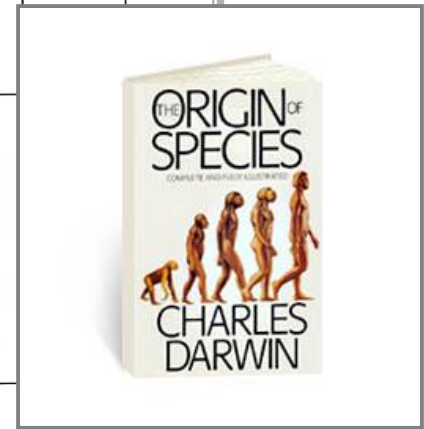
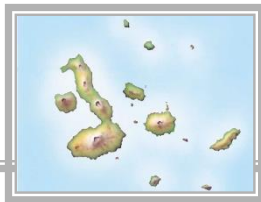
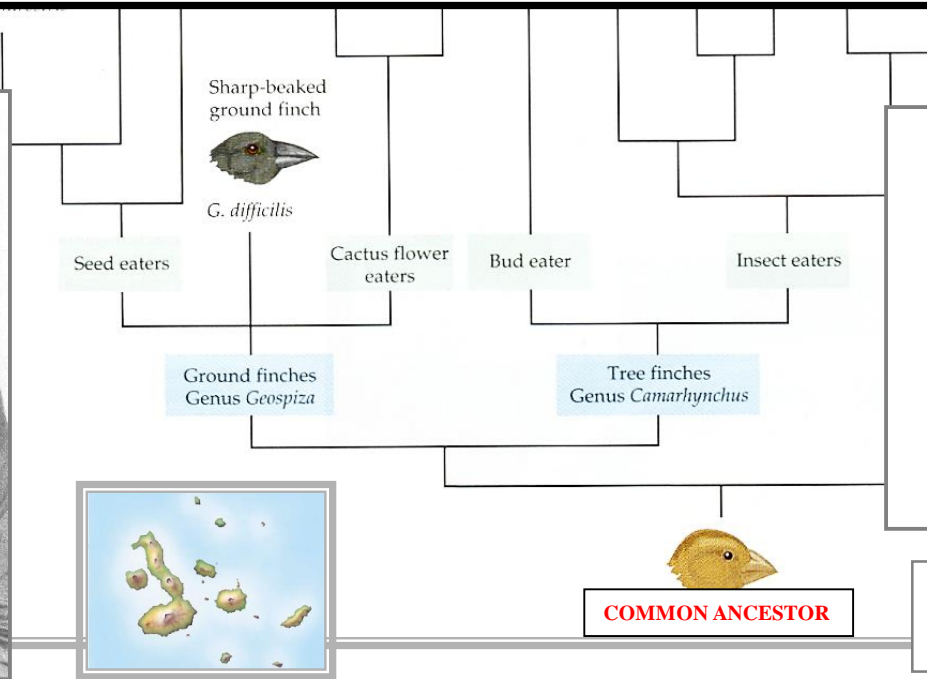
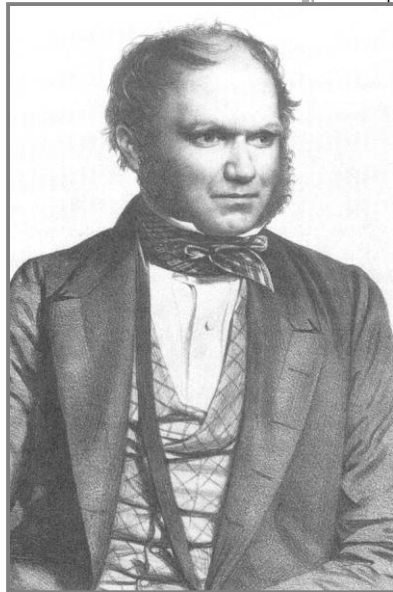
DARWIN'S FINCHES



DARWIN'S FINCHES

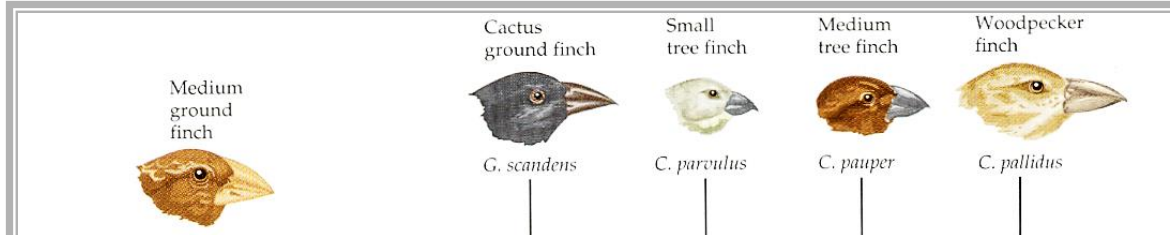


NATURAL SELECTION

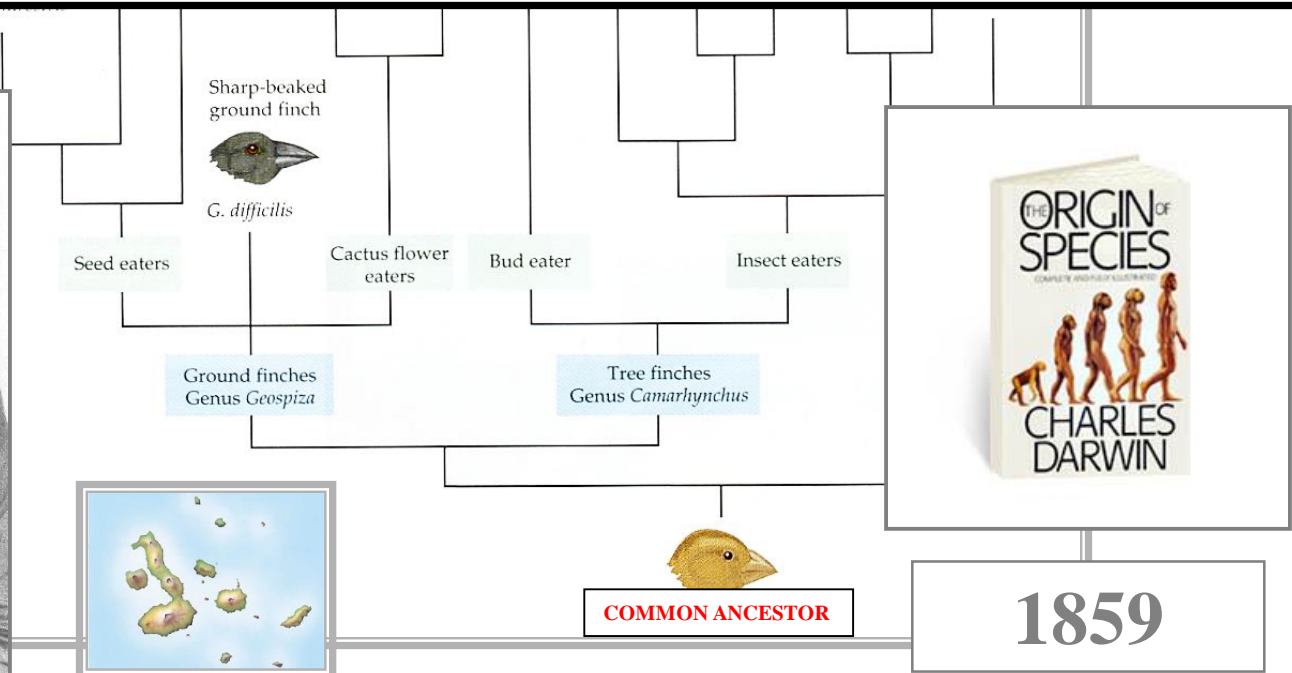
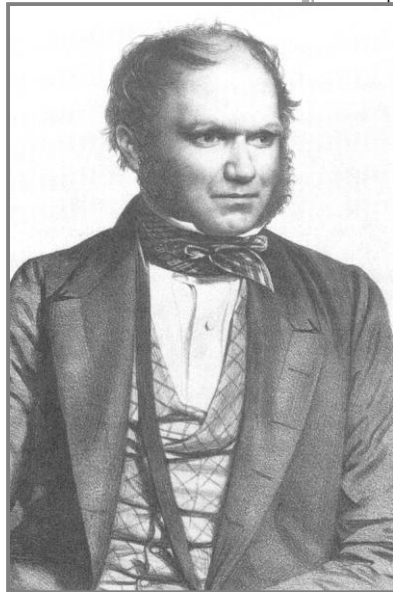


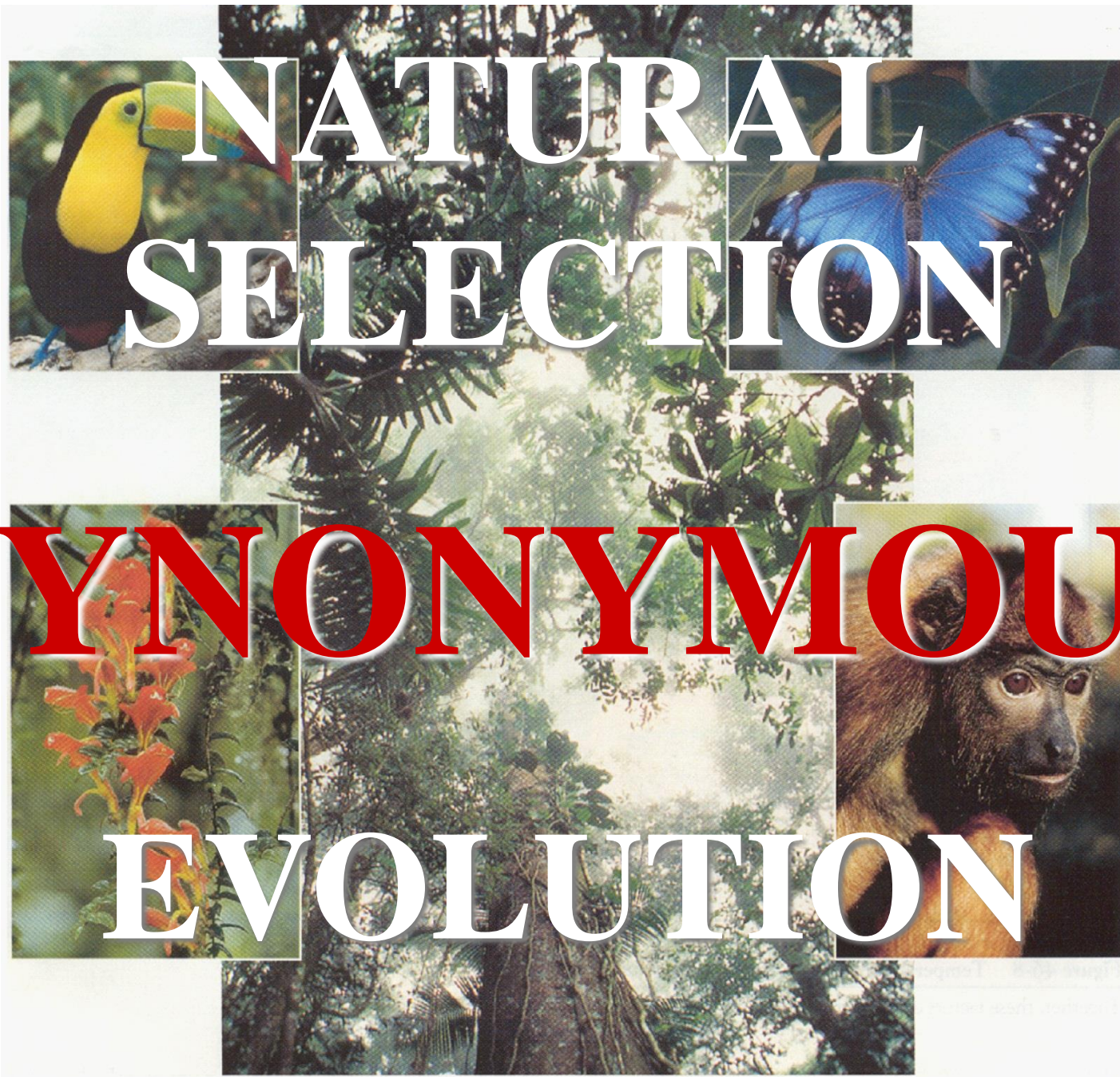
1859

DARWIN'S FINCHES



EVOLUTION





NATURAL
SELECTION

SYNONYMOUS

EVOLUTION

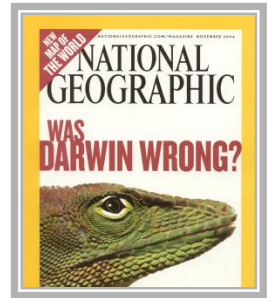
NEW
MAP OF
THE WORLD

NATIONAL GEOGRAPHIC

**WAS
DARWIN WRONG?**



NO.



The evidence for
Evolution is
overwhelming.



EVOLUTION

CORE

UNIFYING CONCEPT

OF

BIOLOGY



NATURAL SELECTION SUMMARY

SUMMARY



EARTH

SUMMARY



EVOLUTION

EARTH

SUMMARY



EVOLUTION

MUTATIONS

EARTH

SUMMARY

S

EVOLUTION

NATURAL SELECTION

EARTH

SUMMARY



EVOLUTION

SPECIATION

EARTH

SUMMARY



EVOLUTION



BIO-DIVERSITY

EARTH



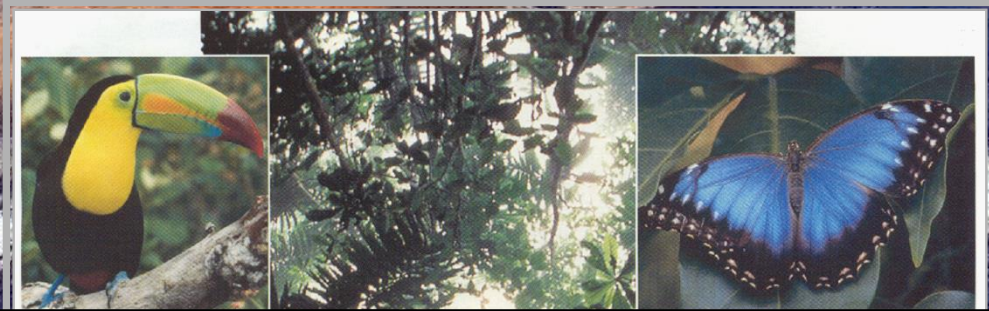
BIO-DIVERSITY



~10 MILLION SPECIES



EARTH



MASS EXTINCTION



EARTH



BD



CURRENT MASS EXTINCTION



BIO-DIVERSITY DISTRIBUTION



EARTH

TROPICAL RAINFORESTS



PE

**BIOLOGICAL
DIVERSITY
DOMINATELY
TROPICAL**



**POPULATION
EXPLOSION
*HOMO SAPIENS***

EARTH

HOMO SAPIENS POPULATION EXPLOSION



HOMO SAPIENS POPULATION EXPLOSION

1960



HOMO SAPIENS POPULATION EXPLOSION



1960

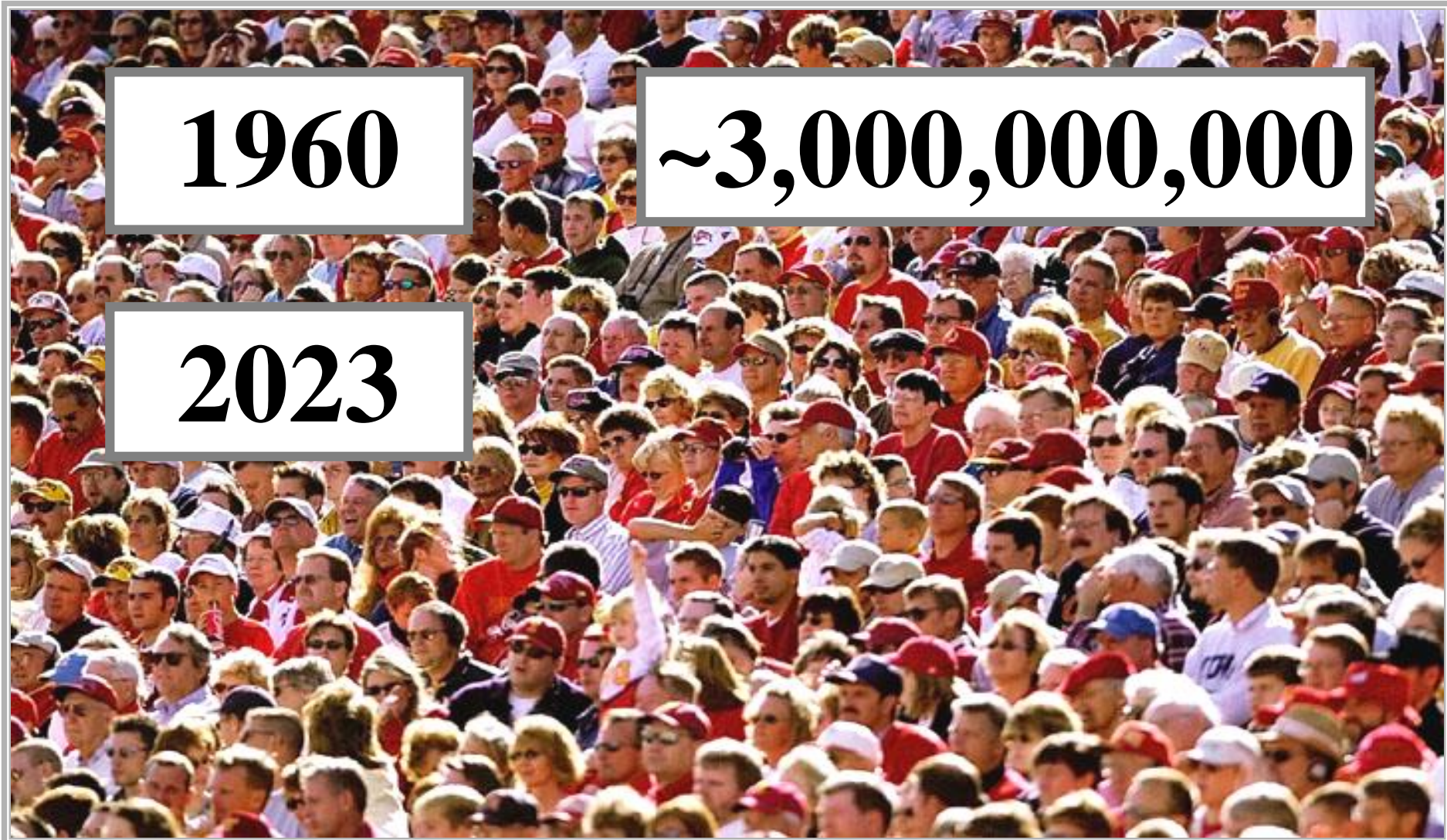
~3,000,000,000

HOMO SAPIENS POPULATION EXPLOSION

1960

~3,000,000,000

2023



HOMO SAPIENS POPULATION EXPLOSION



1960

~3,000,000,000

2023

~8,000,000,000

HOMO SAPIENS POPULATION EXPLOSION

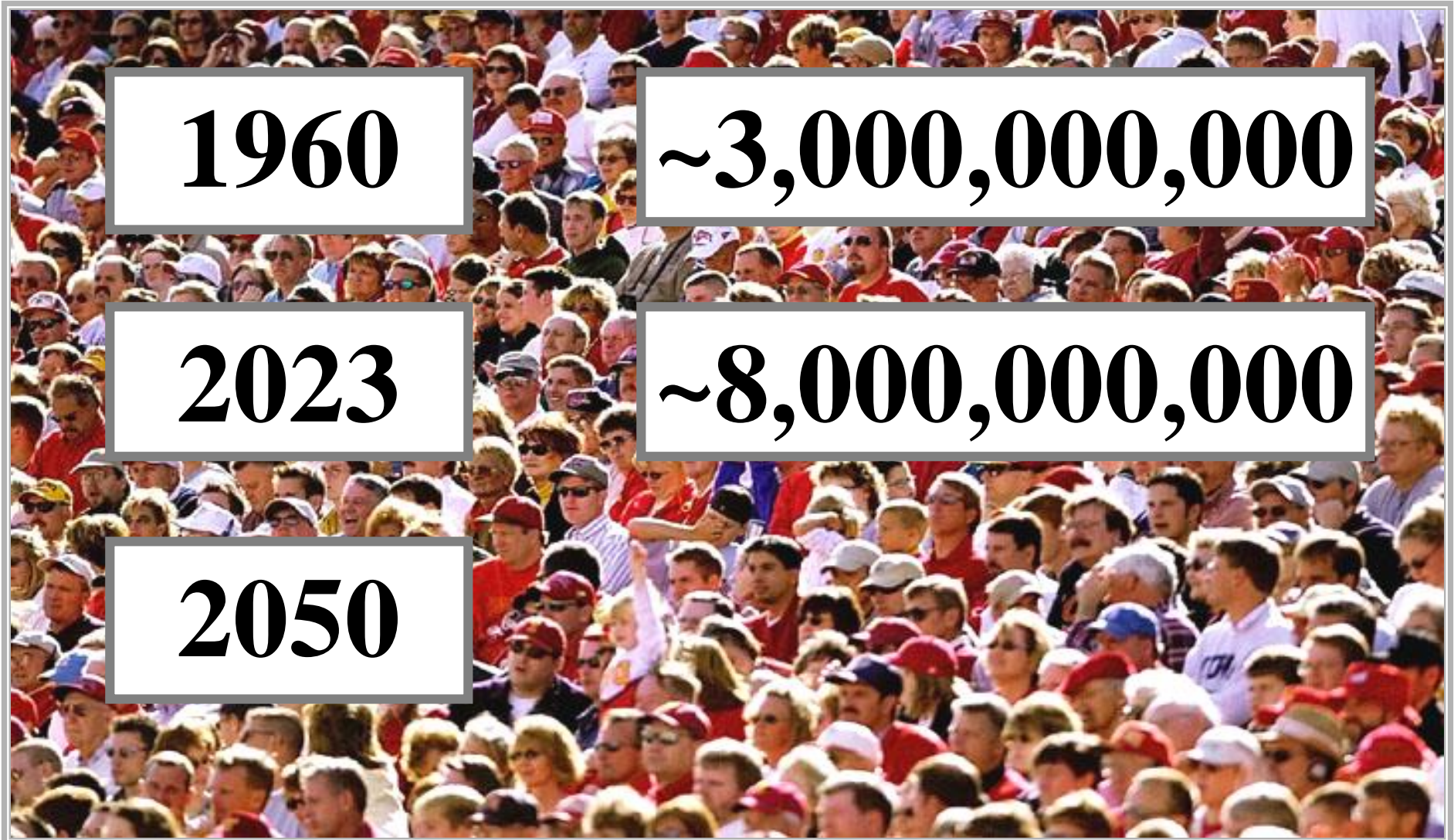
1960

~3,000,000,000

2023

~8,000,000,000

2050



HOMO SAPIENS POPULATION EXPLOSION



PE

1960

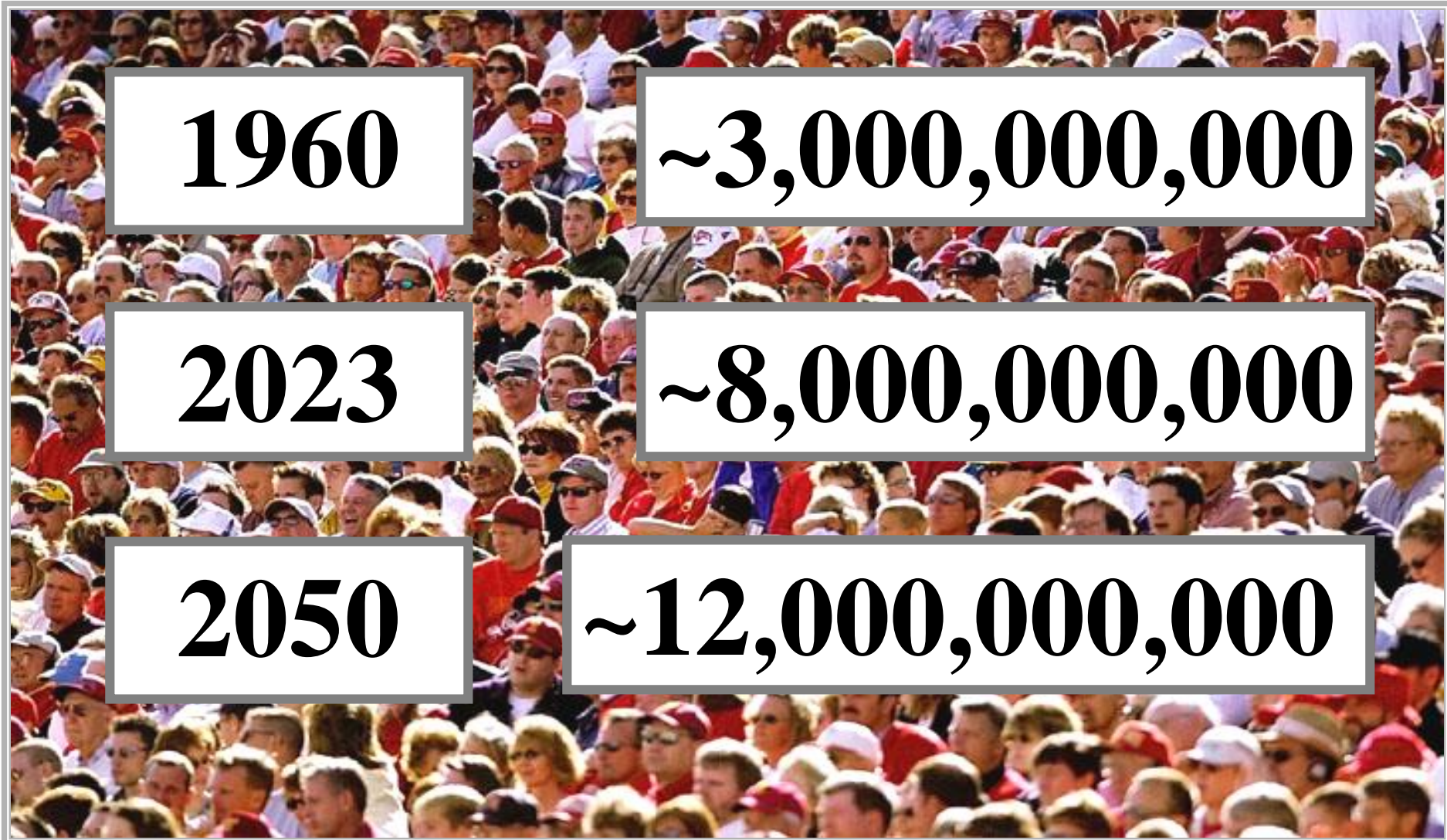
~3,000,000,000

2023

~8,000,000,000

2050

~12,000,000,000



**HUMAN
POPULATION
EXPLOSION**
HOMO SAPIENS

EARTH

RESOURCE EXPLOITATION

EARTH



C

!

HABITAT DESTRUCTION

EARTH



**RESOURCE
EXPLOITATION**

!!!COUPLED!!!

**HABITAT
DESTRUCTION**

EARTH

**TROPICAL RAINFOREST
HABITAT DESTRUCTION
SLASH & BURN FARMING**

EX



**SLASH & BURN
FARMING**

**HABITAT
DESTRUCTION**

TROPICAL RAINFOREST HABITAT DESTRUCTION SLASH & BURN FARMING

EXTINCTION

Record Number Of Wildfires Burning In The Amazon
Number of wildfires recorded in Brazil by year*



ME

**~20 SPECIES / DAY
BECOME EXTINCT**

EARTH



MASS EXTINCTION



EARTH



the current mass extinction

This web site was featured in
NATURAL HISTORY MAGAZINE

NATURAL
HISTORY

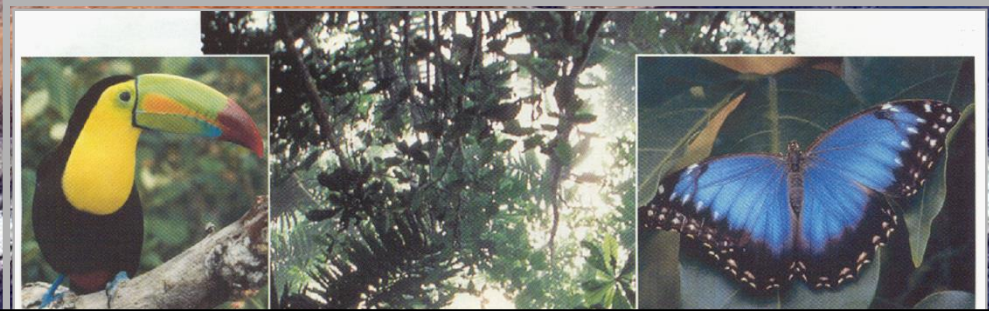
S ME

MASS EXTINCTION UNDERWAY

THE CURRENT MASS EXTINCTION:

HUMAN BEINGS ARE CURRENTLY CAUSING THE GREATEST MASS EXTINCTION OF SPECIES SINCE THE EXTINCTION OF THE DINOSAURS 65 MILLION YEARS AGO.

IF PRESENT TRENDS CONTINUE ONE HALF OF ALL SPECIES ON EARTH WILL BE EXTINCT IN 100 YEARS.



MASS EXTINCTION



EARTH



QUESTION

HABITAT DESTRUCTION

WHY SHOULD YOU CARE?

QUESTION



CLIMATE CHANGE



GREENHOUSE EFFECT

TROPICAL RAINFOREST

A wide-angle photograph of a tropical rainforest. The scene is dominated by dense, vibrant green foliage. In the center, a river flows through the forest, its surface reflecting the surrounding trees. The lighting is soft, suggesting a misty or early morning atmosphere. The overall impression is one of a healthy, thriving ecosystem.

HEALTHY FORESTS

TROPICAL RAINFOREST



PHOTOSYNTHESIS

PHOTOSYNTHESIS



D
C

WATER

CO₂

LIGHT ENERGY

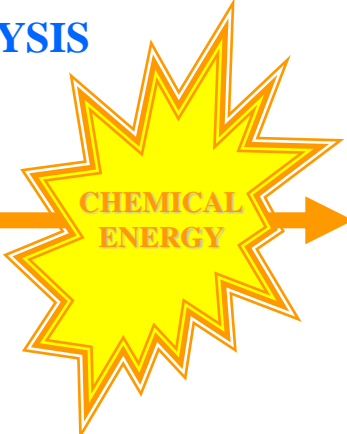
PHOTO

ATMOSPHERE

E- PHOTOLYSIS



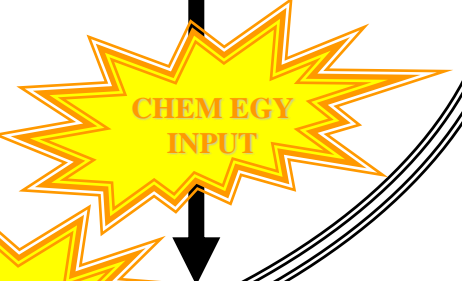
LT RXT
THYLAKOID



DK RXT
STROMA

CHLOROPLAST

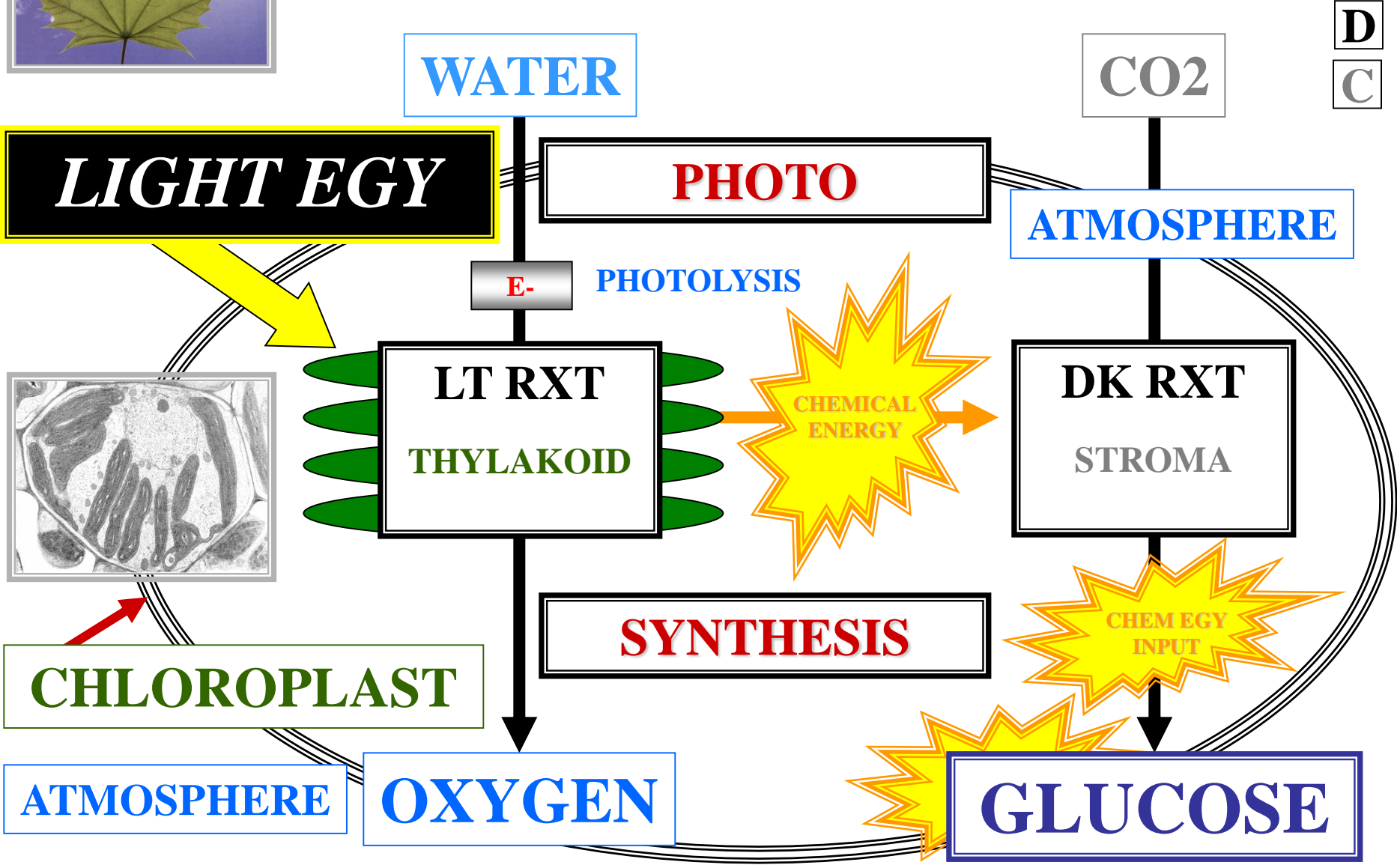
SYNTHESIS



ATMOSPHERE

OXYGEN

GLUCOSE



TROPICAL RAINFOREST

A large, detailed photograph of a tropical rainforest. The scene is dominated by lush green trees and dense vegetation. A river flows through the center of the forest, reflecting the surrounding greenery. The lighting is bright, suggesting a sunny day, with some mist or haze in the background.

PHOTOSYNTHESIS

ATMOSPHERIC CO₂ DECREASES

**TROPICAL RAINFOREST
HABITAT DESTRUCTION
SLASH & BURN FARMING**

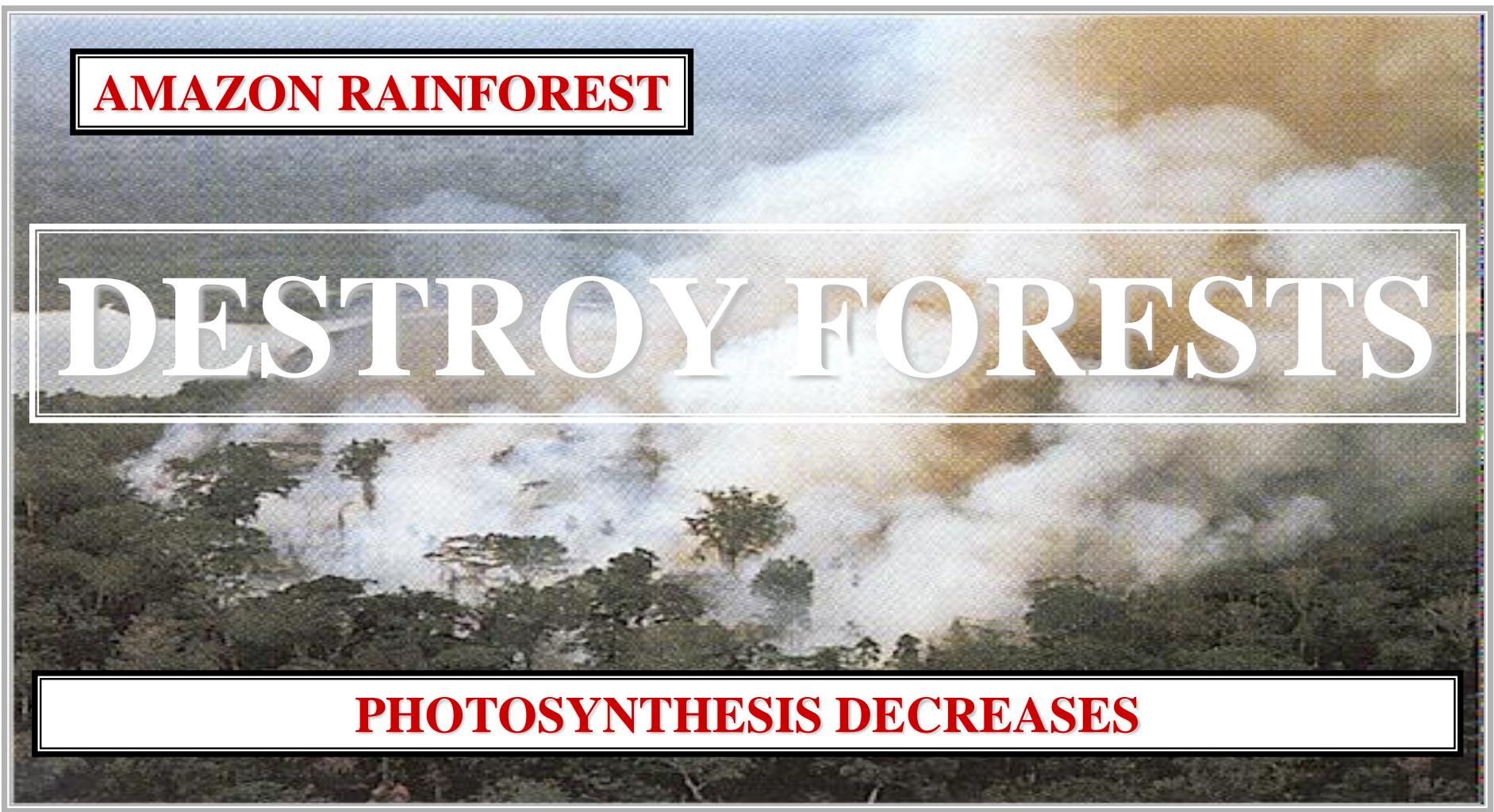
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AMAZON RAINFOREST

DESTROY FORESTS

PHOTOSYNTHESIS DECREASES



**TROPICAL RAINFOREST
HABITAT DESTRUCTION
SLASH & BURN FARMING**



AMAZON RAINFOREST

DESTROY FORESTS

PHOTOSYNTHESIS DECREASES

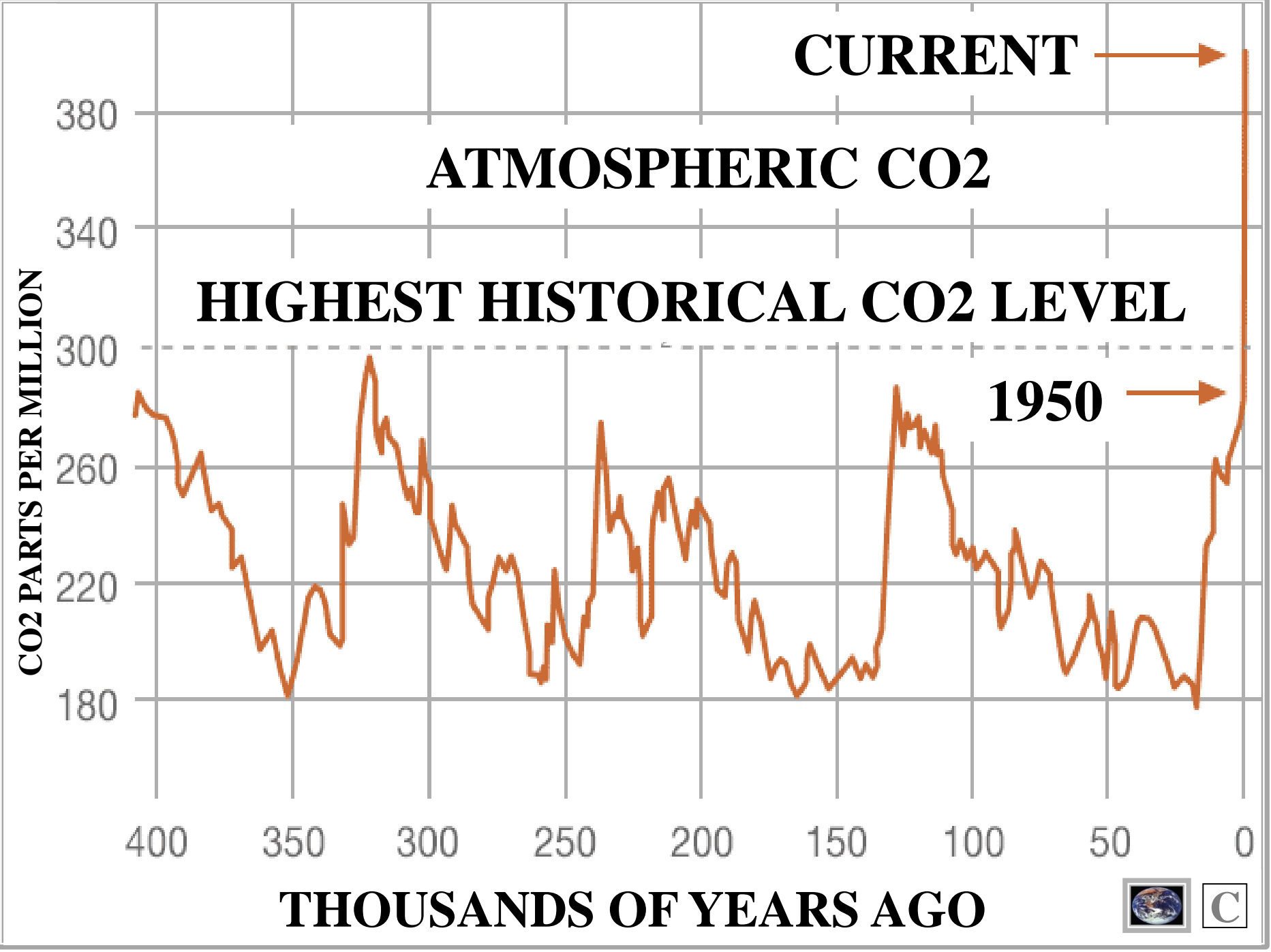
ATMOSPHERIC CO₂ INCREASES

INDUSTRIAL POLLUTION



FOSSIL FUELS

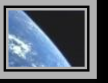
ATMOSPHERIC CO₂ INCREASES



“G

CO₂
“GREENHOUSE”
GAS

EARTH



“GREENHOUSE” EFFECT

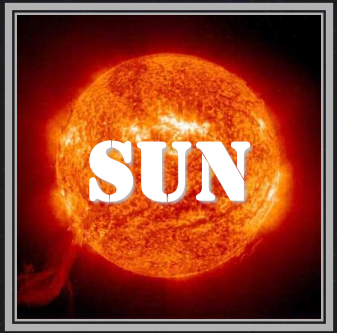
EARTH



“GREENHOUSE” EFFECT

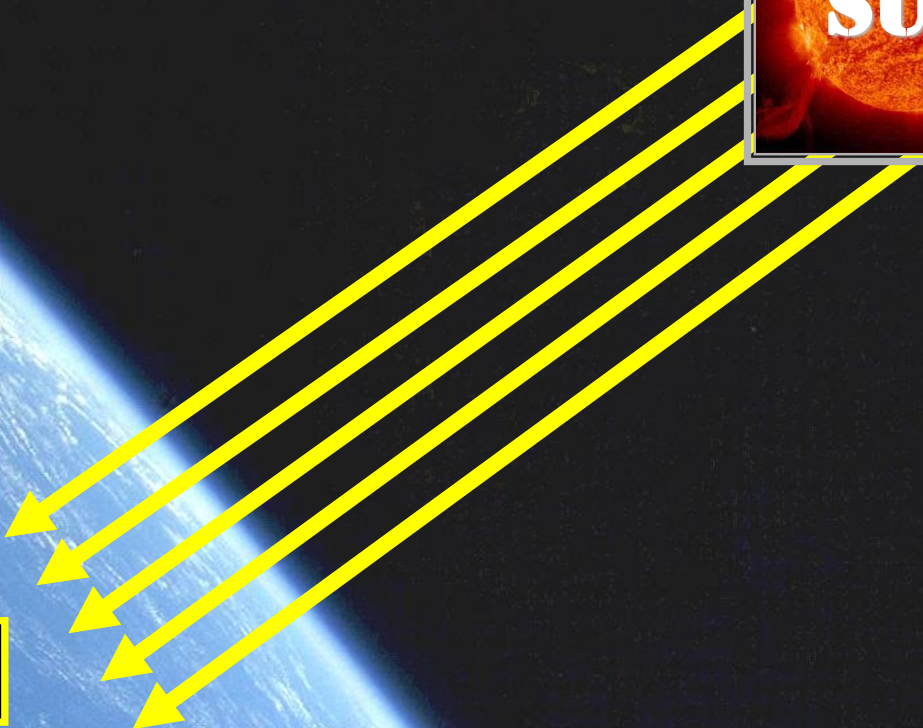
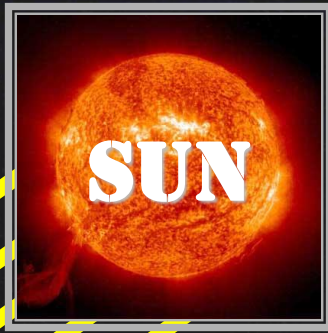
EARTH

L



EARTH

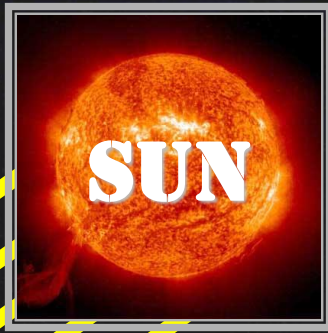
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LIGHT ENERGY

EARTH

D

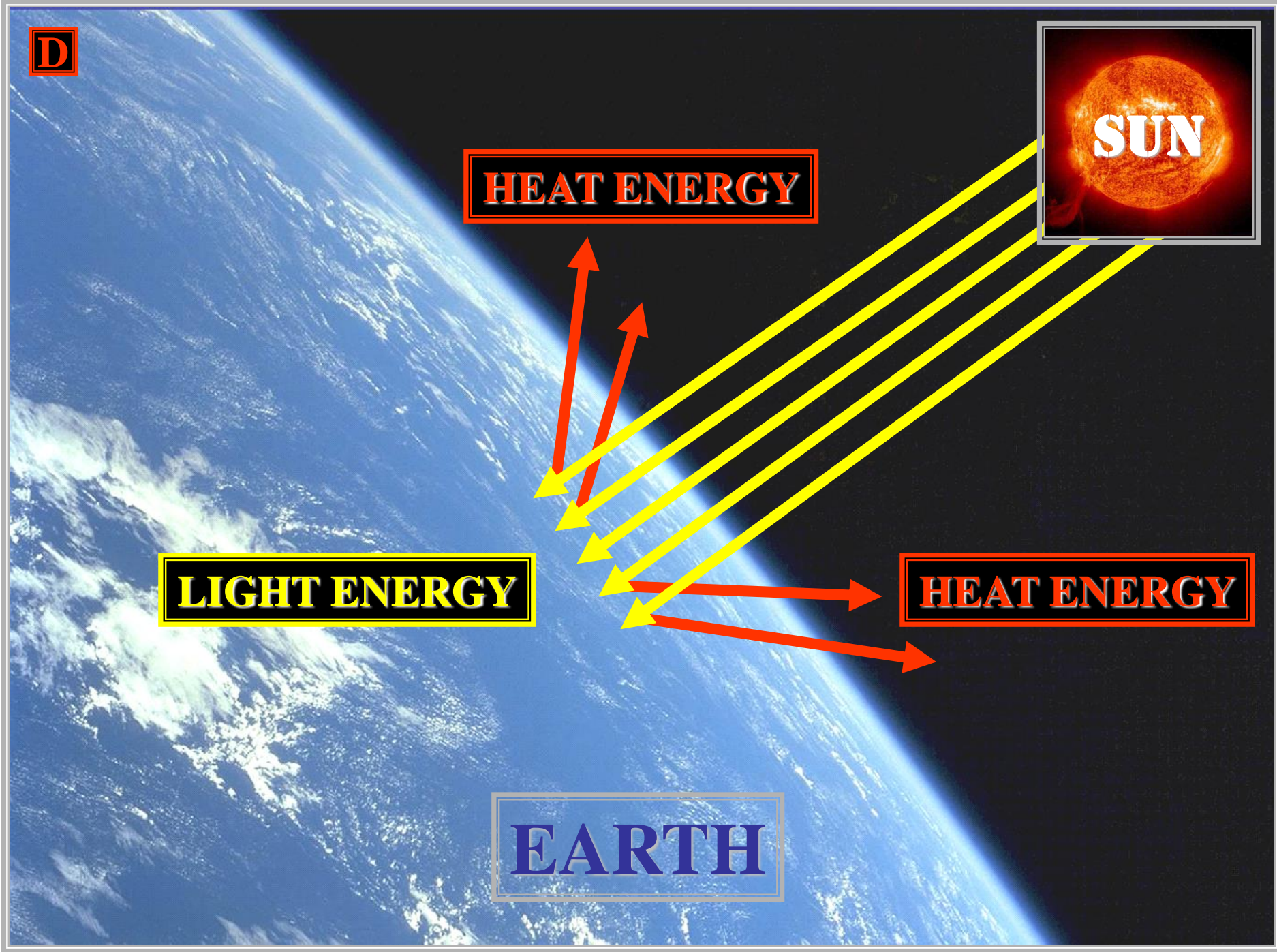


HEAT ENERGY

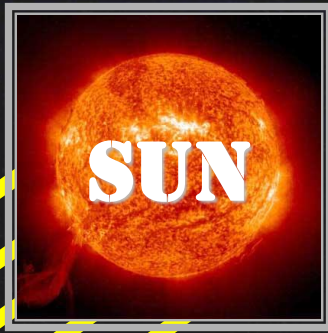
LIGHT ENERGY

HEAT ENERGY

EARTH



C



DISSIPATES

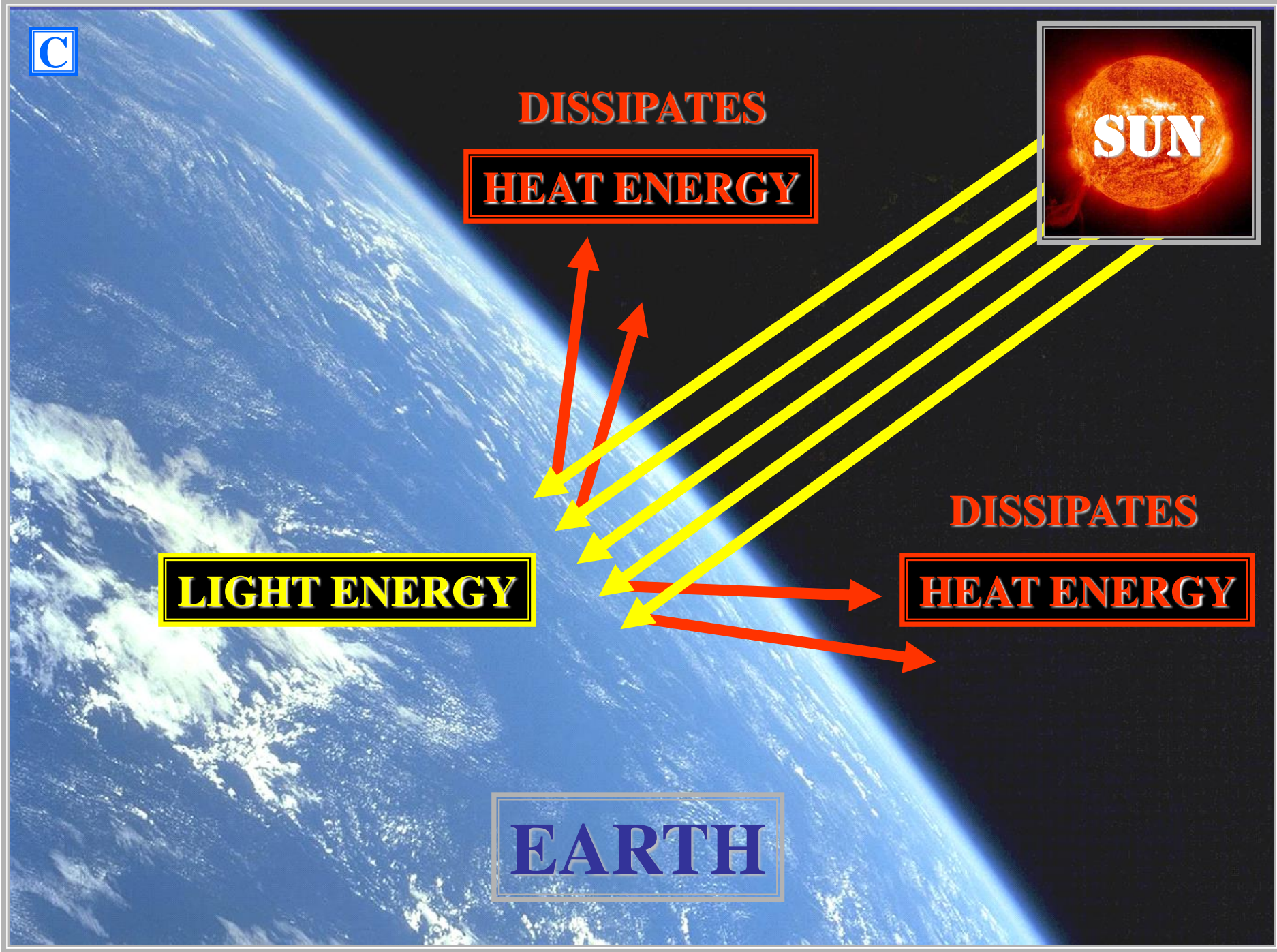
HEAT ENERGY

DISSIPATES

HEAT ENERGY

LIGHT ENERGY

EARTH





DISSIPATES

HEAT ENERGY

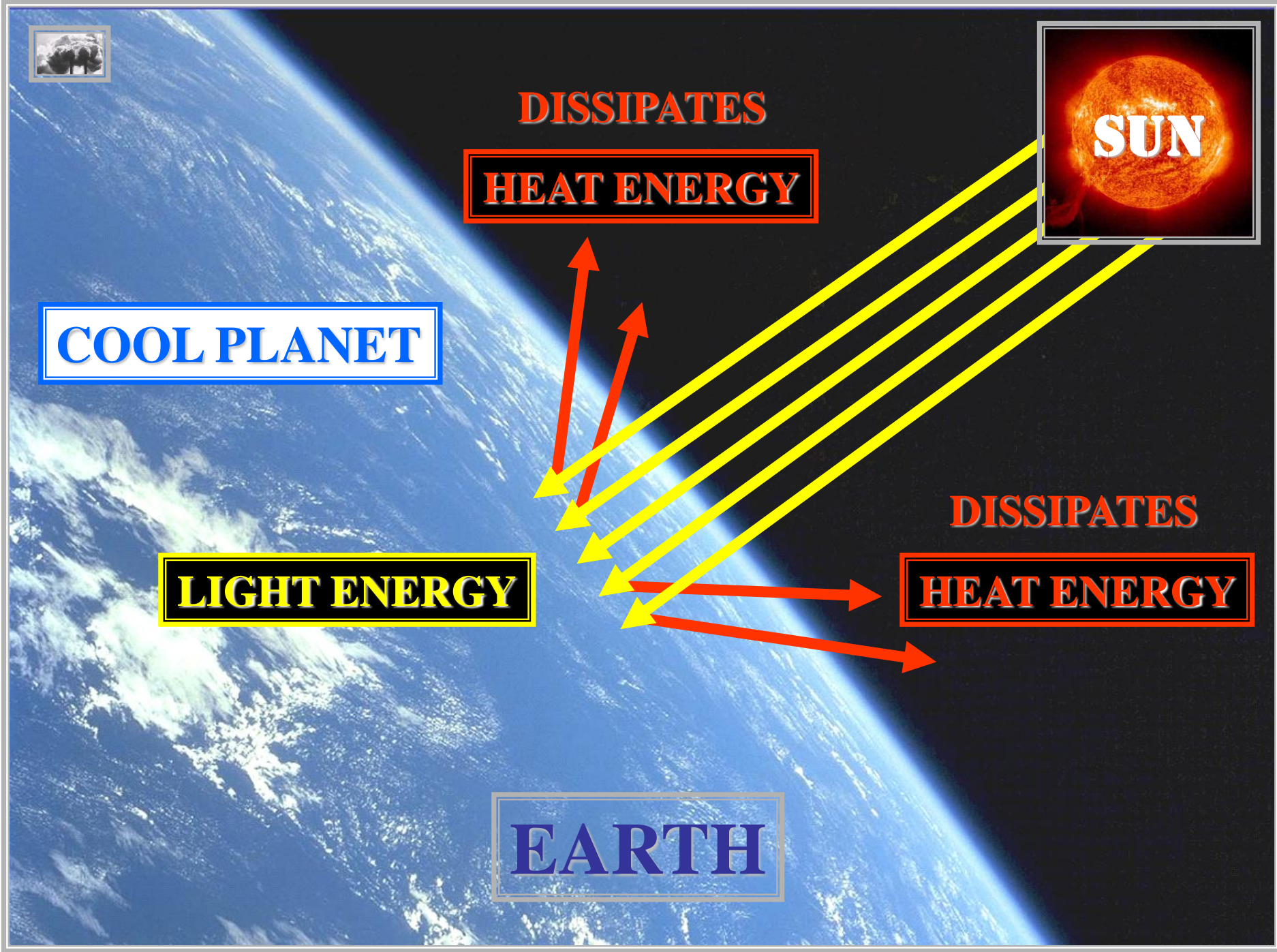
COOL PLANET

LIGHT ENERGY

DISSIPATES

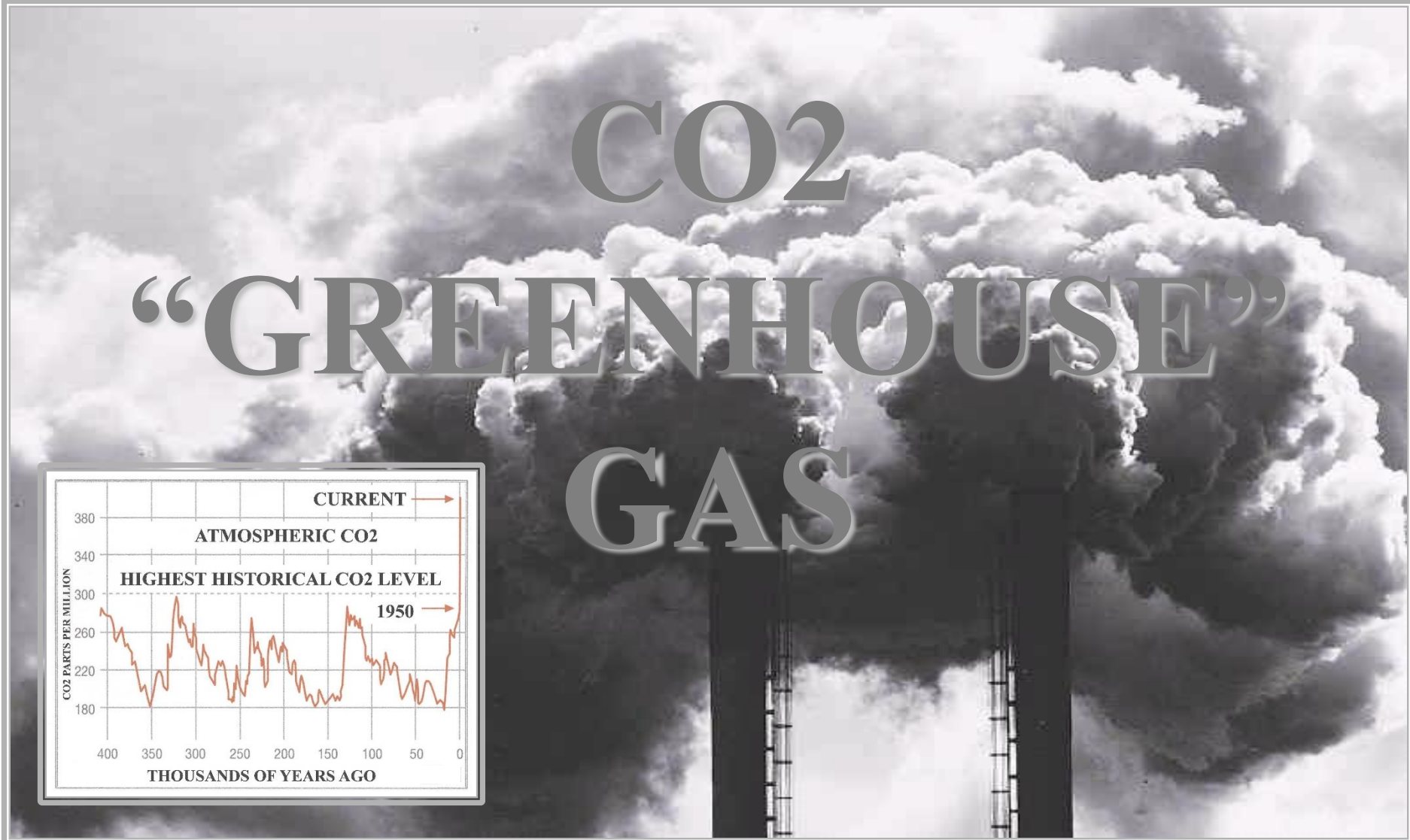
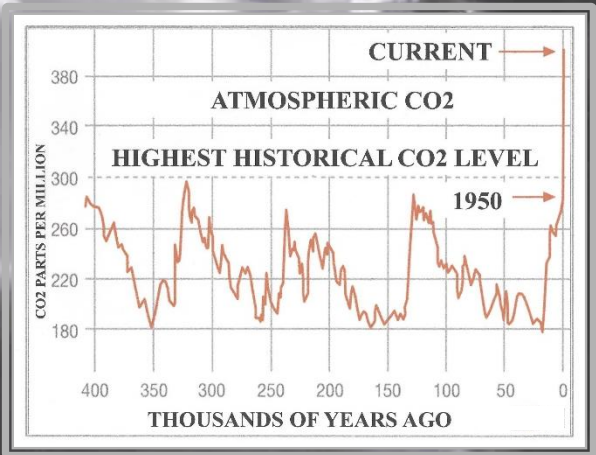
HEAT ENERGY

EARTH

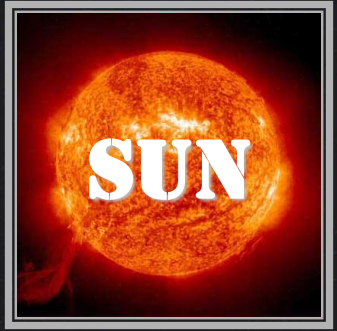


INDUSTRIAL POLLUTION INCREASES ATMOSPHERIC CO2

CO2
“GREENHOUSE”
GAS

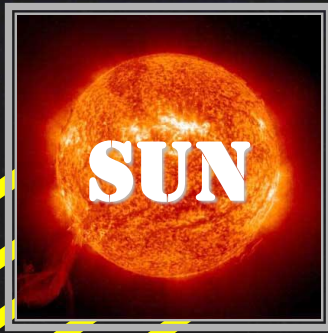


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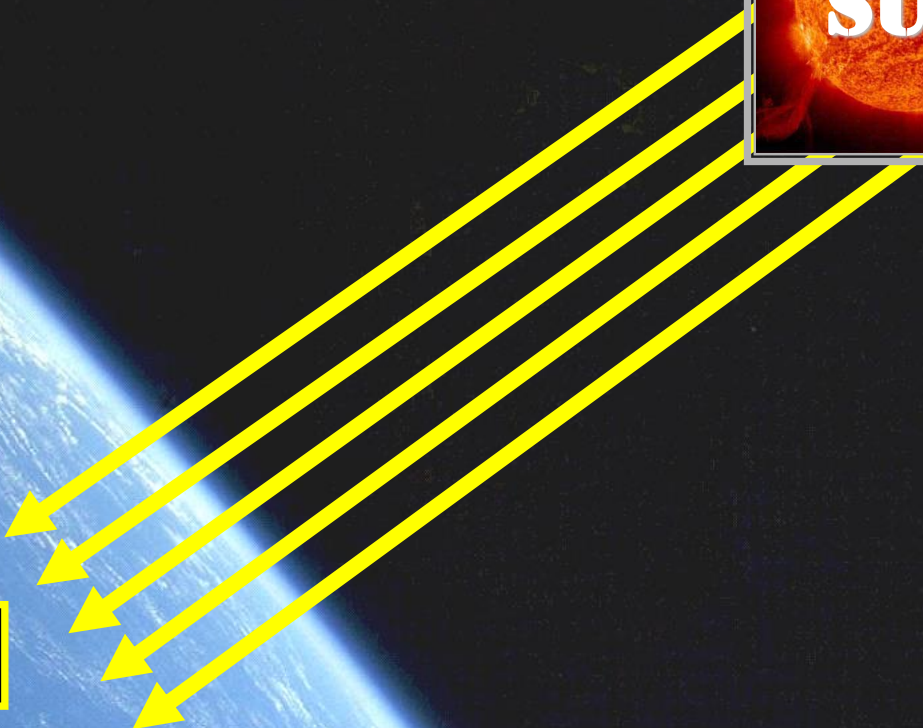


“GREENHOUSE” EFFECT

H

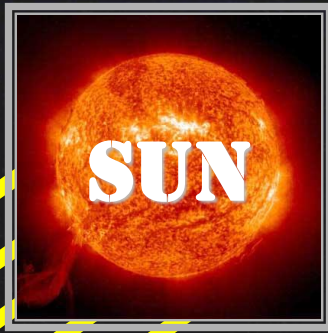


LIGHT ENERGY



“GREENHOUSE” EFFECT

C



DISSIPATES

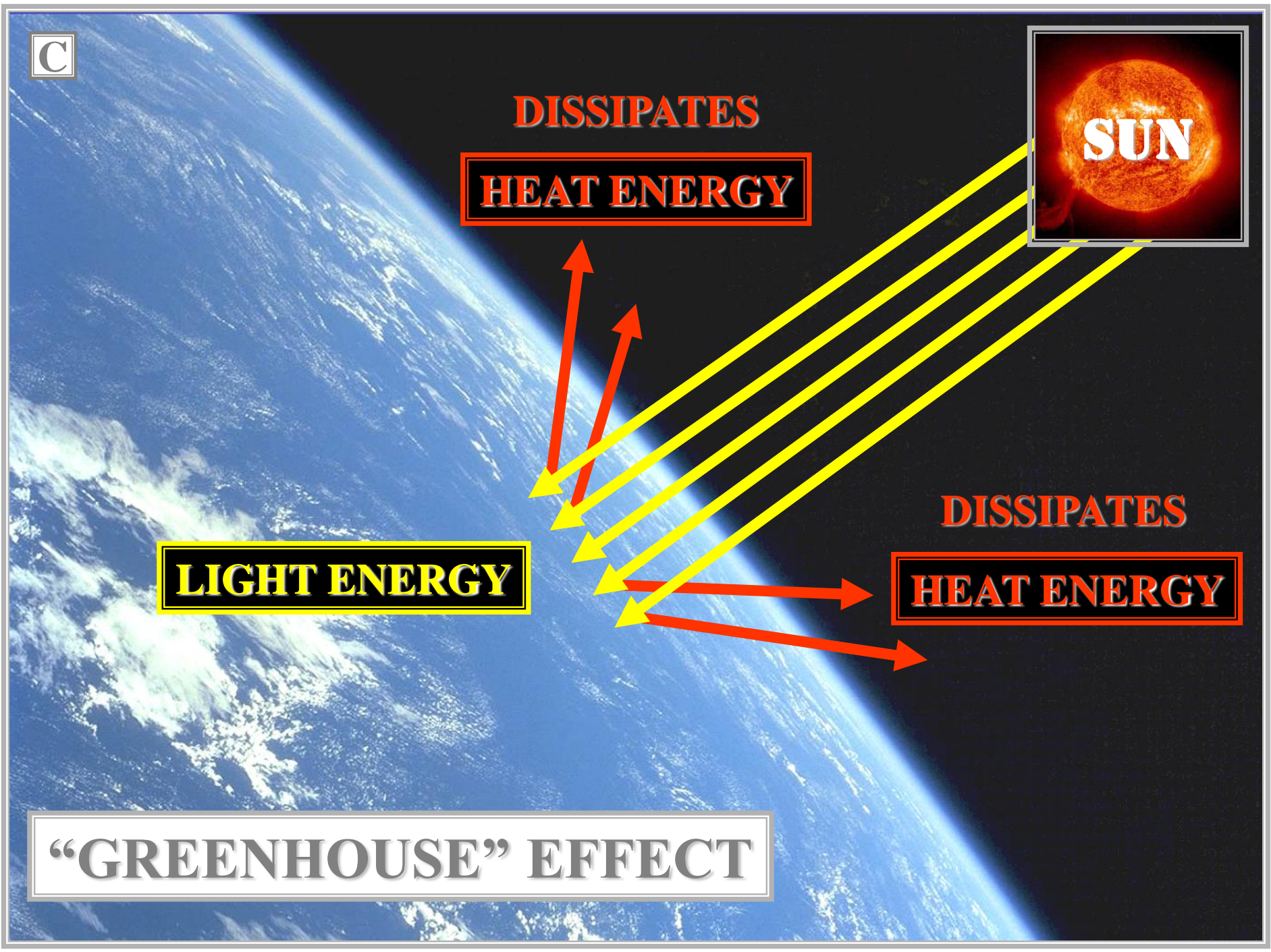
HEAT ENERGY

LIGHT ENERGY

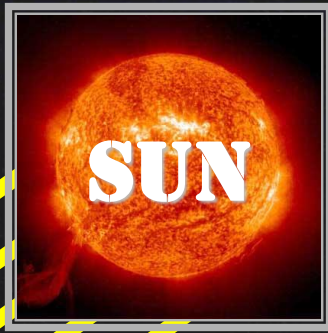
DISSIPATES

HEAT ENERGY

“GREENHOUSE” EFFECT



H



“GREENHOUSE”
GASES

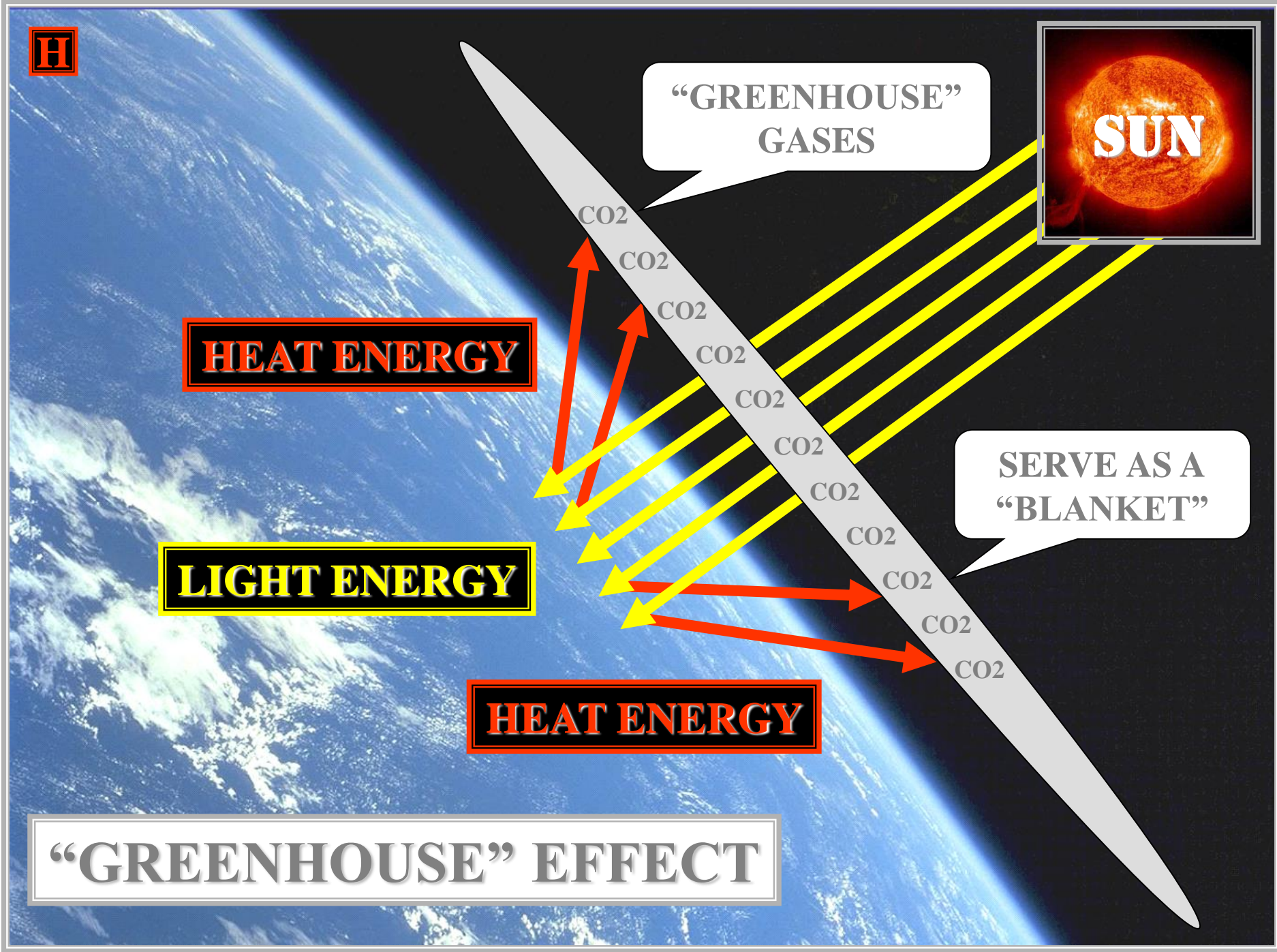
HEAT ENERGY

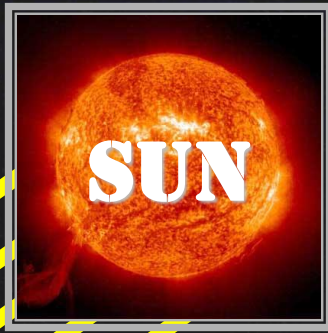
LIGHT ENERGY

SERVE AS A
“BLANKET”

HEAT ENERGY

“GREENHOUSE” EFFECT





“GREENHOUSE”
GASES

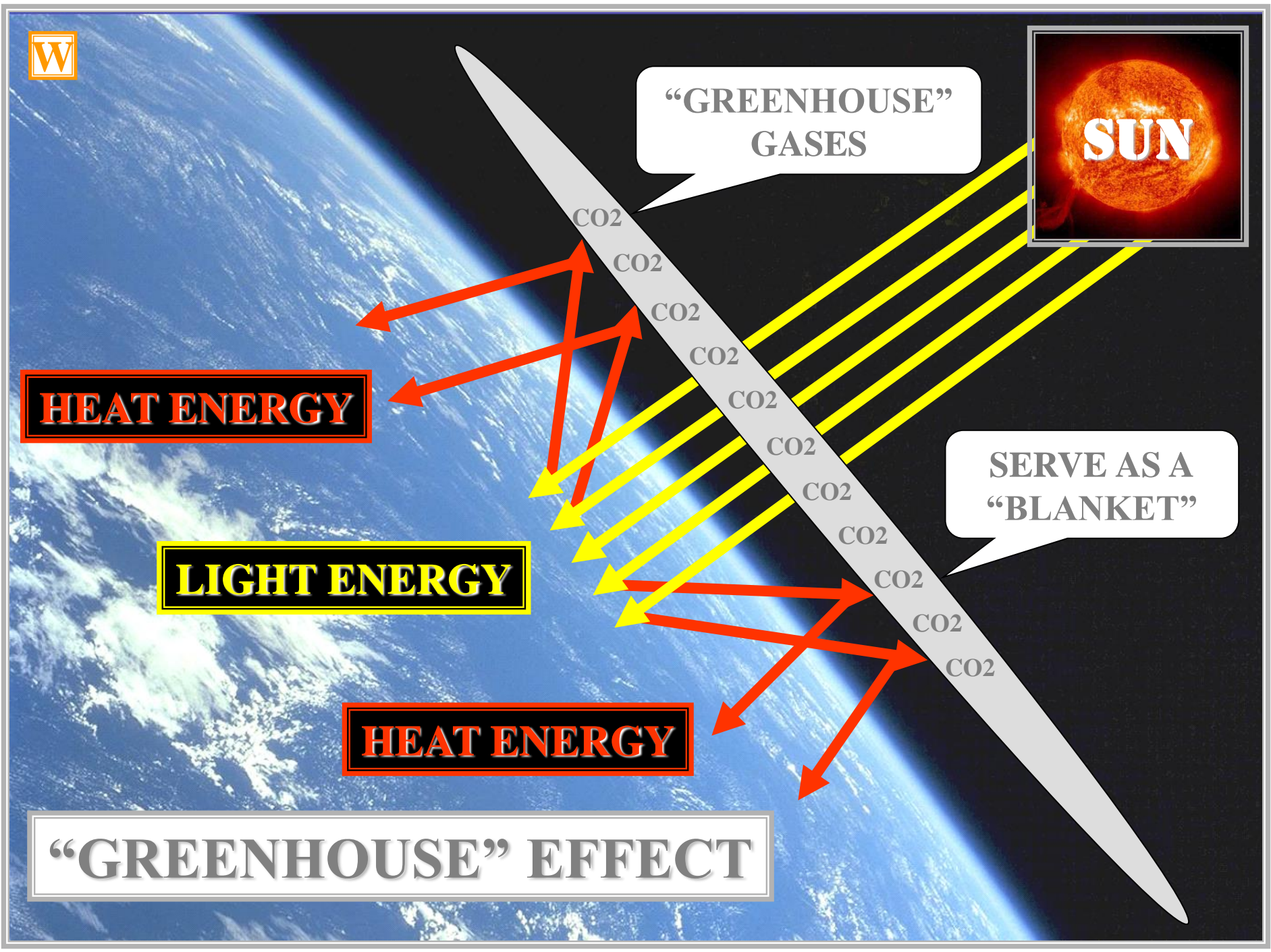
SERVE AS A
“BLANKET”

HEAT ENERGY

LIGHT ENERGY

HEAT ENERGY

“GREENHOUSE” EFFECT



GW

WARMER PLANET

HEAT ENERGY

LIGHT ENERGY

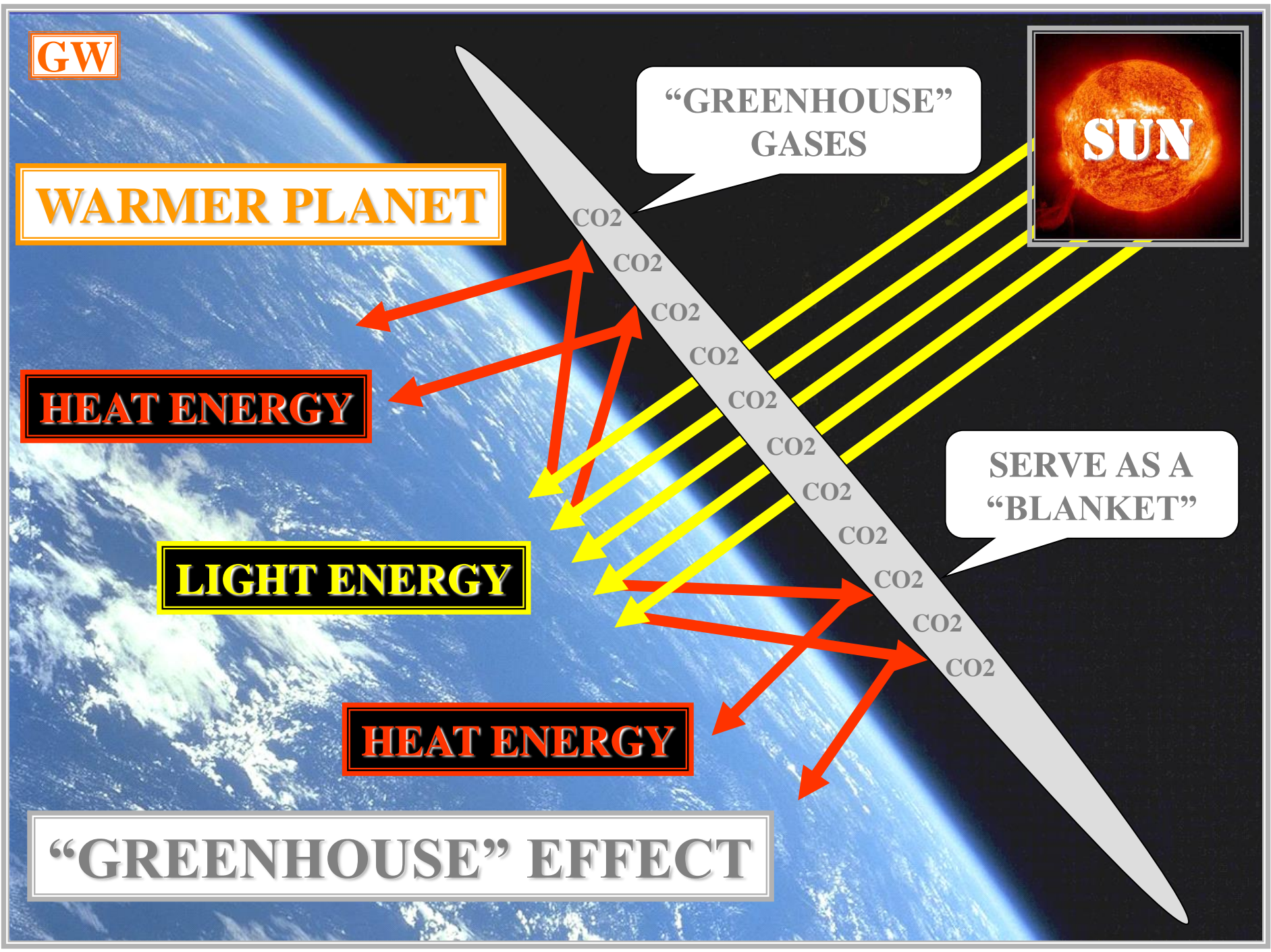
HEAT ENERGY

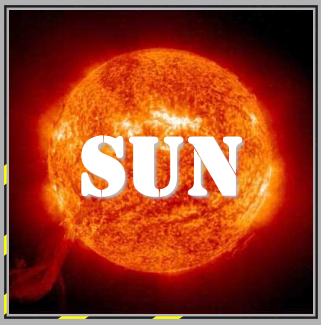
“GREENHOUSE” EFFECT

**“GREENHOUSE”
GASES**

SUN

**SERVE AS A
“BLANKET”**





“GREENHOUSE”
GASES

WARMER PLANET

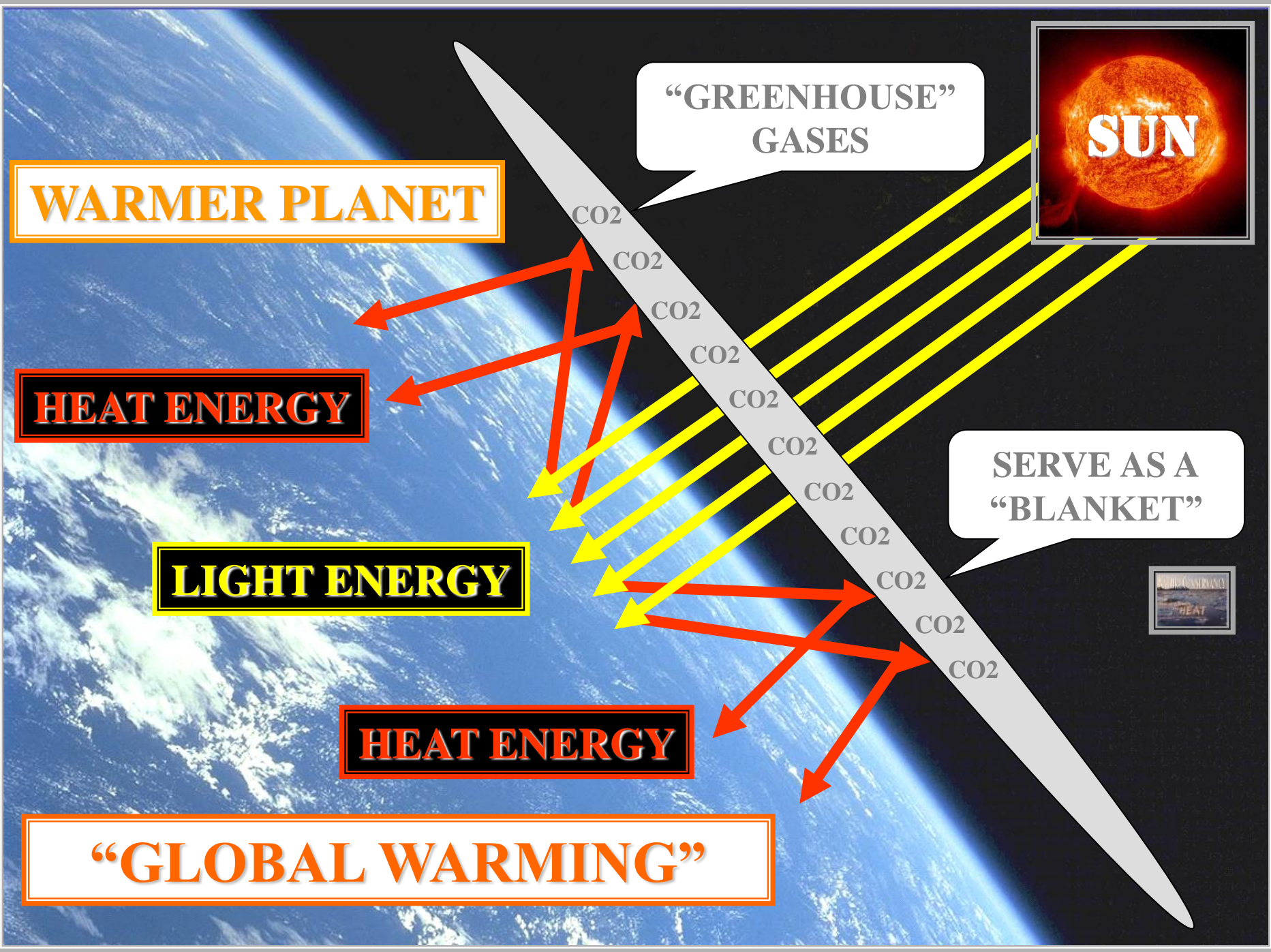
HEAT ENERGY

LIGHT ENERGY

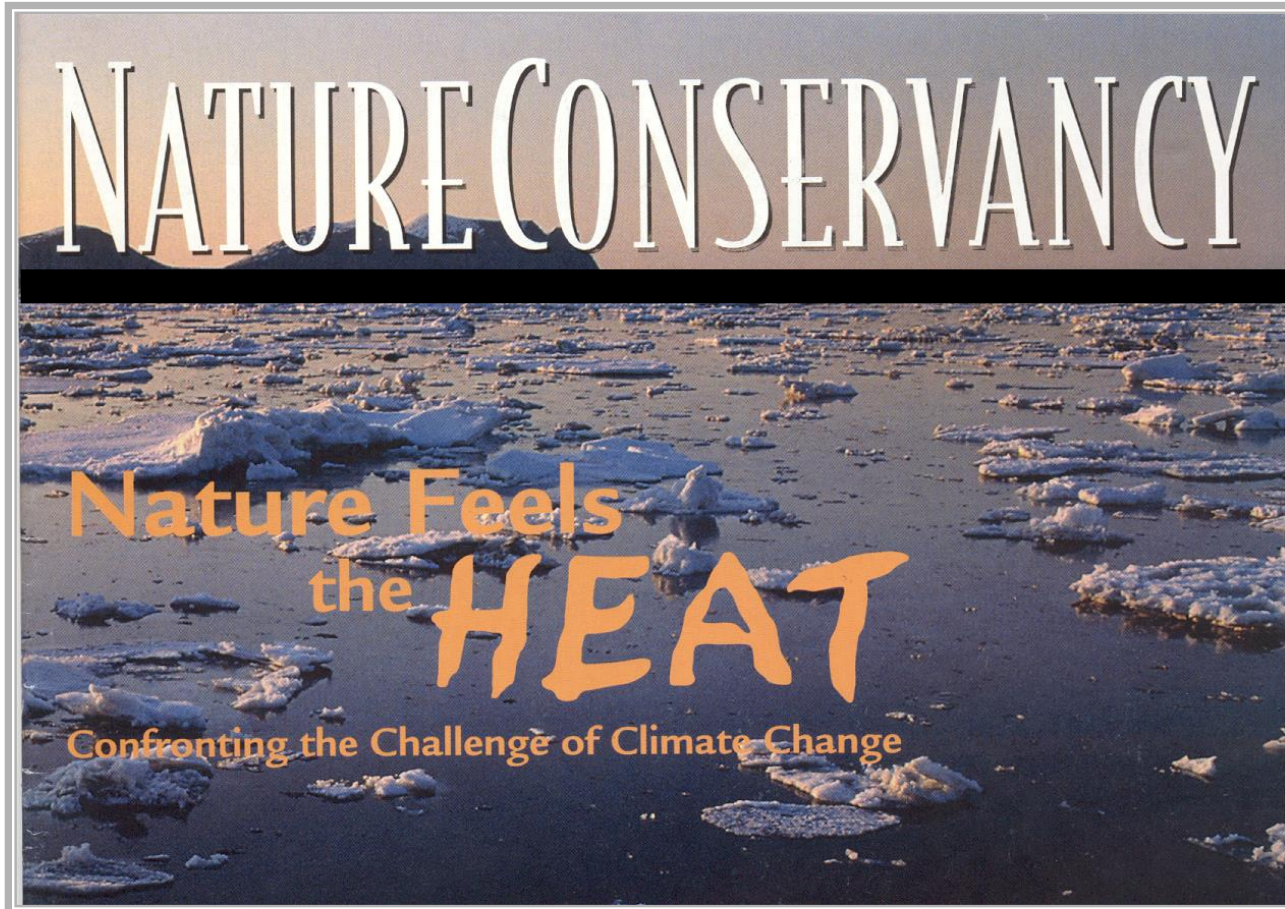
HEAT ENERGY

“GLOBAL WARMING”

SERVE AS A
“BLANKET”

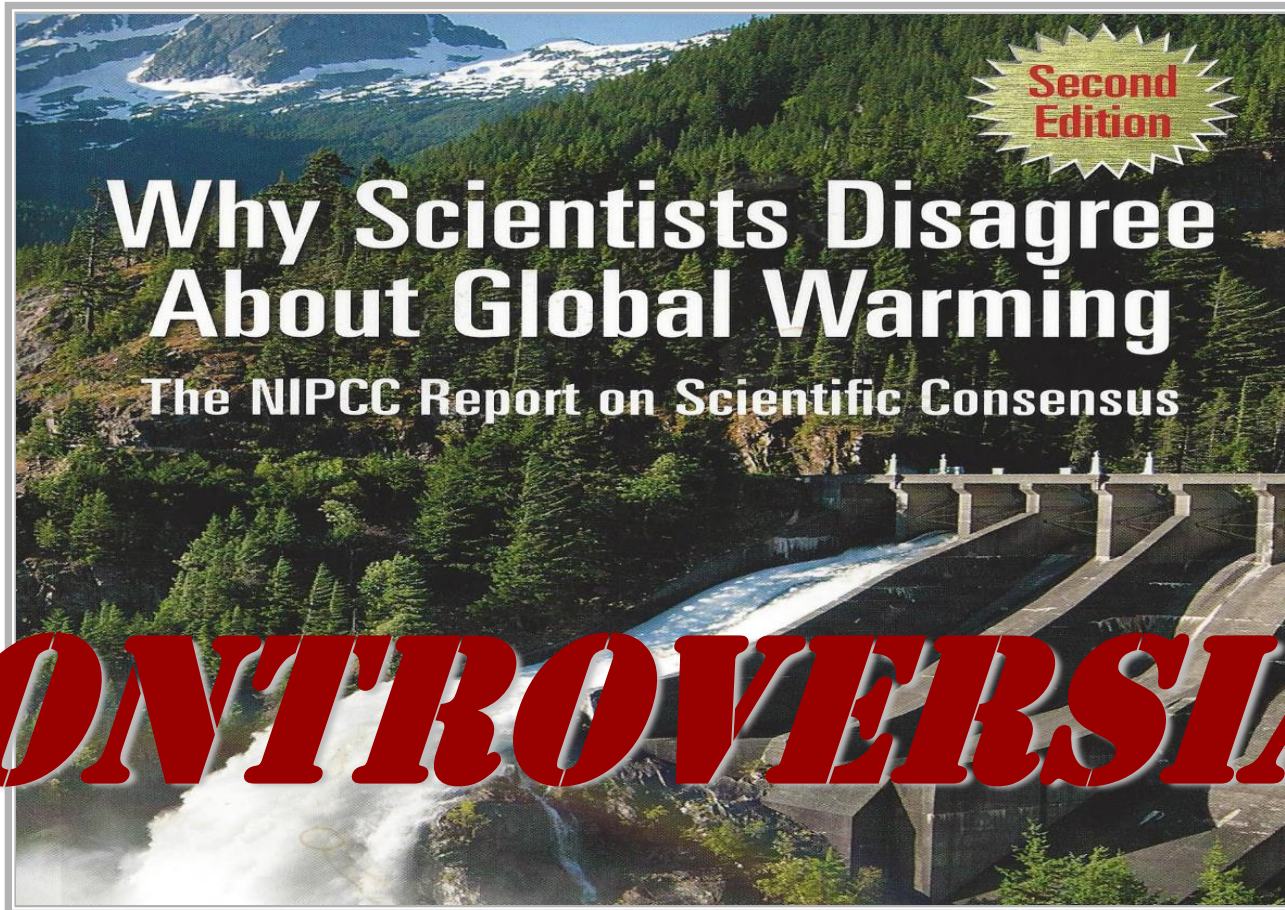


“GLOBAL WARMING” CONSENSUS EMERGES



**MANY SCIENTISTS ARE BEGINNING TO SEE
CONNECTIONS BETWEEN GLOBAL WEATHER PATTERNS
AND THE EARTH'S HUMAN POPULATION**

**“GLOBAL WARMING”
CONSENSUS EMERGES**



CONTROVERSIAL

**MANY SCIENTISTS ARE BEGINNING TO SEE
CONNECTIONS BETWEEN GLOBAL WEATHER PATTERNS
AND THE EARTH'S HUMAN POPULATION**



GLOBAL WARMING CONSEQUENCES

POLAR MELTDOWN

NATIONAL GEOGRAPHIC CHANNEL'S MOST AMAZING DISCOVERIES, SEPT. 6-10 AT 9 P.M. ET/PT



NATIONAL GEOGRAPHIC GLOBAL WARNING

BULLETINS FROM A WARMER WORLD



 **G E O S I G N S**

The Big Thaw

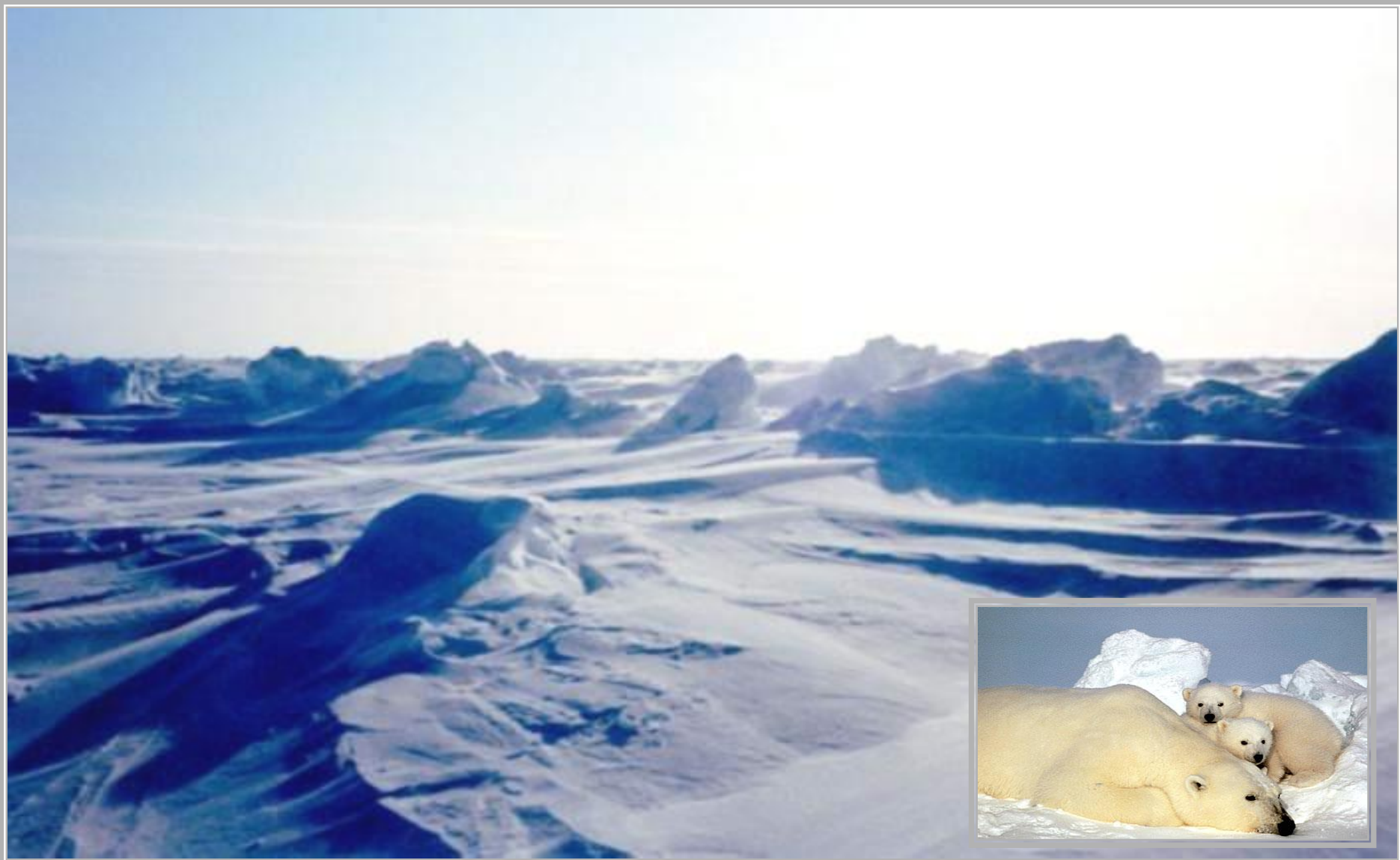
**GLOBAL
POLAR MELTDOWN**



POLAR ICE CAPS

EARTH

ARCTIC POLAR ICE CAP



ANTARCTIC POLAR ICE CAP



MD



COMPLETE POLAR ICE CAP MELTDOWN

EARTH



**SEA LEVELS
RISE
COSTAL
FLOODING**

EARTH

CELEBRATING 125 YEARS OF EXPLORATION



NATIONAL GEOGRAPHIC

HOW THEY ARE
CHANGING OUR
COASTLINES

RISING SEAS





FLORIDA POPULATION: 20 MILLION

POLAR ICE MELT = COASTAL FLOODING



MASS POPULATION RELOCATION



LOWER AGRICULTURE YIELD



GLOBAL WARMING CONSEQUENCES



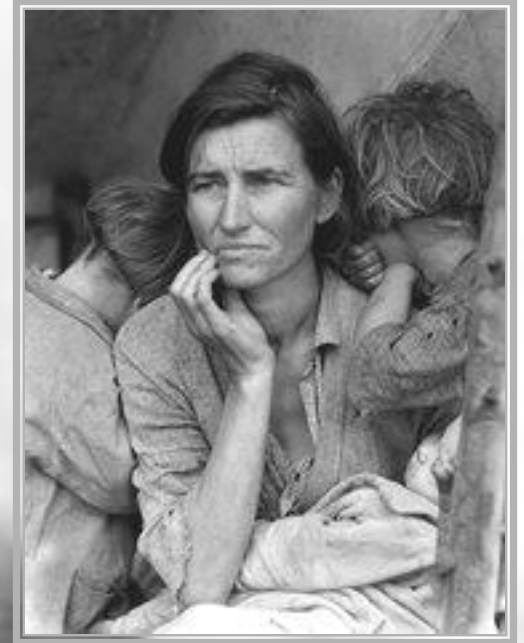
EXTREME DROUGHTS



“D

EXTREME DROUGHT 1930'S

“DUST BOWL”



“DUST BOWL” DROUGHT 1930’S



CHANGE PRECIPITATION PATTERNS



“DUST BOWL”



**EXTREME DROUGHT
FAILED CROPS**

CHANGE PRECIPITATION PATTERNS