

INTERACTION AMONG LIVING THING

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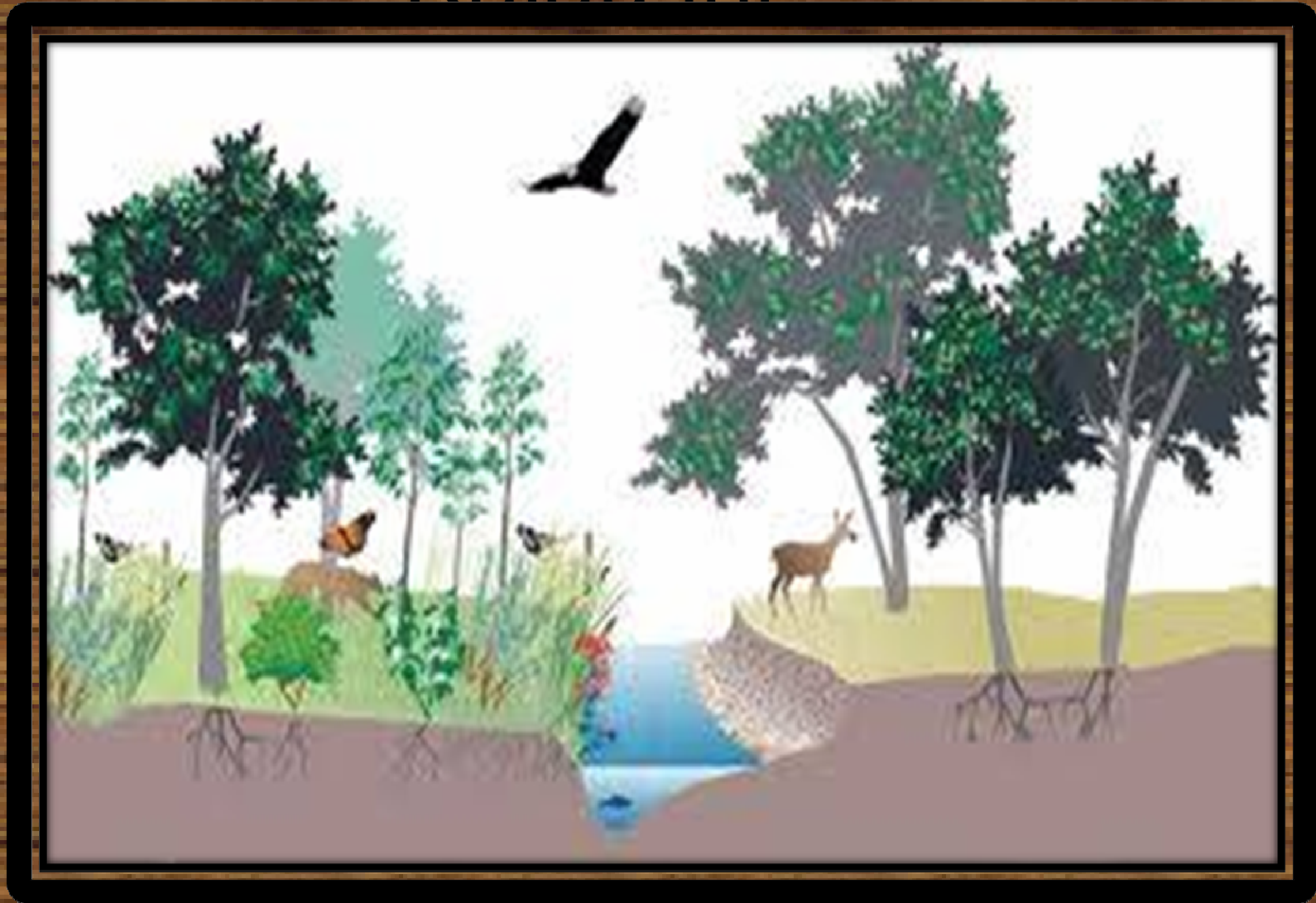
Who is this?

- Can you live alone?
- Can you live without another human?
- Is there human life without another human?
- Can human life exist without other organisms? Why?

Apa saja komponen penyusun ekosistem ini?



Kalau ini?



- All of organisms need material and energy for life.
- They get material and energy from other organisms.
- Organisms interact with others
 - With same species or another species
 - Special interaction or general interaction.

- Learning about ecosystem
 - Component
 - Interaction
 - Food Chain
 - Food web
 - Web of life
 - Material cycle and energy flow
 - CO₂, O₂, H₂O, N. and P cyclic
 - Trofi, amount and biomass pyramid

Componen ecosystem

- Biotic
- Abiotic

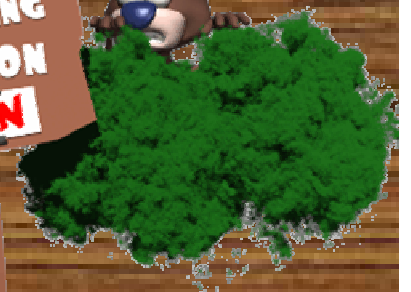
- Biotic-biotic
- Biotic-abiotic

- All of ecosystem have spesific biotic and a biotic characteristic
 - Rain forest:
 - Humid, afew of sun light, Land have afew of nutrition,
 - Tree, liana, arboreal
 - Give another example?

- Sun is source of primary energy
- Plant can change sun energy to chemical energy
- Animals transfer energy from one organisms to others.

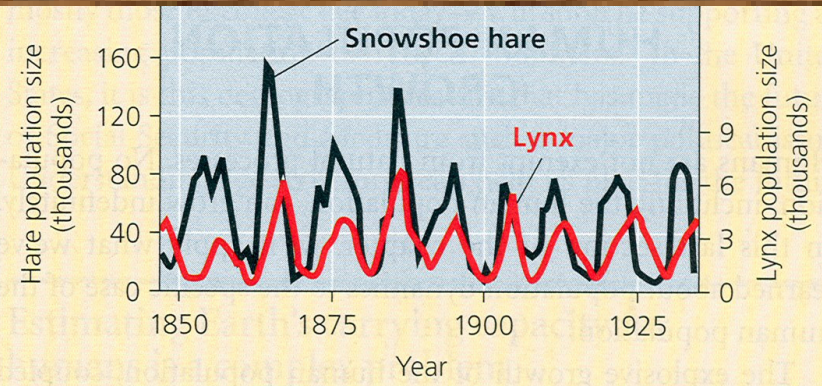
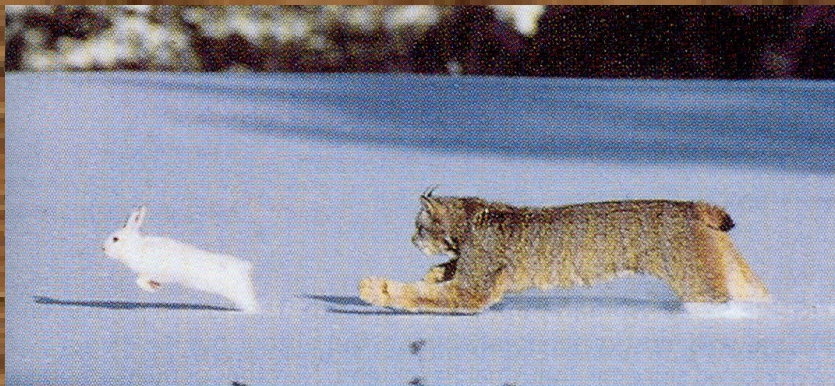
Predation

- Occurs when one organism hunts and kills another organism for food
 - Predator: the hunter
 - Prey: the hunted, killed, and eaten organism
- Predators have adaptations to help them hunt prey
- Prey have adaptations that help them avoid predators



Predator-Prey Relationships

- Some predators rely on one particular prey. When the population of that prey declines, so does the predator population.



Symbiosis

- The relationship between two organisms in which at least one is benefited; the other organism may benefit, be hurt, or neither



Mutualism

- a relationship in which both organisms benefit.



Commensalism

- A relationship in which one organism receives benefits while not hurting or helping the other.



Parasitism

- a relationship in which one organism benefits at the expense of the other.

Mutualism



Commensalism



A type of symbiosis in which one organism is helped and the other organism is not harmed or helped in the relationship

Parasitism



A type of symbiosis where one organism is hurt while the other organism is helped by the relationship

ENERGY FLOW

“All of organisms need energy”

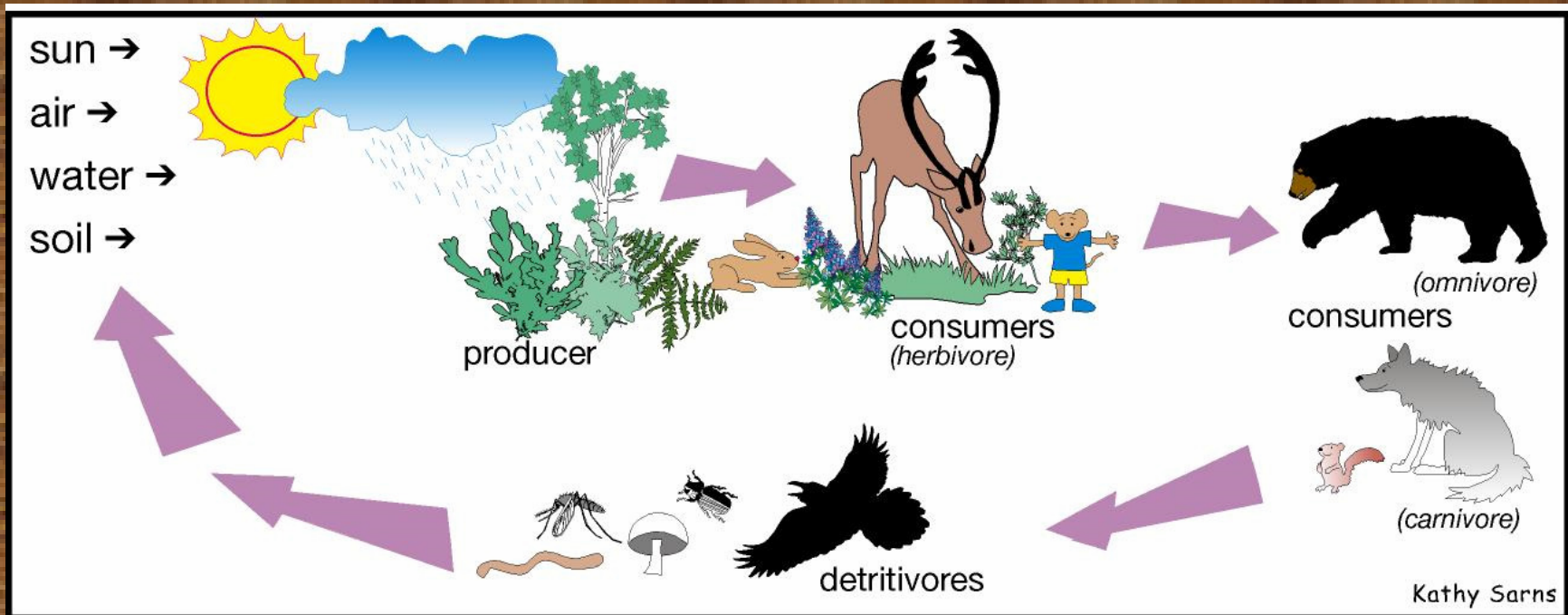
What is the source of energy?

What is the primery of energy?



ENERGY FLOW

Food chain



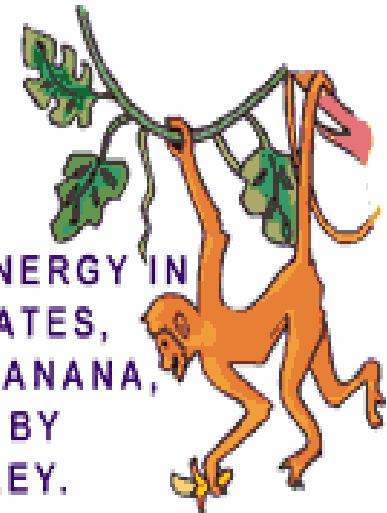
HOW A MONKEY USES ENERGY CONVERSION TO LEAP FROM TREE TO TREE



BANANA TREE
CHANGES SOLAR
RADIANT ENERGY
INTO
CARBOHYDRATES.



CHEMICAL ENERGY IN
CARBOHYDRATES,
STORED IN BANANA,
GETS EATEN BY
HAPPY MONKEY.



MONKEY FLINGS
HERSELF THROUGH THE
AIR, CONVERTING
MUSCLE CONTRACTIONS
INTO KINETIC ENERGY OF
MOTION.



KINETIC ENERGY

HEAT FLOW

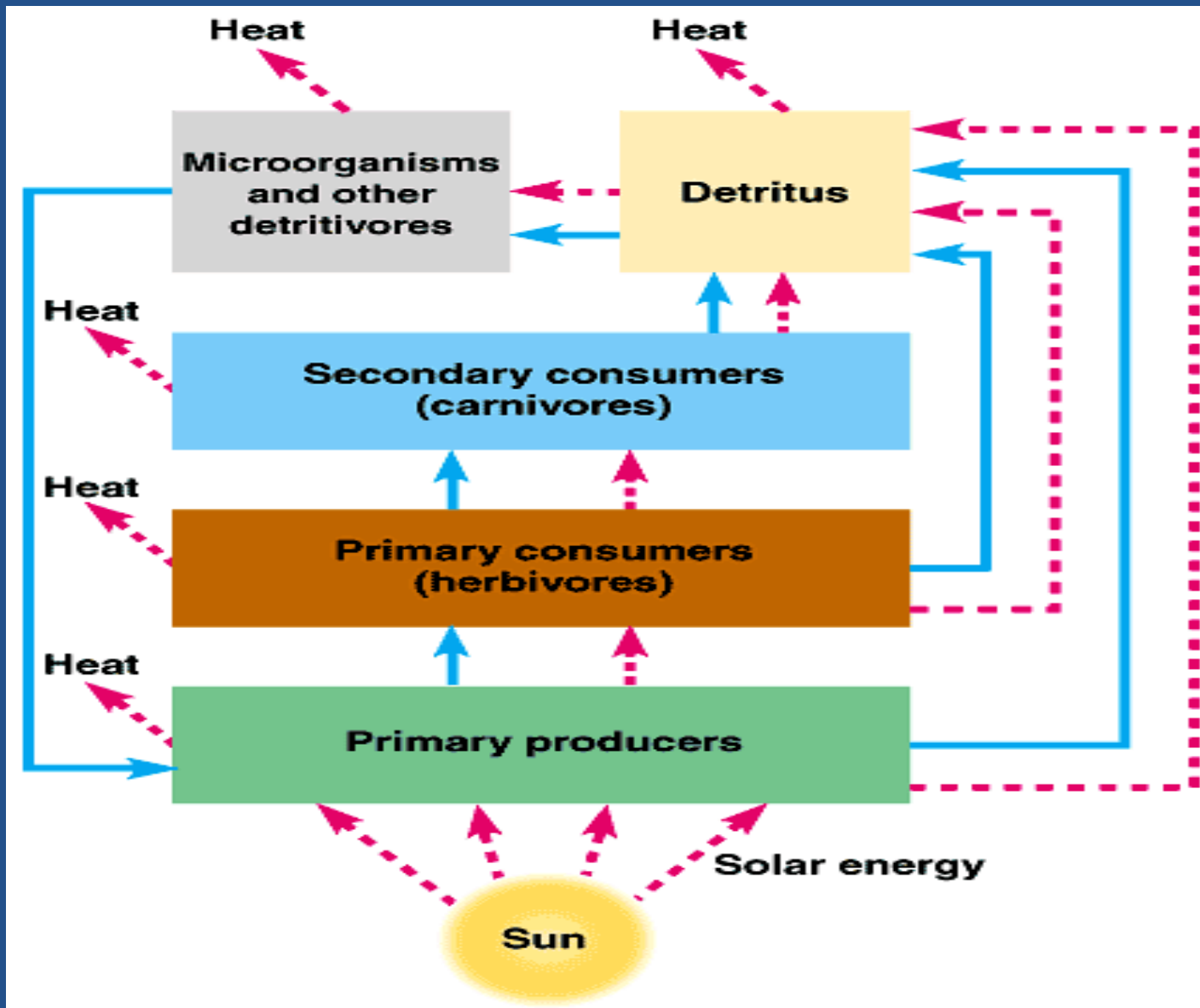
ENERGY AS HEAT FLOWS
FROM MONKEY'S BODY TO
SURROUNDING AIR.

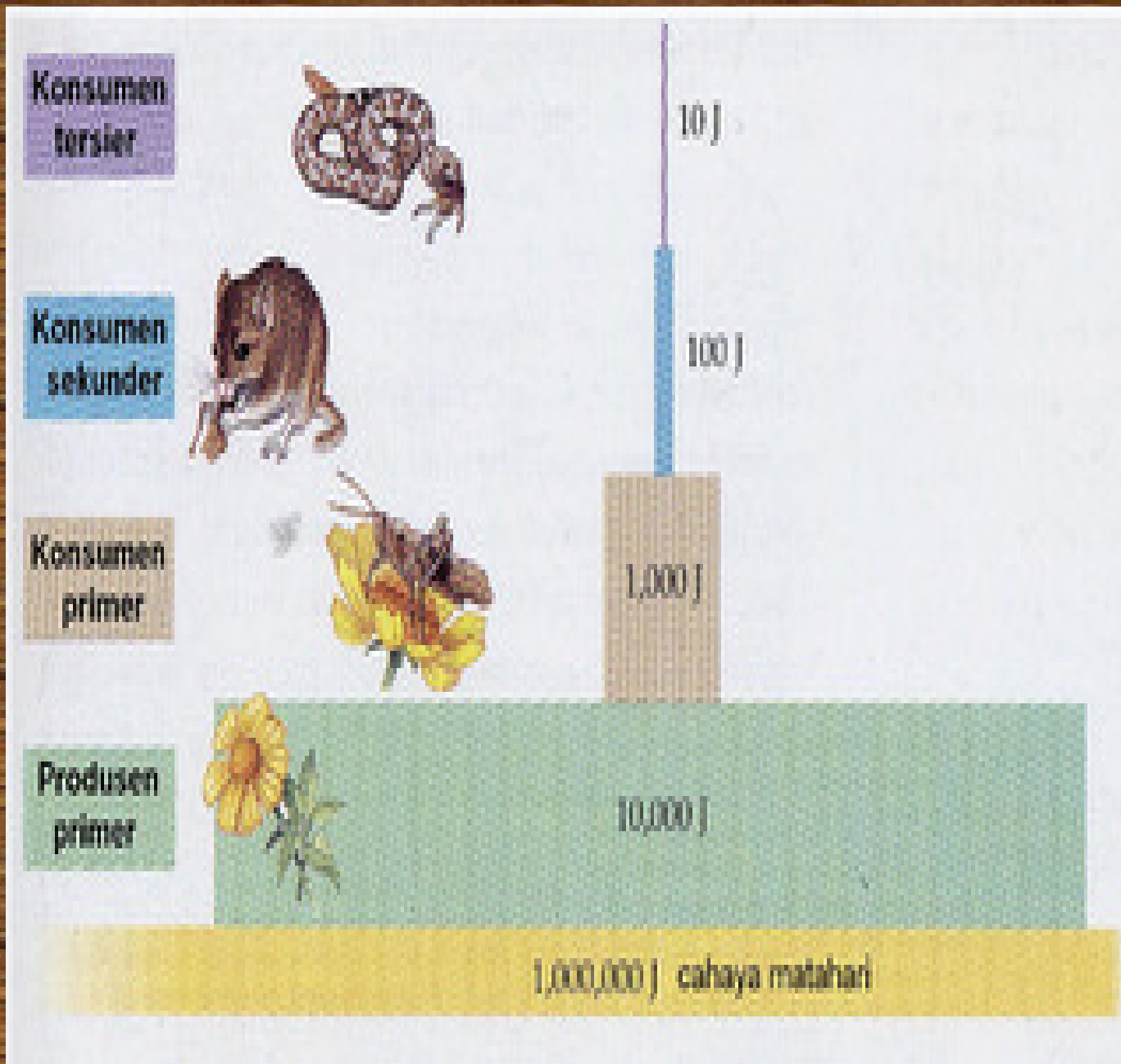
MUSCLE FIBERS, FULL OF
MUSCLE CELLS,
CONTRACT, CONVERTING
CHEMICAL INTO
MECHANICAL ENERGY AND
HEAT FLOW.



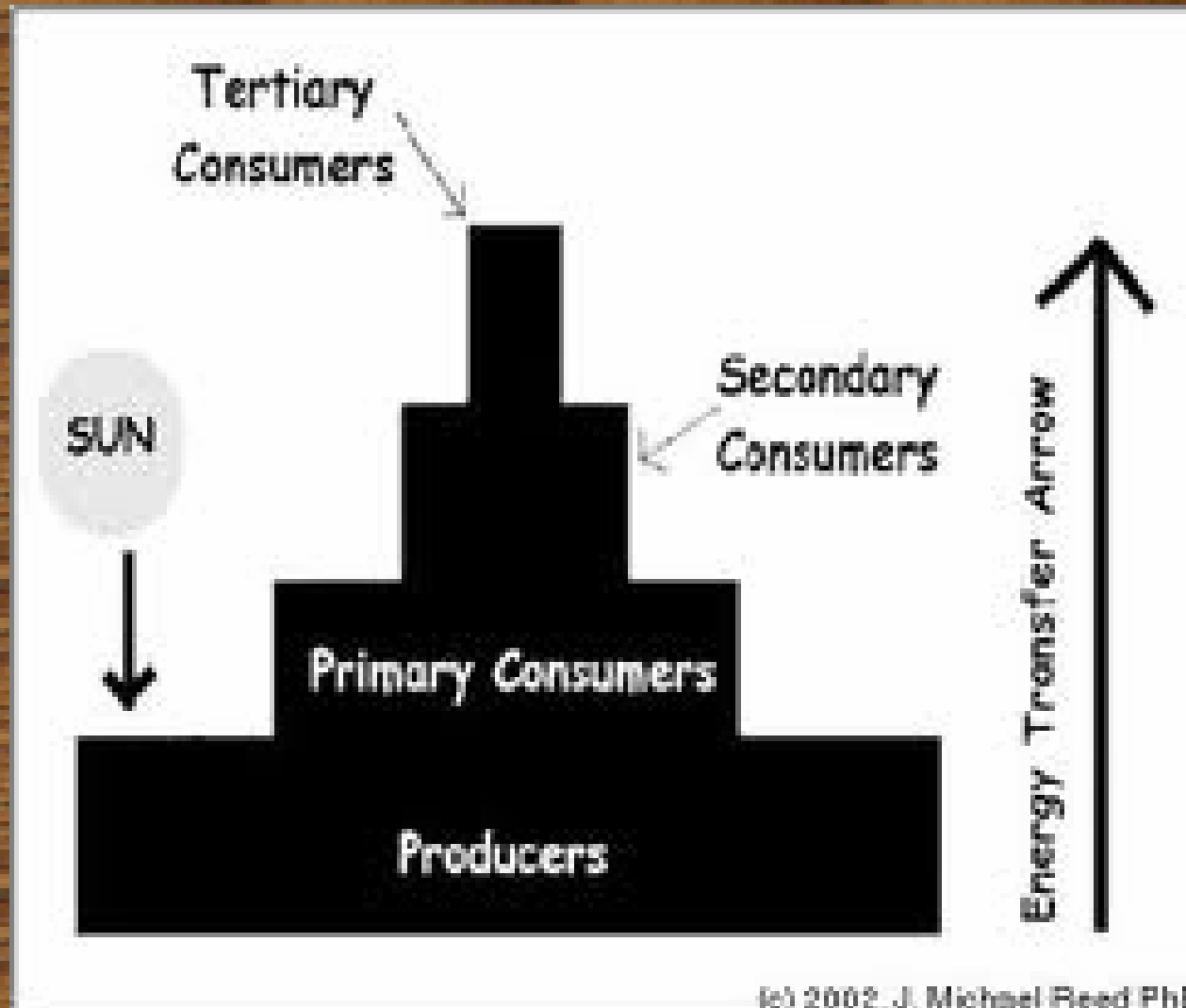
CHEMICAL
ENERGY STORED
IN GLUCOSE IS
TAKEN TO
MUSCLE CELLS IN
MONKEY.



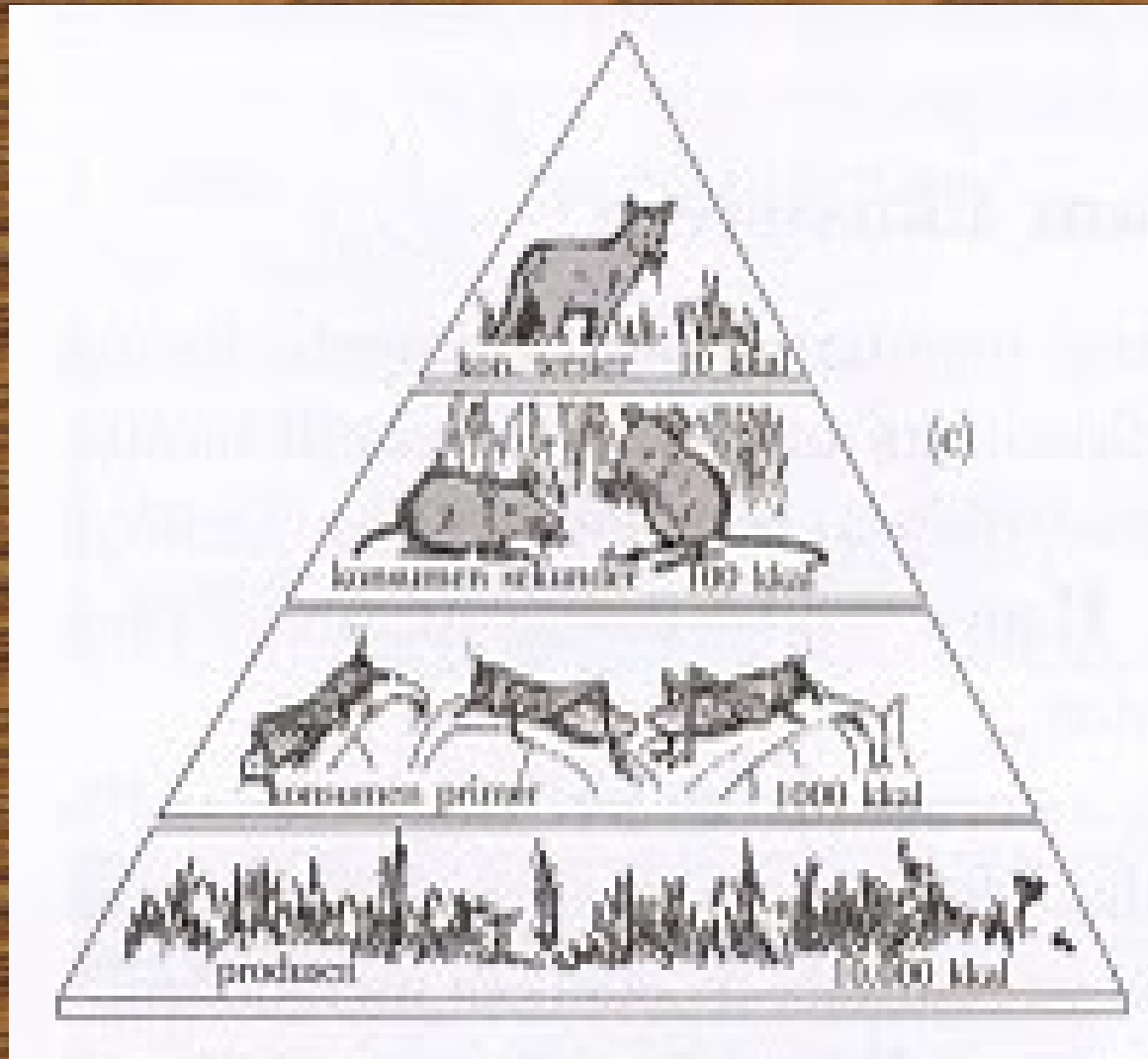




LEVEL OF TROPHIC



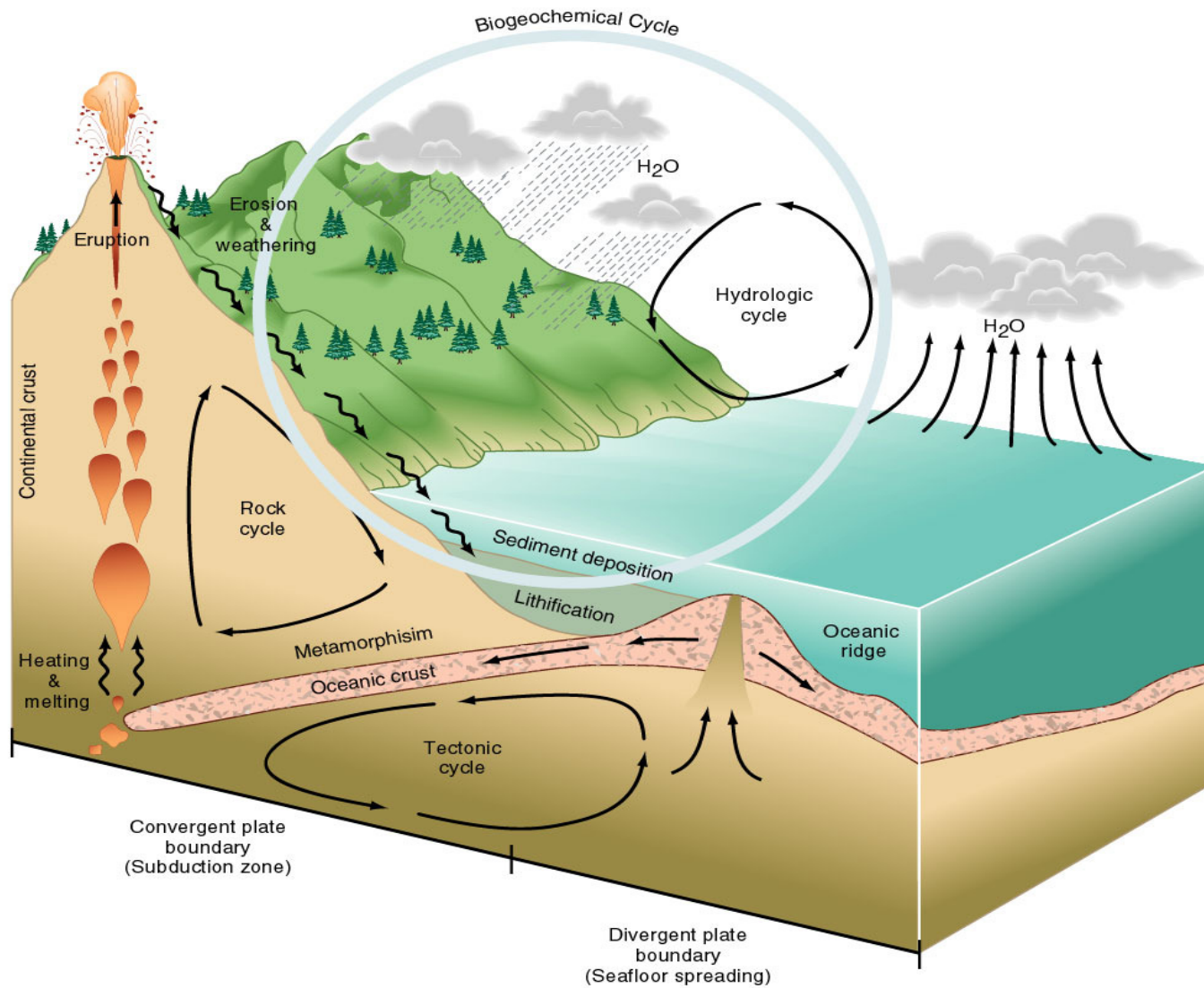
ECOLOGY PYRAMID

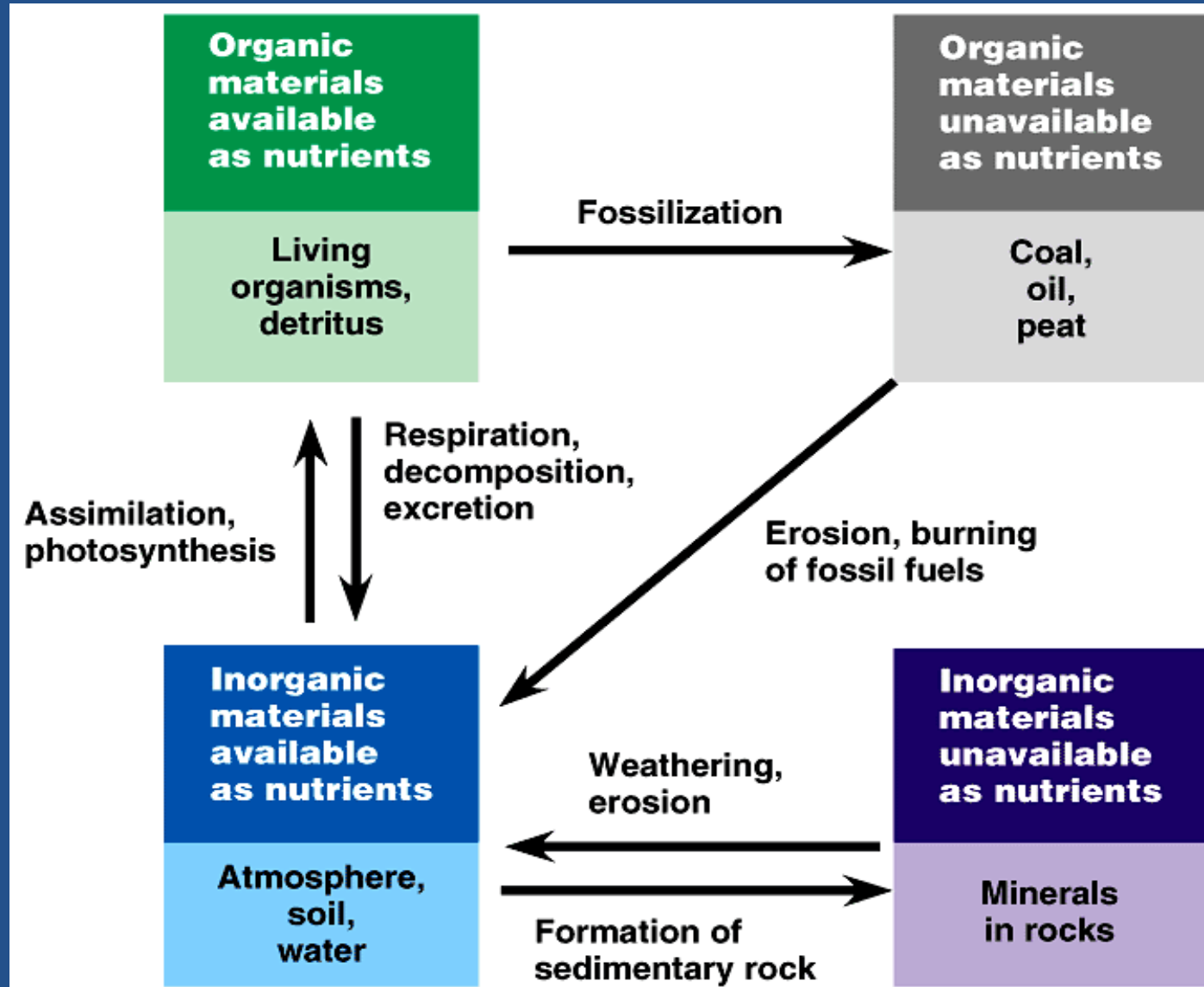


BIOGEOCHEMICAL CYCLE

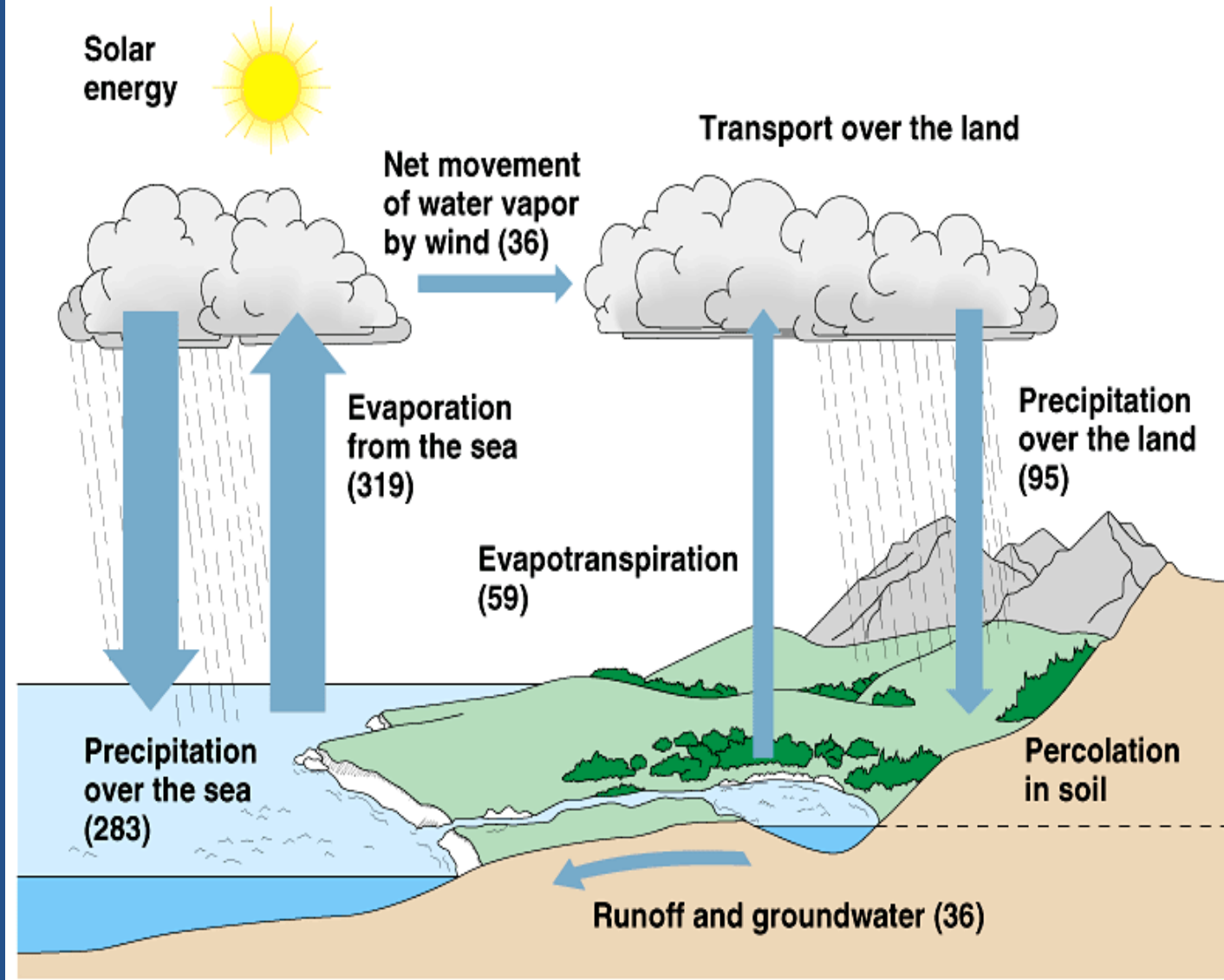
BIOTIC AND ABIOTIC COMPONENTS
ORGANISMS AND CHEMISTRY
CONTINUE



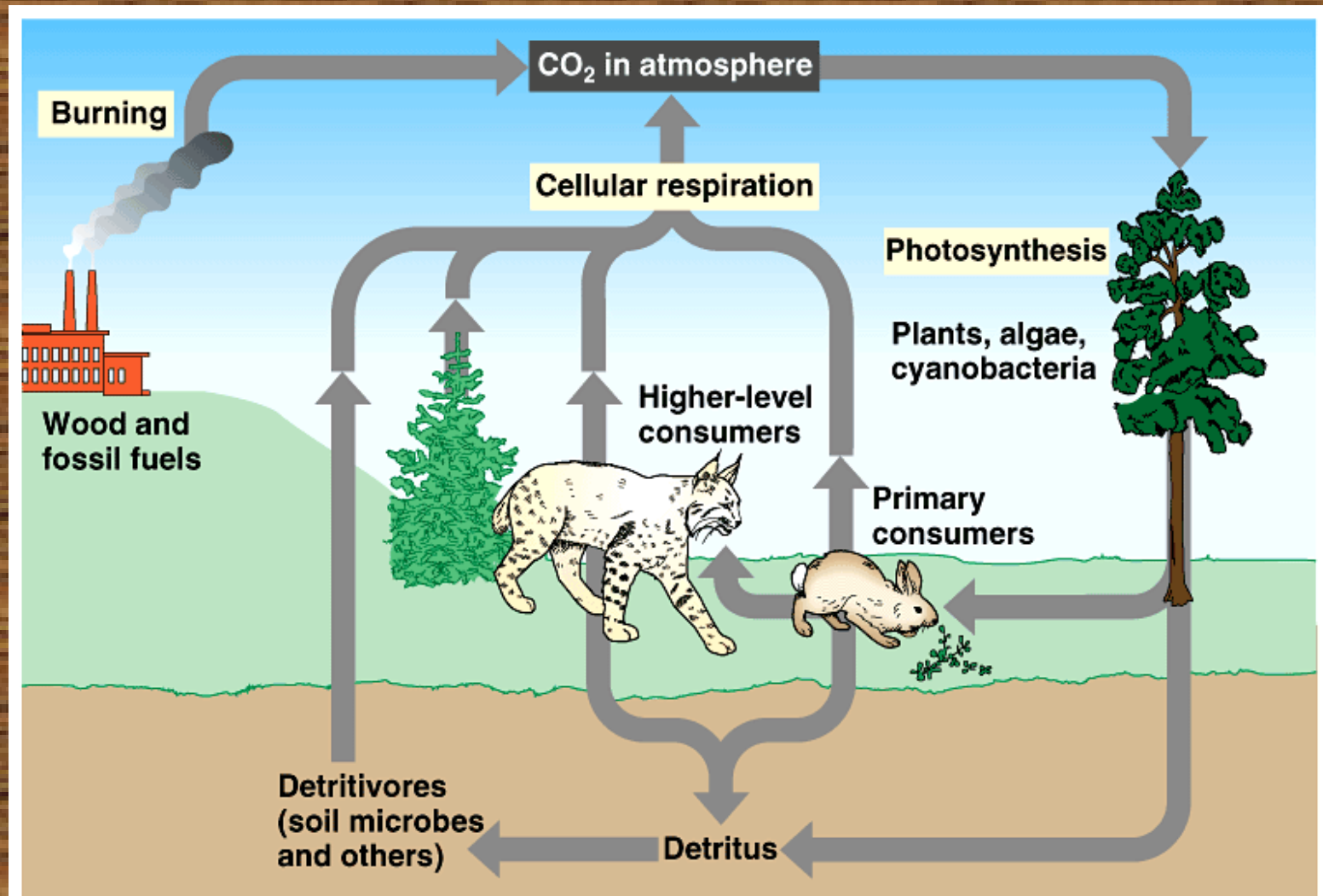




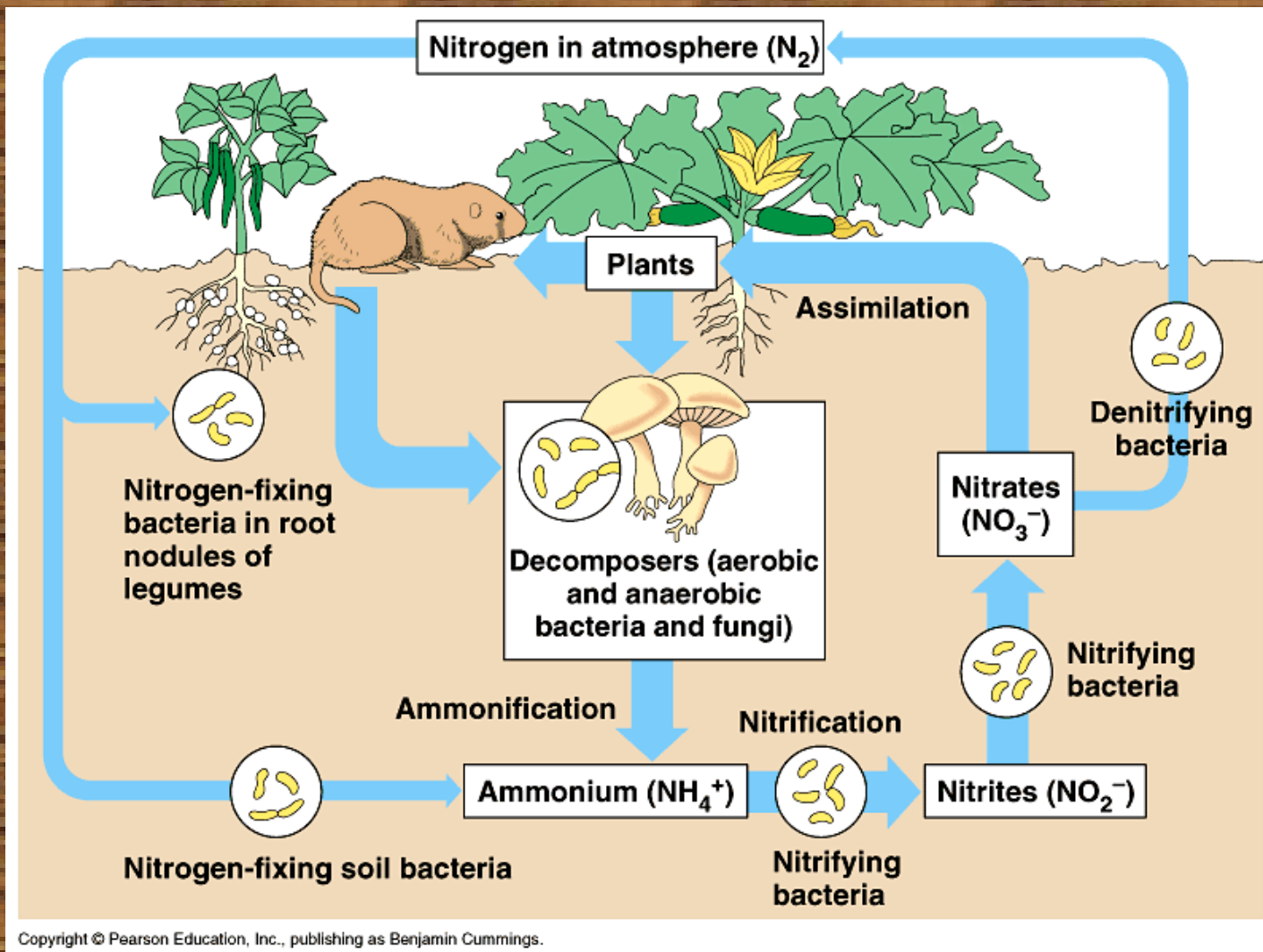
HYDROLOGIC CYCLIC



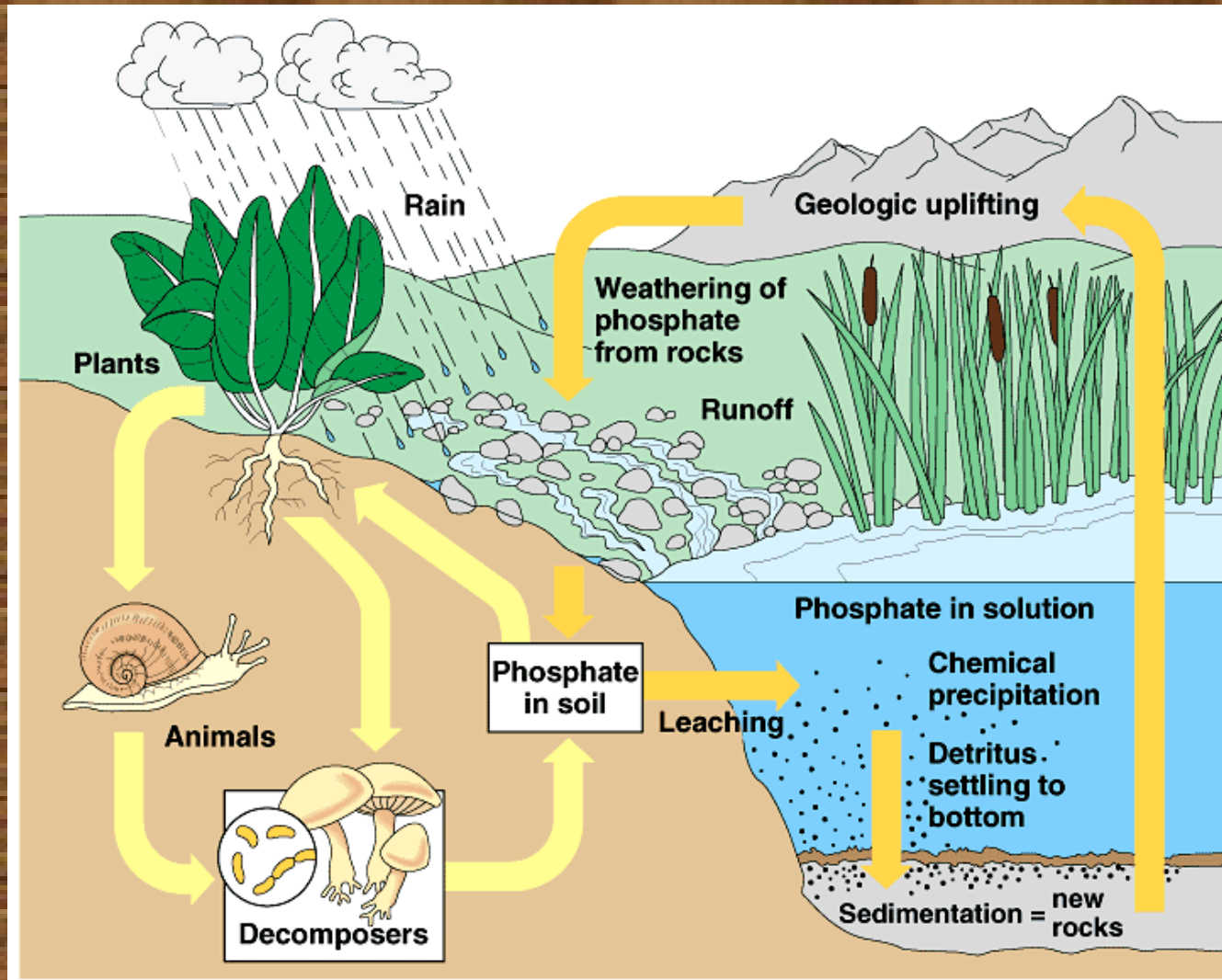
CARBON CYCLIC



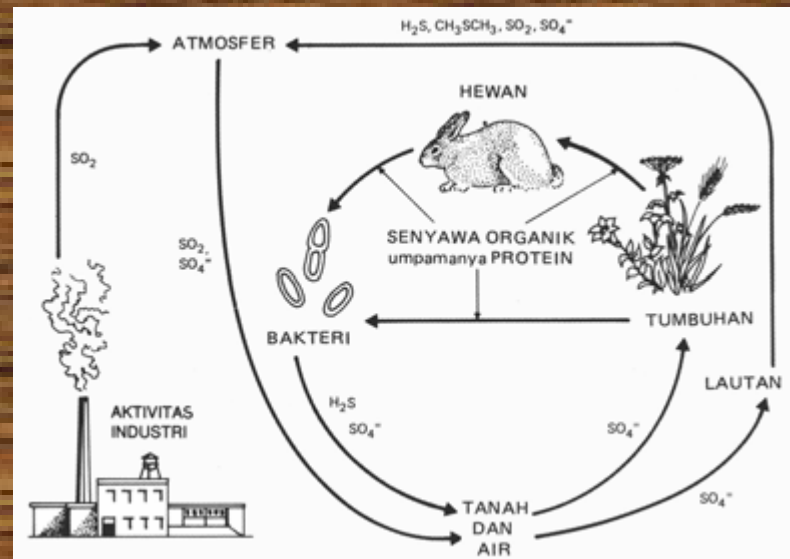
NITROGEN CYCLIC



FOSFOR CYCLIC



Sulfur Cyclic



DAUR SULFUR

