

# Cycles of Matter



# Learning Objectives

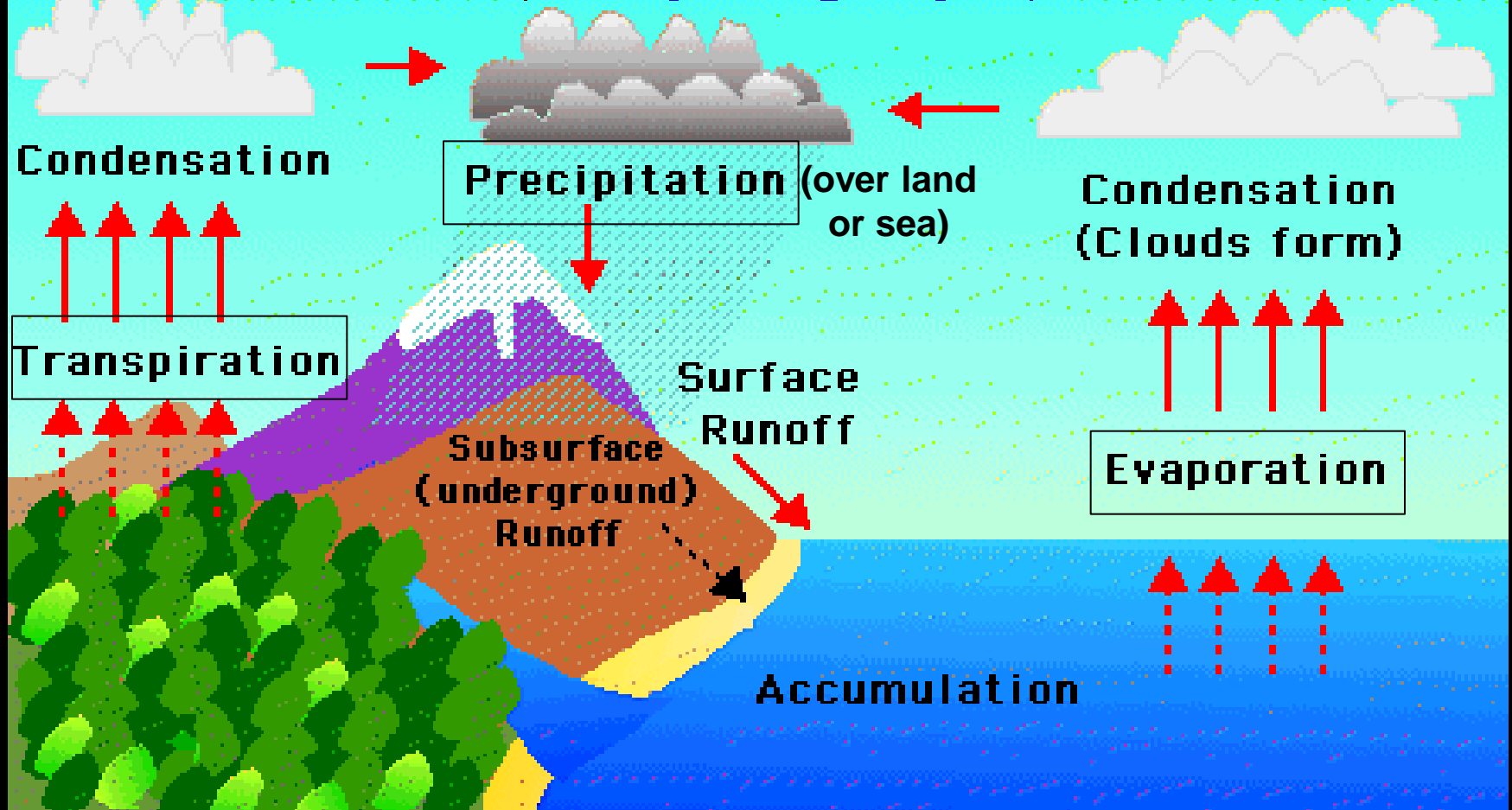
- Trace how water, carbon, nitrogen and phosphorus cycle between abiotic and biotic factors

# Recycling in the Biosphere



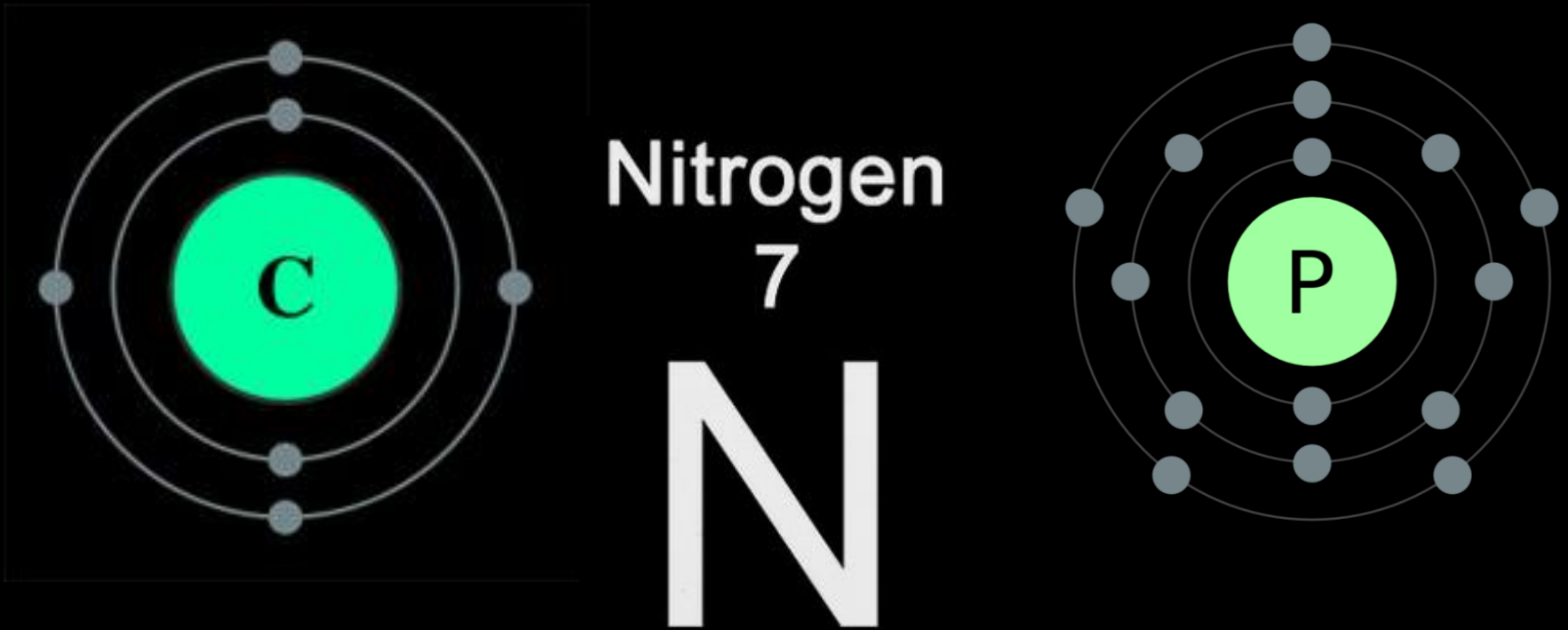
Unlike the one-way flow of energy, matter is recycled within and between ecosystems.

# The Water Cycle (The Hydrologic Cycle)



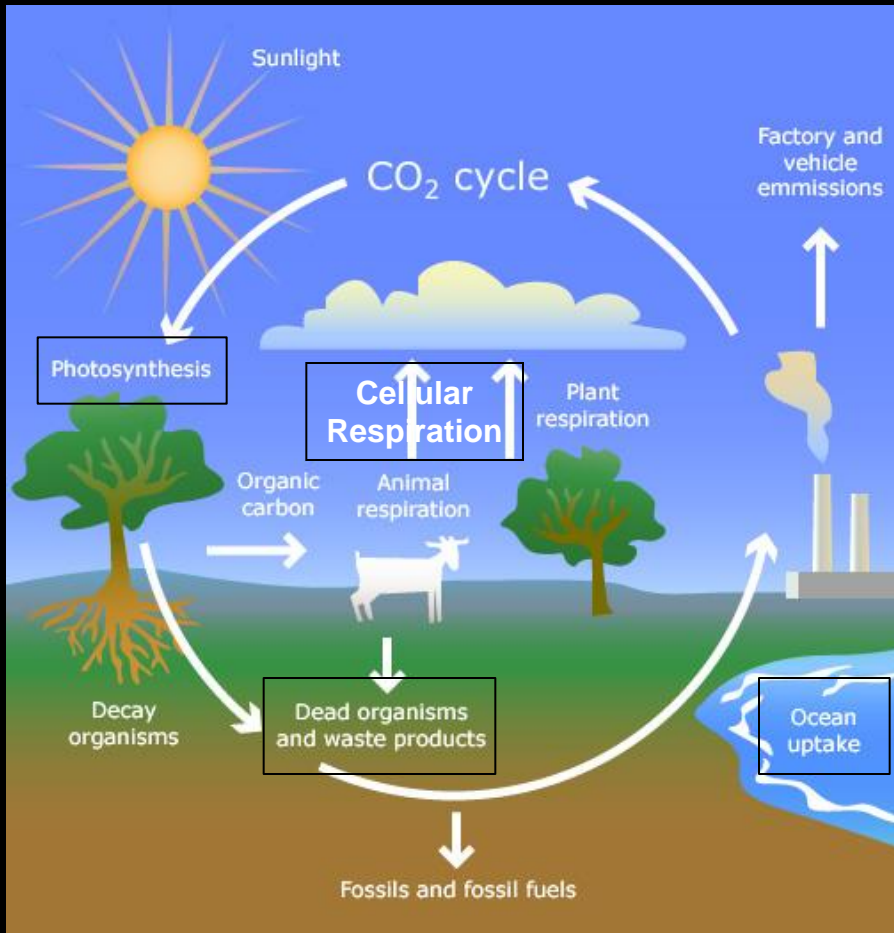
The circular pathway of water on Earth from the atmosphere to the surface, below ground and back

# Biogeochemical Cycle



**Biogeochemical cycle** - the movement of a particular chemical through the biotic and abiotic parts of an ecosystem.

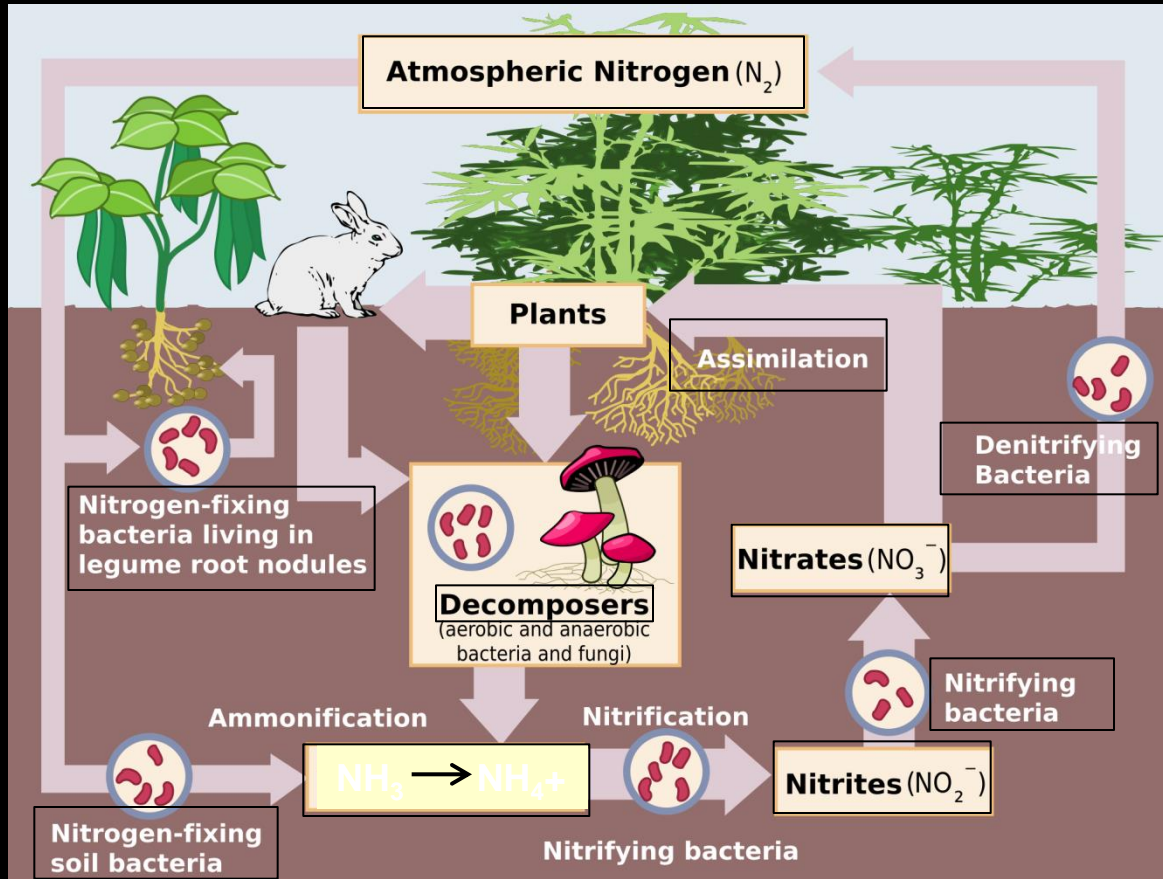
# Carbon Cycle



- Biological - photosynthesis, respiration, decomposition
- Geochemical - volcanoes
- Biogeochemical - fossil fuels
- Human activities - factories, mining, cars

As the building block of life, carbon flows from the environment to living organisms and back again

# Nitrogen Cycle



- Mostly takes place underground
- Nitrogen used to make amino acids

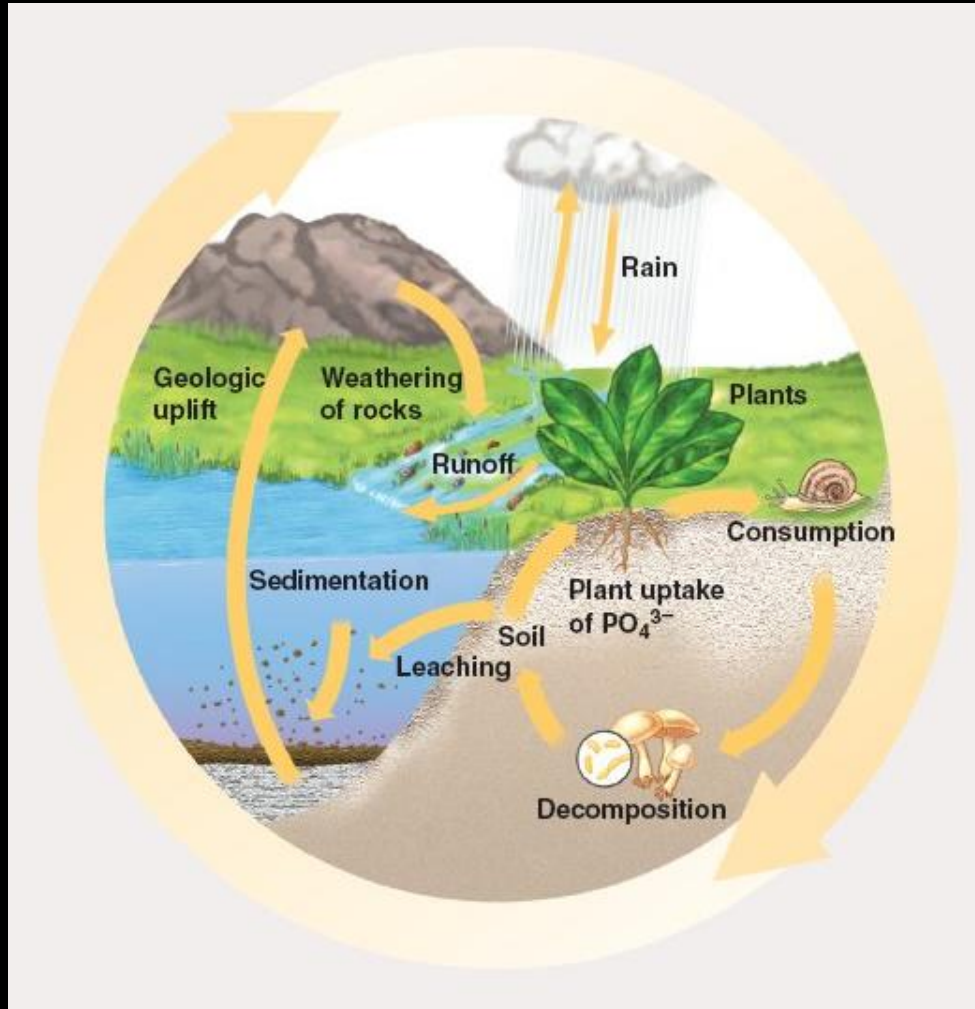
Nitrogen Fixation

Nitrogen gas  $\longrightarrow$  Ammonia

Denitrification

Nitrates  $\longrightarrow$  Nitrogen Gas

# Phosphorus Cycle



- Mostly takes place underground
- Phosphate released by weathering rocks
- Phosphorus used to make RNA & DNA



YouTube  
The Carbon Cycle

YouTube

The Phosphorus Cycle

YouTube

The Nitrogen Cycle

YouTube  
The Water Cycle

Stop Here



# Ecology - Part 7



**Cycles of Matter**