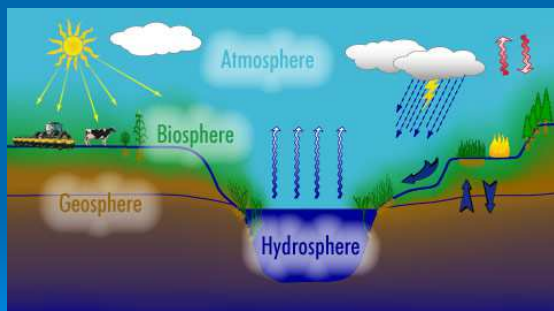


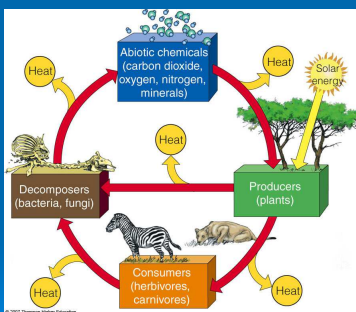
Biogeochemical Cycles Questions

- Identify and describe the flow of nutrients in each biogeochemical cycle.
- Explain the impact that humans have on the biogeochemical cycles.
- What happens to energy in an ecosystem?
- What happens to matter in an ecosystem?

What are the major types of areas on earth?



What Sustains Life on Earth?



- An ecosystem survives by a combination of energy flow and matter recycling.
- Matter Cycles!
- Energy Flows in one direction!

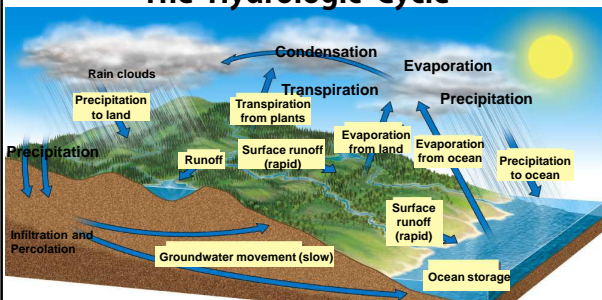
Figure 3-7

MATTER CYCLING IN ECOSYSTEMS

➤ Nutrient Cycles: Global Recycling

- Nutrients are the elements and compounds that organisms need to live, grow, and reproduce.
- Nutrients: H₂O, CO₂, N, P, S, O₂ etc.
- Biogeochemical cycles move these substances through air, water, soil, rock and living organisms.

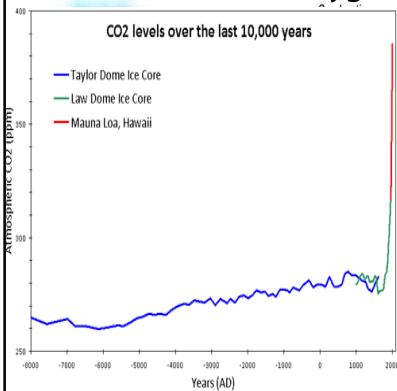
The Hydrologic Cycle



Largest Reservoir: The Ocean

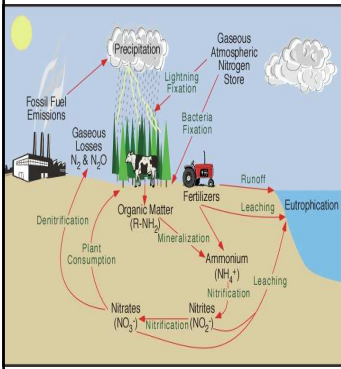
- Anthropogenic influence-
 - Withdrawing large amounts of freshwater.
 - Clearing vegetation and eroding soils.
 - Polluting surface and underground water..

The Carbon-Oxygen Cycle



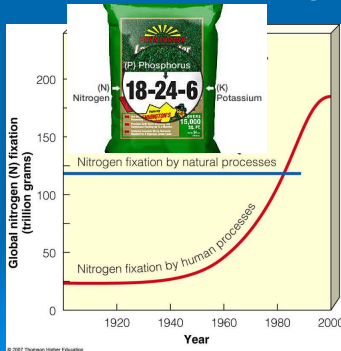
- Major reservoirs- Earth's Crust, The Ocean, Fossil Fuels
- Anthropogenic influence- adding excess CO₂ to the atmosphere through:
 - Burning fossil fuels (adds CO₂ that has been locked away)
 - Clearing forest (less CO₂ removed)
 - Forest Fires (adds CO₂)

The Nitrogen Cycle



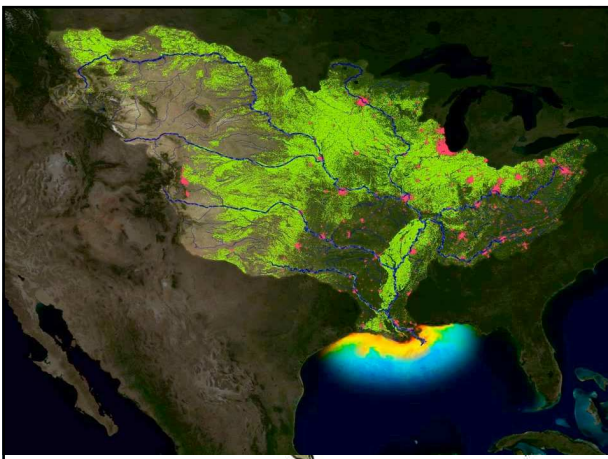
- Major Reservoir – the air
- Anthropogenic influence- Creating synthetic nitrogen for fertilizer
- Contaminating ground water from nitrate in fertilizer.
- Excess nitrogen causing algal blooms and dead zones (eutrophication)
- Car/factory emissions creating acid rain.

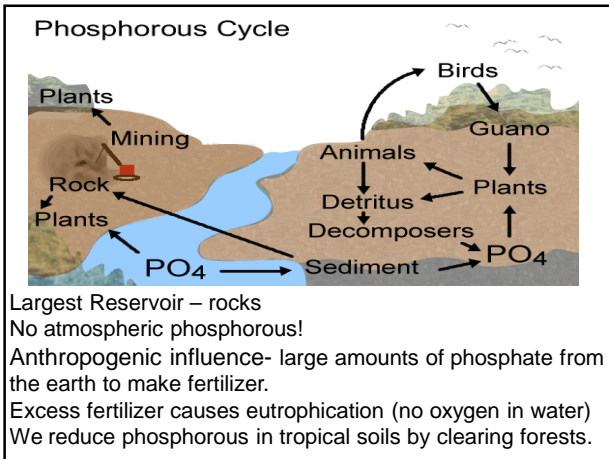
Effects of Human Activities on the Nitrogen Cycle

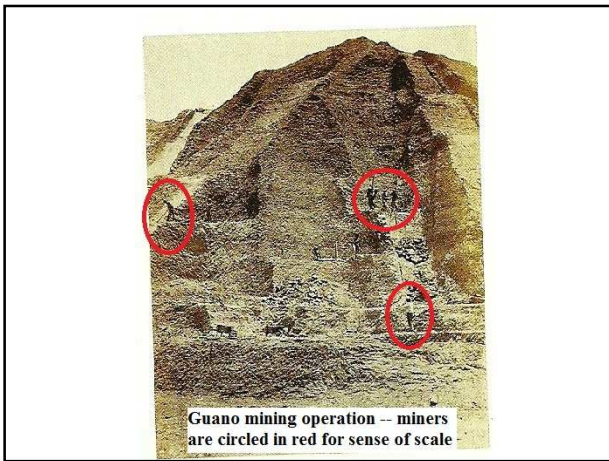


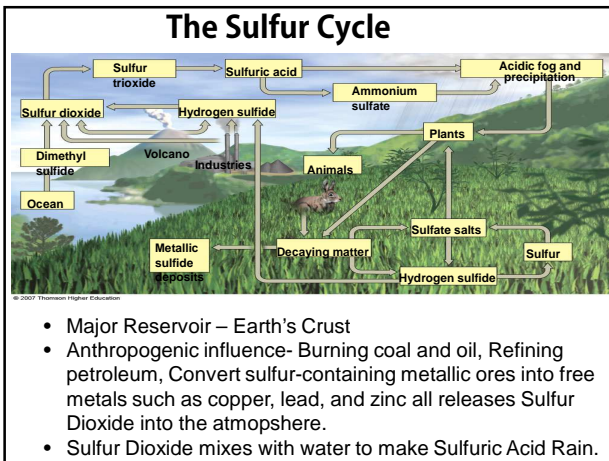
- Human activities such as production of fertilizers now fix more nitrogen than all natural sources combined.

Figure 3-30









Biogeochemical Cycles Questions

- Identify and describe the flow of nutrients in each biogeochemical cycle.
- Explain the impact that humans have on the biogeochemical cycles.
- What happens to energy in an ecosystem?
- What happens to matter in an ecosystem?
