

Human Impact
Key Points

2 Types of Resources:

Renewable Resources- Resources that can be replaced, given a sufficient amount of time

Ex: Food, oxygen, wood

Nonrenewable Resources: Once used up, cannot be replaced

Ex: Fossil fuels (gas, coal), minerals (aluminum, silicon)



THE QUEST FOR OIL

What natural processes affect living organisms?

Maintaining Atmospheric Quality:

Biotic: The processes of PHOTOSYNTHESIS and RESPIRATION maintain the levels of O₂ and CO₂

Abiotic: Rainfall cleans the air of particles and soluble gases as it falls

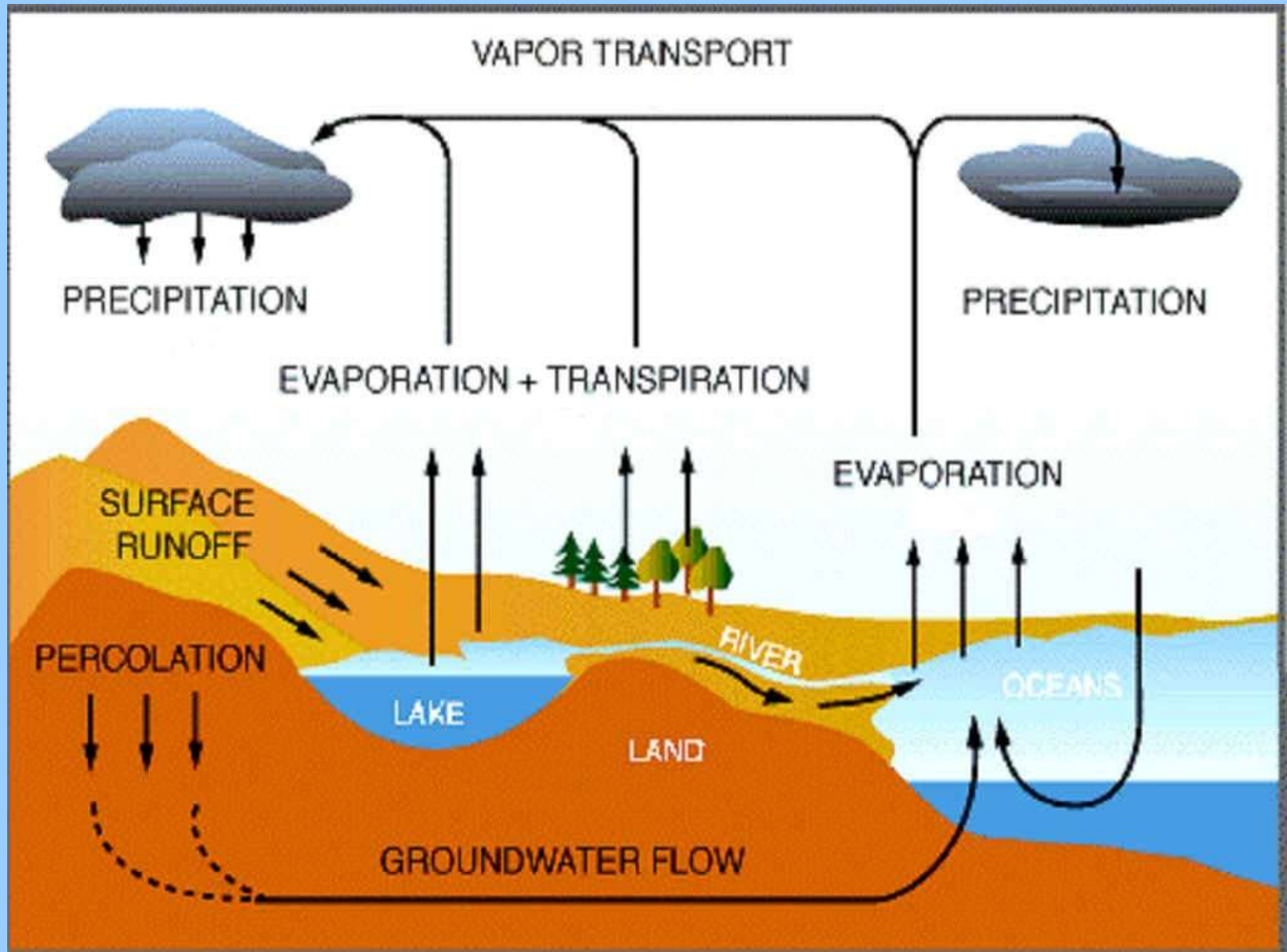
Soil Formation:

-Soil forms when weathering breaks down rocks and when organic debris accumulates

-Root systems and vegetation hold soil in place

Water Cycle:

Helps to maintain a supply of fresh water

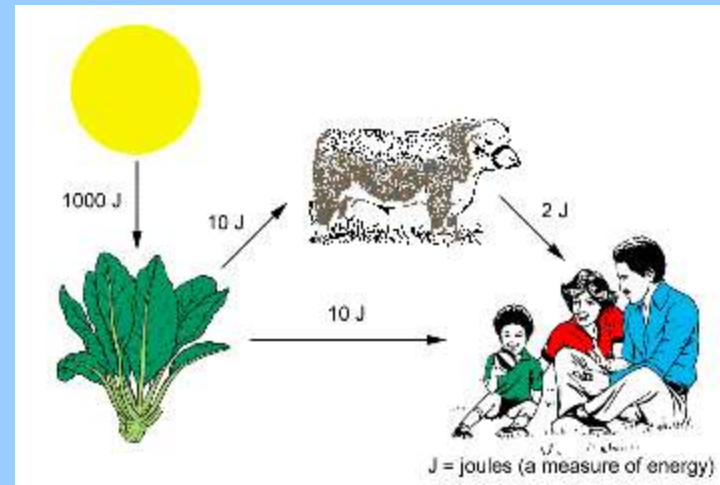


Nitrogen Cycle:

- Nutrients (nitrates) recycled into the environment by **DECOMPOSERS**
- Humans and animals must ingest nitrogen through foods we eat, we **CANNOT** breathe it in

Energy Flow:

- Sun (constant source) passes energy throughout an ecosystem through food webs and food chains
- Energy **CANNOT** be recycled



Carrying Capacity- The number of individuals an environment can support at one time

-Earth has a human carrying capacity!!

How do humans contribute to the loss of diversity?

Direct Harvesting:

-Destruction or removal of a species from their natural habitat

Ex: Exotic pets, ivory from elephants, pelts from baby seals

Land Use:

-As population grows, we use more resources
To make things we need or WANT

Ex: build roads, build houses, grow food

Habitat Destruction:

- When habitats are destroyed, displaced animals rarely find another place to live

Deforestation:

- The destruction of forests causing widespread habitat destruction

Loss of Biodiversity:

- Losing medicines, affecting atmospheric gases, Interrupts food webs

Ex: Clearing a meadow to plant a single food crop

Importing a Species:

- Import and release a species from one habitat into another
- Many species become pests because they have no natural enemy in the new habitat
- Controlled by diseased organisms, pesticides, Chemical traps, and introducing a new predator

How do humans modify ecosystems?

Humans modify ecosystems through population growth, Consumption, and technology

Negative Effects: Pollution, increased energy demand, increased water demand, increased fossil fuel demand

Water Pollution:

-Caused by the addition of pollutants to natural environments

Sources of water pollution:

- Acid rain
- industrial waste
- sewage
- pesticides
- fertilizers
- oil

Toxic wastes:

-Chemical fertilizers and pesticides collect in the Cells of organisms

-As you travel up the energy pyramid, energy DECREASES, and toxicity INCREASES

(Predator highest level of toxicity!!)

Thermal Pollution:

- Water used to cool machinery from power plants is released back into rivers and lakes (hot water), causing the O₂ level to decrease and species suffocate (Warm water cannot hold as much dissolved O₂ as cold water)

Air Pollution:

- Burning of fossil fuels releases pollutants into the air

Ex: Cars, power plants, factories

- ## Acid Rain:
- Caused when precipitation mixes with fossil fuels in the atmosphere (sulfur and nitrogen)
 - Damages plants, kills aquatic life

Global Warming:

- Greenhouse gases (CO_2) trap and absorb infrared Radiation causing Earth's average temp to rise
- Polar ice caps will melt leading to new ice age

Ozone Depletion:

- Release of certain industrial gases (CFC's) has led to destruction of the OZONE SHIELD
- Increased UV rays (destroying producers, decreasing O_2 levels, causing more skin cancer)
- CFC's are found in air conditioning coolants, refrigerator coolants, manufacturing of plastic foam, aerosol cans