

# Cycling of Matter

Water, Carbon, Nitrogen (2.6)

## Water Cycle

### Evaporation & Transpiration

- evaporation: when sun heats water into water vapour (rivers, lakes, oceans)
- transpiration is the loss of water from plants (like humans sweating)

### Condensation

- clouds formed by the cooling of the water vapour in the air

### Precipitation

- when cloud density from condensed water causes rain, hail, sleet, snow

### Collection

- water ends up as ground water or collects back in rivers, lakes, oceans

## Carbon Cycle

carbon gets into the atmosphere (mostly carbon dioxide, CO<sub>2</sub>)

- cellular respiration (plants and animals)
- combustion (burning of fossil fuels)
- volcanic action

carbon gets taken out of the atmosphere

- photosynthesis

## Carbon Cycle

- most carbon is stored for long periods of time before getting recycled

- this happens through:

- 1) decomposition of plant/animal tissue
- 2) compactation of this tissue for millions of years

# Nitrogen Cycle

## Nitrogen Fixation

- performed primarily by bacteria in soil or in roots of legumes (peas, beans, etc)
- converts nitrogen gas ( $N_2$ ) to into nitrates ( $NO_3^-$ ), nitrites ( $NO_2^-$ ), and ammonia ( $NH_4^+$ ), which are used for plant growth

## Denitrification

- performed by denitrifying bacteria
- converts nitrates back into atmospheric nitrogen gas

# Homework

*Section 2.6, Q's# 1 - 10 (p. 51)*