

**A. Matter**

1. A fixed/finite amount that continually cycles
2. Role of plants in biogeochemical cycles: transfer matter from abiotic to biotic portion of ecosystems

**B. Biogeochemical Cycles**

1. Oxygen cycle
  - a) Biological sources and sinks of oxygen: photosynthesis and respiration
  - b) Ozone: source  
location
2. Carbon cycle
  - a) Importance of carbon
  - b) Three pools of carbon and their biotic connections
  - c) Sources and sinks of carbon
  - d) Carbon cycle – handout
  - e) Diurnal and seasonal variation of CO<sub>2</sub> in atmosphere
  - f) Greenhouse Effect
  - g) Greenhouse gases: CO<sub>2</sub>  
H<sub>2</sub>O - water vapor  
CFCs - chlorofluorocarbons  
CH<sub>4</sub> - methane  
N<sub>2</sub>O - nitrous oxide  
O<sub>3</sub> - ozone in troposphere
  - h) Human activities that increase CO<sub>2</sub> in atmosphere:
    - (1) burning fossil fuels
    - (2) destroying forests
  - i) Consequences of increased CO<sub>2</sub>:
    - (1) increased temperature
    - (2) oceans