**Notes: Ecology #3**

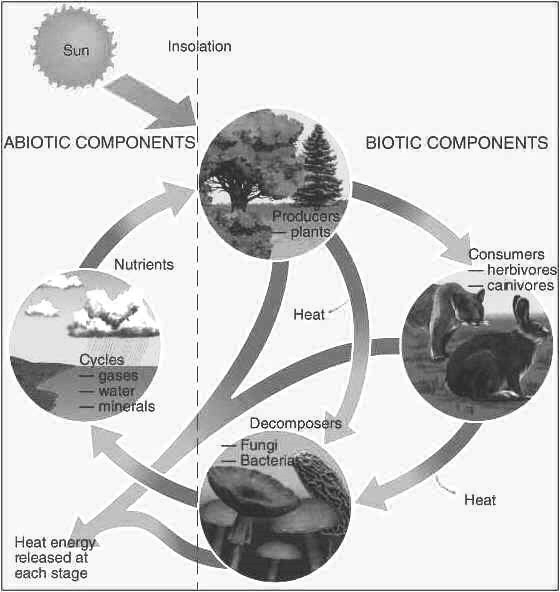
**Ways Organisms Reduce Competition**

* Many different behaviors/adaptations to reduce competition:
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Where an organism prefers to live
    - Ex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - The role or job of an organism in the community
    - Ex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Patterns of activity
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * Active at night
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * Active during the day
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * Inactive state during the winter in response to cold
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Inactive stage of organisms in response to the heat and lack of water
    - Ex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Seasonal movement from harsh climate to a more favorable climate
    - Return to original habitat when conditions improve
    - Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Ecosystems**

* + Definition:
    - Interaction of all the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organisms in an area (biotic factors) and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ aspects of the environment (abiotic factors)
  + Biotic
    - Ex. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Abiotic
    - Ex. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ecosystem—Biotic and Abiotic Interactions:

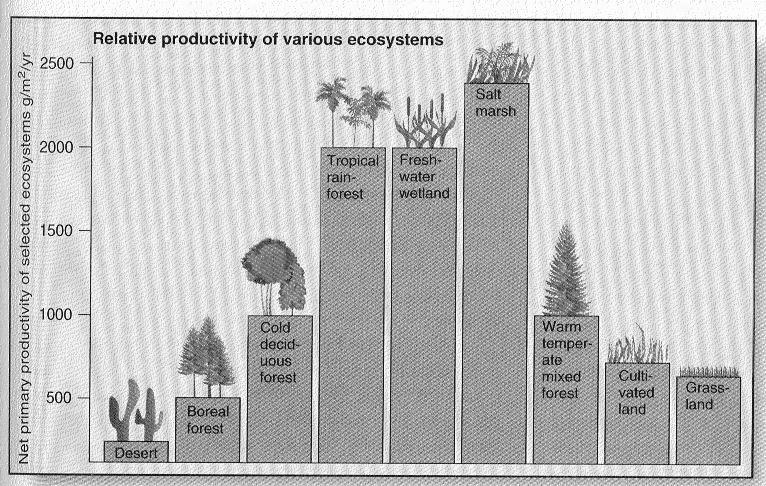
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**Ecosystems**

* Ecosystems affect and are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ upon one another
* All ecosystems are dependent upon energy
* Competition is most often for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Why do organisms need food?
  + For \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!

**Productivity**

* Productivity
  + The amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ an ecosystem can generate from producers
  + Producers get energy from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Net Productivity: Most important energy measurement
  + Energy that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as food for consumers in the food chain
  + The higher the net productivity, the greater the amount of energy available to each trophic level

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**Trophic Levels**

* In an ecosystem, energy is transferred through trophic levels in a food chain
* The transfer of energy between levels is NOT efficient
  + **Only ~\_\_\_\_\_\_\_\_\_\_\_\_% of energy is transferred to the next trophic level**
* Energy is used for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , OR is lost as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The remaining 10% of energy is transferred to the next \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ level
* **Energy flow in a food chain:**

**Autotrophs**

**(photosynthetic organisms: plants, algae),** algae)

**Herbivores**

**(Plant eating)**

**Omnivores and Carnivores**

**(Meat-eating hunters)**

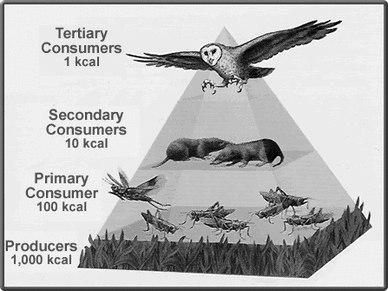
**Scavengers**

**(Carrion-eating)**

**Decomposers, detritivores**

**(Decompose organic matter)**

**Energy Transfer: Food Pyramid**



**4th trophic level: Tertiary Consumers**

* Large carnivores (top predators- owls, lions)

**3rd trophic level: Secondary Consumers**

* Small carnivores and omnivores (rats, raccoons)

**2nd trophic level: Primary Consumers**

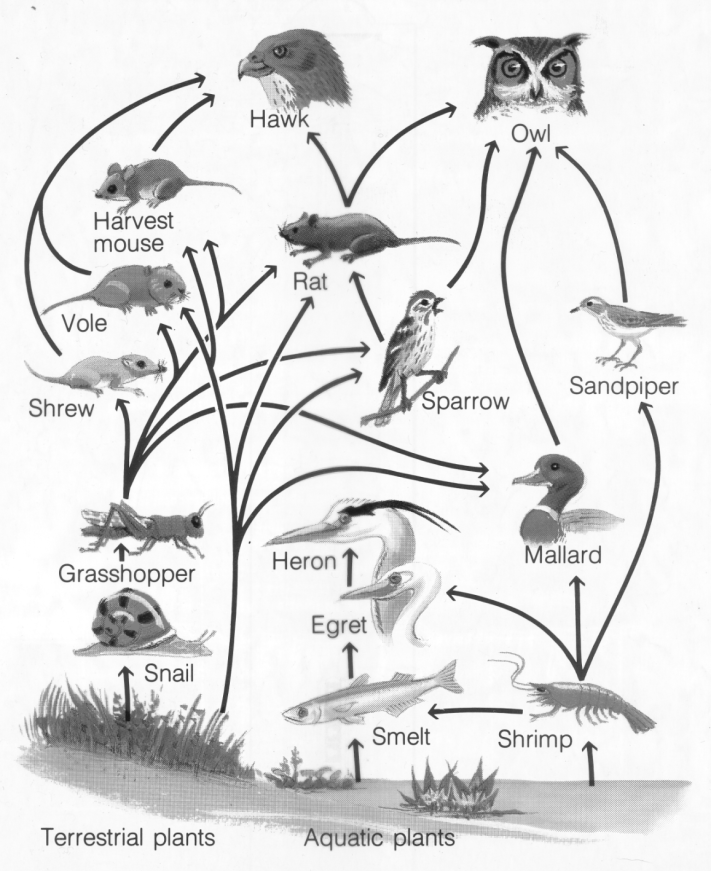
* Herbivores (grasshoppers, grazing animals)

**1st trophic level: Producers**

* Autotrophs (plants, algae)

**Food Webs**

* Show the flow of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in an ecosystem
* Often very \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Figure: Arrows indicate the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of energy flow

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