Honors Biology Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
NDHS Per: \_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

**ECOLOGY  
The Study of One’s House**

Natural Selection of Species is driven by the **environmental stresses** that shape the **populations** to fit their specific niche.

**Niche**: combination of **abiotic and biotic** factors where an organism lives

**Abiotic Factors**: **non- living**

Determine the **plant communities** which determine the **animal communities** (Succession)

1. **Temperature** – important for **enzymes**
2. **Precipitation** – moisture available for **plants**
3. **Climate**
   1. **Seasons**
   2. **Weather**
4. **Altitude** – mountain regions are harsher
5. **Energy Availability**   
   Primary producers (autotrophs or chemotrophs) **fix energy** **for the whole ecosystem**.   
   Each time energy passes to the **next trophic level** (producer to primary consumer to secondary consumer, etc.) **90% of the energy is lost. (10% Rule)**
   1. Reduces the number of organisms as you go up the food chain

**Biotic Factors**: **living** interactions between species

1. **Energy fixation and nutrient assimilation by primary producers**
2. Competition for resources
   1. **Food**
   2. **Water**
   3. **Space (territory, breeding sites)**
   4. **Mates**

**Competitive Exclusion Principle**: one species out competes another so it dies out  
**Resource Partitioning**: **splitting niches** into smaller sections to **reduce competition**  
 Fundamental and Realized Niches  
 Fundamental: Possible  
 Realized: actual

1. **Predation:** Herbivores, Carnivores, Omnivores  
   Predator Adaptations: claws, teeth, camouflage, hunting behavior. poison

Prey Adaptations: defenses (spines, shells), poison, mimicry

1. **Symbiosis**:
   1. **Parasitism:** host is harmed, parasite benefits   
      EX: Ticks, mosquitos, tapeworms
   2. **Mutualism:** both benefit  
      EX: Clown fish and anemones, lichens (algae and fungus)
   3. **Commensalism:**  one benefits, the other is not harmed  
      EX: birds that eat insects as other animals move through grass, orchids on tree limbs