Honors Biology Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

NDHS Per: \_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Biology: An Introduction**

Bio = **life**

Logy = **the study of**

Bio+Logy = **The study of life**

**Characteristics of Life**

1. **Organization**: complex in structure

 - Specifically made of one or more cells

 **Unicellular** – one cell

 Ex: bacteria, amoeba

 **Multicellular** – more than one cell

 Ex: plants, animals

2. **Utilizes Energy and Matter**:

 - must gain energy and matter from some source

 1st Law of Thermodynamics: Energy cannot be created or destroyed

 **Autotroph** – **self feeders** – make their own food

 **Photoautotrophs** – use light

 Ex: Plants, algae

 **Chemoautotrophs** – use energy from chemicals

 Ex: Chemosynthetic bacteria

 **Heterotroph** – **other feeder** – take in food from outside of themselves

 Herbivore

 Carnivore

 Omnivore

 Detrivore

3. **Grow and develop**

 Overtime, groups will change = **evolution**

4. **Reproduction**

 **Asexual**: offspring come from one parent – genetically identical (**clones**)

 **Sexual**: offspring come from two parents – **genetic recombination**

5. **Respond to the Environment**:

 **Taxis** – directed movement

 [Chemotaxis](http://www.youtube.com/watch?v=0MtJBP7Ifb8)

 Phototaxis

 Thermotaxis

6. **Homeostasis**:

 - maintain a stable **INTERNAL** environment – fight death

 Ex: Thermoregulation

 Osmoregulation – salt and water balance

**Biological Hierarchy**

Atoms 🡪

Molecules 🡪

Organelles 🡪

Cells 🡪

Tissues 🡪

Organs 🡪

 Organ Systems 🡪

Organism 🡪

Population 🡪

Community 🡪

Ecosystem 🡪

 Biosphere