**Classification & Taxonomy**

**What is classification?**

* Organizing things into categories of some kind
* Grouped based on their characteristics

**Why do Scientists Classify Living Things?**

* Grouping living things helps us learn about them
* Grouping living things helps us understand them better

**Who Figured Out How to Classify Living Things?**

* Carolus Linnaeus developed the classification system used by scientists

**What is the Classification System used by Scientists Today?**

* **Kingdom**: Highest level...most general
  + 5 Kingdoms
    - Monera
      * Ex. bacteria (single, simple cells)
    - Protista
      * Ex. algae, amoeba (single, complex cells)
    - Fungi
      * Ex. mold, mushrooms and yeast
    - Plantae
      * Ex. producers who make their own food through photosynthesis
    - Animalia
      * Ex. mammals, reptiles, amphibians, birds and fish
  + Phylum or Phyla (Division for plants and fungi)
    - Grouped by shared characteristics
    - Share a common structure and organization
      * Ex. Chordate phylum are all animals with backbones
  + Class
    - Share common structures
      * Ex. Class Reptilia are all cold blooded
  + Order
    - Share common structures
      * Ex. Order Primates have flexible hands and feet
  + Family
    - Share common characteristics
      * Ex. Family Homindae walk on two feet
  + Genus
    - share common characteristics
      * Ex. Genus Homo (Latin for man) have large brains
  + Species
    - Most basic, members resemble each other
      * Ex. Species sapiens (Latin for wise) are known for their thinking abilities

**How can you remember the levels of classification?**

“Kids Prefer Cheese Over Fried Green Spinach”

**What is Taxonomy?**

* Scientific way of naming and classifying organisms
* Binomial Nomenclature
  + “two names” made of the organism’s genus and species
  + Ex. Humans are named Homo sapiens

**How can we IDENTIFY organisms?**

* There are millions of different species on Earth….how can we possibly identify them all?
* Ex. a beetle--even if we knew its kingdom (Animalia), its Phylum (Arthropoda) , its class ( insecta) and its order (coleoptera), you’d still have about 300,000 different species of beetles to choose from
* Scientists use a ***dichotomous key*** to identify organisms
  + asks a series of questions that can be answered in two ways (***di***chotomous)
  + Your answer leads you to another question with only two choices
  + The questions are asked about traits
  + Eventually, you are lead to the identity of the organism