

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

## Chapter 18 - Classification

### 18–1 Finding Order in Diversity

- How long has life been on earth? How diverse?

Why do we classify?

### Assigning Scientific Names

- What is a common name? Why are common names confusing? Give an example.

- Scientists have agreed to a single name for each species
- Use \_\_\_\_\_

### Binomial Nomenclature

- Carolus Linnaeus
  - a Swedish botanist, 1700s
- What is binomial nomenclature? What is the format?

### Scientific Names

- grizzly bear is called *Ursus arctos*
  - *Ursus* =
  - *arctos* =

- Often a Latinized description of some \_\_\_\_\_ of the organism or an indication of where the organism \_\_\_\_\_
  - *Ursus maritimus*, the \_\_\_\_\_
    - *maritimus*, referring to the sea

### Linnaeus's System of Classification

- Hierarchical - it consists of levels
- includes seven levels – What are they?

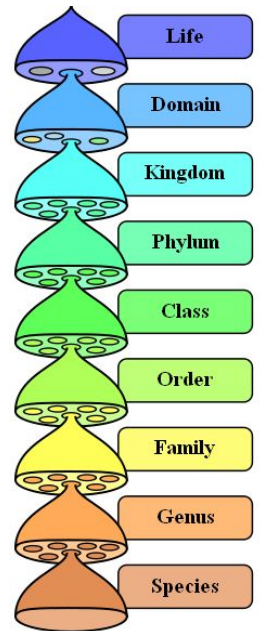


*Ursus arctos* (\_\_\_\_\_)

- Kingdom – Animalia
- Phylum – Chordata
- Class – Mammalia
- Order – Carnivora
- Family – Ursidae
- Genus – *Ursus*
- species - *arctos*

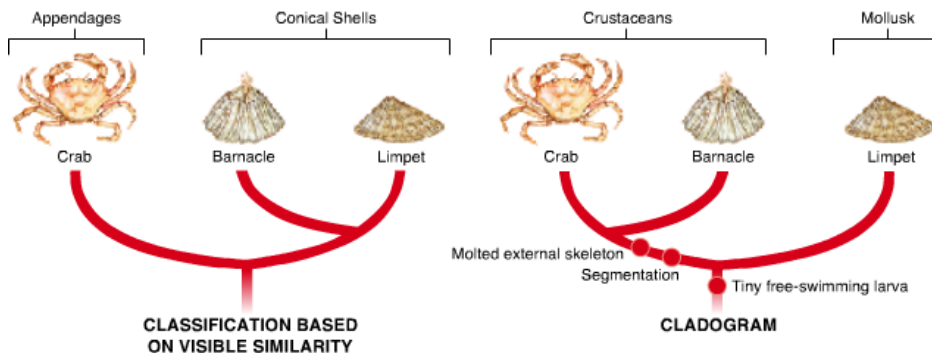
Humans

- Kingdom = Animalia
- Phylum (Division for plants) = Chordata
- Class = Mammalia
- Order = Primates
- Family = Hominidae
- *Genus* = \_\_\_\_\_
- *species* = \_\_\_\_\_

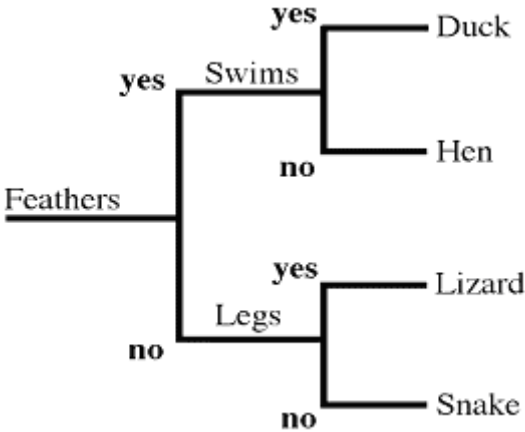
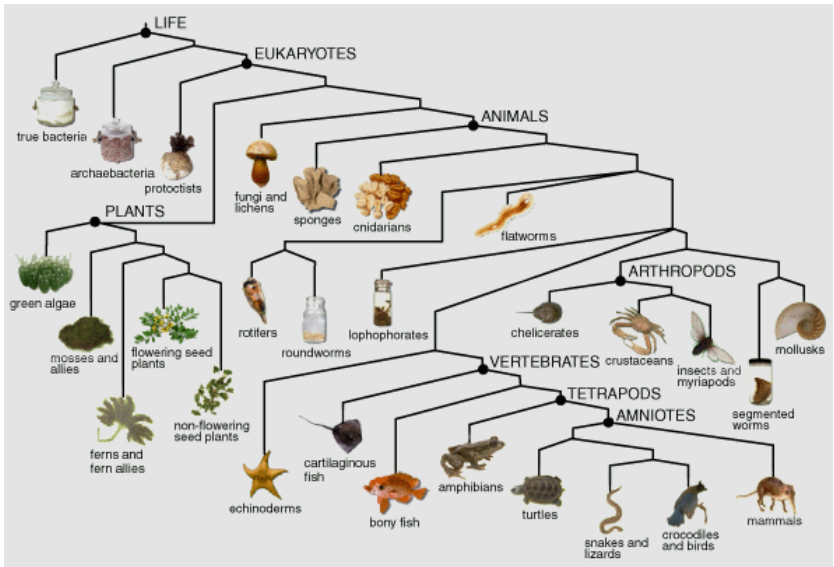


### 18–2 Modern Evolutionary Classification

- Taxonomic groups above the level of species are “\_\_\_\_\_” by researchers who decide how to distinguish between one genus, family, or phylum, and another.
- What is phylogeny?
- How did biologists used to group organisms? How do they do it now?



- The higher the level of the \_\_\_\_\_, the farther back in time is the common ancestor of all the organisms in the taxon.
- What is a cladogram? What does it show? How can DNA help?



**Dichotomous Keys**

- What is a dichotomous key? How is it set up?
- "Dichotomous" means "\_\_\_\_\_". Therefore, dichotomous keys always give two choices in each step.



Dichotomous Key to Representative Birds	
1. a.	The beak is relatively long and slender..... <i>Certhidea</i>
b.	The beak is relatively stout and heavy.....go to 2
2. a.	The bottom surface of the lower beak is flat and straight ..... <i>Geospiza</i>
b.	The bottom surface of the lower beak is curved .....go to 3
3. a.	The lower edge of the upper beak has a distinct bend ..... <i>Camarhynchus</i>
b.	The lower edge of the upper beak is mostly flat ..... <i>Platyspiza</i>

**18–3 Kingdoms and Domains**

- There are now \_\_\_ Kingdoms.
- \_\_\_\_\_ = most inclusive taxonomic category; larger than a kingdom

Changing Number of Kingdoms						
First Introduced	Names of Kingdoms					
1700s	Plantae					Animalia
Late 1800s	Protista			Plantae		Animalia
1950s	Monera	Protista	Fungi	Plantae	Animalia	
1990s	Eubacteria	Archaeobacteria	Protista	Fungi	Plantae	Animalia

Classification of Living Things						
DOMAIN	Bacteria	Archaea	Eukarya			
KINGDOM	Eubacteria	Archaeobacteria	Protista	Fungi	Plantae	Animalia
CELL TYPE	Prokaryote	Prokaryote	Eukaryote	Eukaryote	Eukaryote	Eukaryote
CELL STRUCTURES	Cell walls with peptidoglycan	Cell walls without peptidoglycan	Cell walls of cellulose in some; some have chloroplasts	Cell walls of chitin	Cell walls of cellulose; chloroplasts	No cell walls or chloroplasts
NUMBER OF CELLS	Unicellular	Unicellular	Most unicellular; some colonial; some multicellular	Most multicellular; some unicellular	Multicellular	Multicellular
MODE OF NUTRITION	Autotroph or heterotroph	Autotroph or heterotroph	Autotroph or heterotroph	Heterotroph	Autotroph	Heterotroph
EXAMPLES	<i>Streptococcus</i> , <i>Escherichia coli</i>	Methanogens, halophiles	<i>Amoeba</i> , <i>Paramecium</i> , slime molds, giant kelp	Mushrooms, yeasts	Mosses, ferns, flowering plants	Sponges, worms, insects, fishes, mammals

<u>Eubacteria</u>	<u>Fungi</u>
<u>Archaeobacteria</u>	<u>Plantae</u>
<u>Protista</u>	<u>Animalia</u>