**Guided Notes: Classification and Dichotomous Keys**

1. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* = grouping of objects by similarities

*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* = branch of biology that groups and names organisms based on the different characteristics

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - Greek philosopher (384-322 BC) was the 1st to develop a system of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Grouped organisms as either \_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and then by habitat and physical \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Useful, but not in an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sense.

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - Swedish botanist (1707-1778) who developed method that is still used today. Based \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on physical and structural similarities.

4. Modern Classification: 2-word naming system = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

•Identifies \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

•Written in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= dead language and never changes

•1st word = ***Genus***; group of similar \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

•2nd word = ***species***; specific \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

•Example = *Homo sapiens*

Scientific Names:

*Canis familiaris = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

*Felis domesticus = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

*Canis lupus = \_\_\_\_\_\_\_\_\_\_\_\_\_*

*Who is most closely related???\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ names can be very misleading*

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Used to identify species by characteristics. A set of paired questions to be answered as either \_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_.

6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = the study of evolutionary relationships

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = diagram that depicts evolutionary relationships among groups. It is based on phylogeny

In the past, biologists would group organisms based solely on their physical \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Today, with the advances in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, biologists can look more closely at individuals to discover their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of evolution, and group them accordingly - this strategy is called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

7. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shows the *evolutionary relationships* between groups of living things. It is like a *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_* for species.

9. How to read a cladogram: The closer two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are on the cladogram, the more closely they are related. This means they \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ apart more recently. Sometimes a cladogram will also list the characteristics that make two groups or organisms different.

10. Evolutionary Relationships are based on:

* + Structural similarities
  + Breeding behavior
  + Geographical location
  + Chromosome comparisons
  + Biochemistry

11. 7 Taxa (levels) of organization from broadest to most specific

Taxon: Example:

Kingdom \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Phylum \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Class \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Order \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Family \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Genus \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Species \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. ***Animalia*** – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – multicellular – largest kingdom with over 1 million known species

***Plantae*** – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – multicellular - autotrophs

***Archaebacteria*** – unicellular , found in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ environments like thermal vents with high heat and no oxygen

***Eubacteria –*** majority of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ we are familiar with fall into this category

***Fungi –*** includes, mushrooms, mold, mildew; are considered to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Protists –*** unicellular, includes diatoms, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_