**Chapter 18 Notes: Classification**

Learning Goal: Students will be able to: Classify organisms and explain modern evolutionary classification

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| Objectives | Vocabulary |
| * Describe the goals of binomial nomenclature & systematics
* Identify the taxa in the classification system devised by Linnaeus
* Explain the difference between evolutionary classification & Linnaean classification
* Describe how to interpret and make a cladogram
* Explain the use of DNA sequences in classification
* Name the 6 kingdoms of life as they are currently identified
* Explain what the tree of life represents
 | Binomial nomenclatureCladogramDomainKingdomClass order  | family genus speciestaxonomytaxaderived charactertree of life |

* Each species is assigned a two part scientific name



* + 1st – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ 2nd – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Organize living things into groups that have

biological meaning

* Taxonomy –

-the groups are called \_\_\_\_\_\_\_\_

**Linnaeus classification**

* Classification system that includes 7 hierarchical

 taxa: Species, genus, family, order, class, phylum,

Kingdom

CheckPoint

1. What are the goals of binomial nomenclature

and systematics?

1. What are the taxa in Linnaeus classification system?

**Goal of evolutionary classification**

* To group \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into larger categories that reflect lines of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, rather than overall similarities & differences
* Linnaeus had 2 groups: plants & animals – his groups depended on characteristics – similarities & differences.
* Evolutionary Classification uses Cladograms to show relationships between different species
* Cladograms link groups of organisms by showing how evolutionary lines branched off from common \_\_\_\_\_\_\_\_\_\_\_\_\_ (traits shared with ancestors). Each branch point is when a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ takes place(one species splits into 2). The bottom or root is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ancestor

 

We can also use DNA to build Cladograms in Classification

* The more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ characters 2 species share the more recently they shared a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the more closely they are related evolutionary
* Derived characters:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The more closely related species are the more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ their \_\_\_\_\_\_\_\_\_ will be. As more time passes between speciation, there will be more mutations and so more differences in species DNA sequences



1. What is the difference between evolutionary and Linnaean classification?
2. How would you create and read a cladogram?
3. How are DNA sequences used in classification?

3 Domains & 6 Kingdoms

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| --- | --- | --- | --- |
| Domains | Eubacteria | Archae-Bacteria | Eukarya |
| Kingdoms  |  |  |  |  |  |  |
| Characteristics |  |  |  |  |  |  |

**Tree of Life**

* The tree of life shows current \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ regarding \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ among the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ within the 3 domains of life



* 3 domains: eubacteria, archaea, eukarya
1. Name the 6 kingdoms of life
2. Explain what the tree of life represents