**Phylogenetic Tree:** a branching diagram that **represents the evolutionary history** of a group of organisms.

Bio12 AP **Phylogeny and the Tree of Life** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chap 26 Bozeman Phylogenetics- <https://www.youtube.com/watch?v=fQwI90bkJl4> Date: \_\_\_\_\_\_\_\_\_\_\_

pg 538- & Cladograms <https://www.youtube.com/watch?v=ouZ9zEkxGWg> Block: \_\_\_

-each **branch** p**oint** or “clade” represents a **divergence from a common evolutionary ancestor-branch lengths** can be proportional to the **amount of evolutionary change** or to **the amount of time**.

-Phylogenies are inferred from **homologies**🡪 body structures, genetic, biochemical, and/or early embryological similarities due to **common ancestry.**

**Cladograms** do the same thing but with less “bells & whistles” and do not show time in proportion to clade length.



**Molecular systematics-** the discipline that uses data from DNA and other molecules to determine evolutionary relationships has transformed phylogeny!



**Principle of Maximum Parsimony**

Identify the hypothesis/ tree that requires the fewest evolutionary events (molecular changes) to have occurred

🡪 this is the most parsimonious

**Principle of Maximum Likelihood**

**Apply probability rules to DNA changes to find a most likely tree**

