

The Terminology of Systematics

1. **taxon:** named taxonomic unit to which individual species or sets of species are assigned; can be any category of classification (i.e. kingdom, phylum, class, order, family, genus, species) (pl. taxa)
2. **terminal taxon:** units that occur at the tips of a phylogenetic tree
3. **node:** position on a tree where 3 (or more) branches meet. i.e. where an ancestral lineage divides into 2 (or more) descendent lineages
4. **branch:** connection between terminal taxon and a node or between 2 nodes of a tree
5. **dichotomy:** node on a tree that connects 3 branches
6. **polytomy:** node on a tree that connects more than 3 branches
7. **sister taxa:** terminal taxa that are each other's closest relatives (i.e. whose branches attach to the same node)
8. **most recent common ancestor:** a taxon that at some past time split into 2 (or more) taxa, each of which gave rise to one of the clades under discussion
9. **root:** oldest node on the tree (i.e. node from which all included taxa descended)
10. **clade/monophyletic group:** a group containing all known descendents of a single common ancestor (all of the branches attached to a node)
11. **paraphyletic group:** a group that contains some, but not all known descendents of a single common ancestor
12. **character:** feature, trait, or attribute of an organism
13. **character state:** one of the possible variant conditions of a character
14. **plesiomorphy:** an ancestral character state; i.e. a character state that originated prior to the immediate common ancestor of the taxa under consideration (i.e., inherited from a distant common ancestor).
15. **symplesiomorphy:** a *shared* ancestral character state, i.e., a character state shared by 2 or more taxa that is inferred to have evolved in a distant common ancestor
16. **apomorphy:** a derived character state; i.e. a character state that originated in the immediate (i.e., most recent) common ancestor of the taxa under consideration
17. **synapomorphy:** a *shared* derived character state, i.e. a character state shared by 2 or more taxa that is inferred to have evolved in their most recent common ancestor
18. **ingroup:** the set of taxa that are the focus of interest for a phylogenetic analysis
19. **outgroup:** taxa included in the phylogenetic analysis that are more distantly related to all members of the ingroup than the ingroup members are to one another. (i.e. ingroup is monophyletic with respect to the outgroup)