

Knowledge-based Learning Outcomes

Upon completion of *Flowers and Trees (WB)*, students should be able to:

1. Name different features of an evolutionary tree.
2. Deduce ancestral traits from the traits of terminal taxa on a tree.
3. Identify where trait transitions have occurred on a tree

Students should also reduce their expression of the following misconceptions:

1. In a vertically drawn tree, the oldest species is the one that labeled on the left-most tip (or the equivalent in a horizontally drawn tree).
2. The proximity of tree tips indicates the evolutionary relationship between taxa represented.
3. The number of nodes separating two species indicates how closely they are related.
4. A straight line on a tree means there has not been any evolutionary change.

Skills-based Learning Outcomes

Upon completion of *Flowers and Trees (WB)*, students should be able to:

1. Interpret the information shown in an evolutionary tree.
2. Reconstruct a tree from a list of traits of extant species assuming no convergence or loss of novel traits.
3. Given an evolutionary tree, indicate the direction in which time is progressing.