Phylogeny for VCE Biology

## Section 2, Module 1: Student Copy

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| Convergent evolution | Are characters that are similar but do not share common ancestry, such as the wings in bats and birds. |
| Monophyletic groups | Is a process where organisms that are not closely related (meaning they are not part of a monophyletic group) independently evolve similar traits (analogous) as a consequence of living in similar environmental conditions. |
| Homologous traits | Is an approach that helps choose the most likely phylogenetic tree by identifying the one with the shortest evolutionary pathway. |
| Analogous traits | Are one kind of molecular data that can be used in phylogenetic studies. Although not as reliable as DNA or protein sequencing, this kind of data can give interesting insights on the adaptation of metabolic pathways according to the environmental pressures suffered by the organism. |
| Parsimony | The most recent species from which two or more different species evolved. |
| DNA sequences | Are sets of organisms that derived from the same ancestral group or organism and are, therefore, more closely related. |
| Chemical properties | Are one kind of molecular data that can be used in phylogenetic studies. They provide very detailed and unambiguous data that can be easily converted to numerical form, which makes it suitable for mathematical and statistical analysis. |
| Common ancestor | A diagram that represents the evolutionary history of determined organisms or groups, separating them in clades. It is a useful tool to organise biological diversity on Earth, providing an insight on most relevant evolutionary events. |
| Phylogenetic tree | Are characters that are similar because they were originated from a common ancestor, such as the presence of four limbs in all tetrapods (birds, mammals, reptiles, etc). |