1. adaptive radiation - The emergence of numerous species from a common ancestor introduced into an environment that presents a diversity of new opportunities and challenges.

2. allometric growth - The variation in the relative rates of growth of various parts of the body, which helps shape the organism.

3. allopatric speciation - A mode of speciation induced when an ancestral population becomes segregated by a geographic barrier or is itself divided into two or more geographically isolated subpopulations.

4. Allopolyploid - A common type of polyploid species resulting from two different species interbreeding and combining their chromos.

5. Autopolyploid - An individual that has more than two chromosome sets, all derived from a single species.

6. biological species concept - Definition of a species as a population or group of populations whose members have the potential to interbreed in nature and produce viable, fertile offspring, but are not able to produce viable, fertile offspring with members of other populations.

7. ecological species concept - Defining species in terms of ecological roles (niches).

8. Heterochrony - Evolutionary change in the timing or rate of an organism’s development.

9. homeotic gene - Any of the genes that control the overall body plan of animals and plants by controlling the developmental fate of groups of cells.

10. Macroevolution - Evolutionary change above the species level, including the appearance of major evolutionary developments, such as flight, that we use to define higher taxa.

11. Microevolution - Evolutionary change below the species level; change in the genetic makeup of a population from generation to generation.

12. morphological species concept - Defining species by measurable anatomical criteria.

13. Paedomorphosis - The retention in an adult organism of the juvenile features of its evolutionary ancestors.

14. paleontological species concept - Definition of species based on morphological differences known only from the fossil record.

15. phylogenetic species concept - Defining a species as a set of organisms with a unique genetic history.

16. polyploidy - A chromosomal alteration in which the organism possesses more than two complete chromosome sets.
17. postzygotic barrier - Any of several species-isolating mechanisms that prevent hybrids produced by two different species from developing into viable, fertile adults.

18. prezygotic barrier - A reproductive barrier that impedes mating between species or hinders fertilization of ova if interspecific mating is attempted.

19. punctuated equilibrium - In evolutionary theory, long periods of apparent stasis (no change) interrupted by relatively brief periods of sudden change.

20. reproductive isolation - The existence of biological factors (barriers) that impede members of two species from producing viable, fertile hybrids.


22. Species - A group whose members possess similar anatomical characteristics and have the ability to interbreed.

23. species selection - A theory maintaining that species living the longest and generating the greatest number of species determine the direction of major evolutionary trend.

24. sympatric speciation - A mode of speciation occurring as a result of a radical change in the genome of a subpopulation, reproductively isolating the subpopulation from the parent population.

Chapter 25

1. analogy - Similarity between two species that is due to convergent evolution rather than to descent from a common ancestor with the same trait.

2. binomial - The two-part latinized name of a species, consisting of genus and specific epithet.

3. clade - A group of species that includes an ancestral species and all its descendants.

4. cladistics - The analysis of how species may be grouped into clades.

5. cladogram - A diagram depicting patterns of shared characteristics among species.

6. class - In classification, the taxonomic category above order.

7. domain - A taxonomic category above the kingdom level. The three domains are Archaea, Bacteria, and Eukarya.

8. family - In classification, the taxonomic category above genus.

9. fossil record - The chronicle of evolution over millions of years of geologic time engraved in the order in which fossils appear in rock strata.

10. genus - (plural, genera) A taxonomic category above the species level, designated by the first word of a species' two-part scientific name.

11. homology - Similarity in characteristics resulting from a shared ancestry.
12. homoplasy - Similar (analogous) structure or molecular sequence that has evolved independently in two species.

13. in-group - In a cladistic study of evolutionary relationships among taxa of organisms, the group of taxa that is actually being analyzed.

14. kingdom - A taxonomic category, the second broadest after domain.

15. maximum likelihood - A principle that states that when considering multiple phylogenetic hypotheses, one should take into account the one that reflects the most likely sequence of evolutionary events, given certain rules about how DNA changes over time.

16. maximum parsimony - A principle that states that when considering multiple explanations for an observation, one should first investigate the simplest explanation that is consistent with the facts.

17. molecular clock - An evolutionary timing method based on the observation that at least some regions of genomes evolve at constant rates.

18. molecular systematics - The comparison of nucleic acids or other molecules in different species to infer relatedness.

19. monophyletic - Pertaining to a grouping of species consisting of an ancestral species and all its descendants; a clade.

20. neutral theory - The hypothesis that much evolutionary change in genes and proteins has no effect on fitness and therefore is not influenced.

21. order - In classification, the taxonomic category above family.

22. orthologous genes - Homologous genes that are passed in a straight line from one generation to the next, but have ended up in different gene pools because of speciation.

23. out-group - A species or group of species that is closely related to the group of species being studied, but clearly not as closely related as any study group members are to each other.

24. paralogous genes - Homologous genes that are found in the same genome due to gene duplication.

25. paraphyletic - Pertaining to a grouping of species that consists of an ancestral species and some, but not all, of its descendants.

26. phylogenetic tree - A branching diagram that represents a hypothesis about evolutionary relationships.

27. phylogeny - The evolutionary history of a species or group of related species.

28. phylogram - A phylogenetic tree in which the lengths of the branches reflect the number of genetic changes that have taken place in a particular DNA or RNA sequence in the various lineages.

29. phylum - In classification, the taxonomic category above class.
30. polyphyletic - Pertaining to a grouping of species derived from two or more different ancestral forms.

31. shared derived character - An evolutionary novelty that evolved within a particular clade.

32. shared primitive character - A character displayed in species outside a particular taxon.

33. specific epithet - The second part of a binomial, referring to one species within a genus.

34. Systematics - The analytical study of the diversity and relationships of organisms, both present-day and extinct.

35. Taxon - (plural, taxa) The named taxonomic unit at any given level of classification.

36. Taxonomy - Ordered division of organisms into categories based on a set of characteristics used to assess similarities and differences, leading to a classification scheme; the branch of biology concerned with naming and classifying the diverse forms of life.

37. ultrametric tree - A phylogenetic tree in which the lengths of the branches reflect measurements of geologic time.