Chapter 25. The history of Life on Earth

Definitions, explanations, lists (DO NOT SUBMIT)

Macroevolution
Four main steps for the origin of life on earth
Protobionts
When was earth formed?
Half-life
Age of first fossils and when life began on earth
Age of first eukaryotic organism
Endosymbiosis
Date of colonization of land
Date of Pangaea
Mass extinction
Adaptive radiation
Exaptation
Heterochrony
Paedomorphosis

*Assigned Questions (**SUBMIT**)*

1) ***Which organisms began the oxygen revolution?***
2) What hypothesis did Miller test in his classic experiment?
3) Why is fossil record an incomplete chronicle of evolutionary change?
4) What happened during the Cambrian explosion?

Review Exercises (DO NOT SUBMIT)

1) Try the self-quiz and the Science, Technology and Society question.
2) List the evidence that supports the endosymbiotic origin of plastids and mitochondria.
3) What are the five generally recognized mass extinction events?
4) What is the function of Hox genes
5) Try Concept Check 25.2, #1 and #3 on page 548, and Concept Check 25.3 on page 554.

Chapter 26. Phylogeny and the Tree of Life

Definitions, explanations, lists (not to be handed in)

Phylogeny
Systematics
Taxonomy
Binomial nomenclature
Phylogenetic trees
Polytomy
Basal taxon
Analogy/homoplasy vs Homology
Clade / Cladistics
Phylogram
Monophyletic / Paraphyletic / Polyphyletic
Molecular clock
Orthologous genes vs Paralogous genes
5 kingdoms
3 domains

Assigned Questions (SUBMIT)

1) Give an example of a shared ancestral character and a shared derived character for humans
2) List the levels of the Linaean hierarchical classification from smallest to largest
3) What is the key assumption(s) behind the validity of a molecular clock?

Review Exercises (not to be handed in)

Try the self-quiz.

1) Explain how the wings of a bat and a bird are both homologous and products of convergent evolution.
2) What would be on the x and y axes of a graph to calibrate a molecular clock?
3) Give an example of an unexpected phylogeny that has been revealed by molecular systematics.
4) Why are phylogenetic trees considered to be hypotheses?
5) Is the taxon Monera monophyletic, paraphyletic or polyphyletic?
6) Try Draw It on p. 590