

1. Who are the closest non-chordate relatives to the chordates? What characteristics unite these groups with the chordates (i.e., what characteristics do chordates share with these groups)?
2. Who are the chordates? List and describe (including evolutionary derivatives) the characteristics that "define" the phylum and list the subphyla within the phylum. What are the earliest known fossil non-vertebrate chordates? About how old are they and where were they found?
3. Who are the vertebrates? What characteristic defines the subphylum? Describe the other unique characteristics found in this group.
4. How, in general, do vertebrate body size and activity levels compare to those of non-vertebrate chordates? What general evolutionary challenges does this present?
5. Describe the basic structure and function of the major vertebrate organ systems, being careful to define relevant terms and discuss variation in systems within and among major vertebrate groups as appropriate.
6. Describe the "cost/benefit" model for studying adaptation. Discuss the allocation of energy within individuals and explain the relationship between energy allocation and the study of adaptation. Be sure to define all relevant terms. Include a discussion of the relationships among standard metabolism, homeostasis, and activity levels.
7. Given the relationships described in #6 above, discuss the two broad sets of strategies organisms can use to maximize reproductive success. Illustrate these strategies using temperature regulation as your example. Be sure to correctly define and outline the major thermoregulatory strategies and to describe the relative advantages and disadvantages (costs/benefits) of each.