

CLASSROOM CLADOGRAM OF VERTEBRATE/HUMAN EVOLUTION

PROCEDURES

A. You will be assigned to a working team of 2-4 students, and each team will be randomly assigned an Animal Group on which to work. Your team will be given a strip of paper (one copy per student) with:

- 1) the name of your team's animal group (sometimes with names of specific members of that group);
- 2) the age of the group (when it first appeared in the fossil record)

B. Each person will receive a sheet of traits, arranged in clusters, each cluster identified with a color.

C. Your mission (every student):

Part 1: figure out which cluster of traits were **first** exhibited by your assigned animal group. Use your textbook, other books available (school, library, local university), the internet. Each member of the team does this for **homework**, and reports back to the team **next day** with selection preference; teams will share and compare results with other teams. Problems will be discussed and resolved in class. You will now be given a **Background Information** packet and a list of **Illustration Resources**.

- Part 2:** Once the traits are properly assigned to your group, look for pictures of examples of that group:
- a. earliest members of that group (pictures of fossils and/or reconstructions of their likely appearance);
 - b. modern-day typical representatives of that group (clade).

If possible, make photocopies of the best examples found. Record the sources for the pictures of each animal found. Bring these to share with your team.

Part 3: Each team prepares a large-print page (8 1/2 X 11 inches) showing: your animal group name, time of first appearance, and the list of its traits (this sheet can be made with a word processor, if possible), and then selects the best example of (a) and (b) above; these three sheets (in most cases) are to be placed on the giant cladogram on "Cladogram Day". Select a team representative who will orally share a few interesting and/or unusual bits of information learned about the animal group.

Part 4: On "Cladogram Day", each team will, in turn, place their 3 sheets (for most teams) on the giant cladogram:

- a. Sheet with name of animal group, time of first appearance, and list of traits (placed near timeline);
- b. Sheet with picture of earliest member of the branch group (clade) - placed on or near the timeline, at the base of its vertical branch to the modern (living) members of that clade;
- c. Sheet with picture of modern example of that group (placed at upper end of the branch line).

SPECIAL NOTE: For **Team 6**, include a 4th sheet with "Birds" on it; For **Team 11**, pictures b and c may be combined into one sheet.

Team representative will share interesting/unusual information about the animal group.

Part 5: Participate in class discussion of the cladogram. Be prepared to comment on:

- a. what does the cladogram tell us?
- b. what does the cladogram NOT tell us (that one might think it would)?
- c. what concepts were learned in making and discussing this cladogram?

Part 6: Prepare a summary form (one per team) which shows what each person on the team did, what the cladogram shows (in general), and the main concept(s) learned. Your grade will be the team grade, based on everyone contributing his/her fair share, and the overall quality of your paper (2 or 3 sheets, as necessary) and the oral presentation.