

Last Name _____ First Name: _____

Cladistics

You must do some preliminary research prior to the February 9th lab. Complete the taxon/character matrix on this first page only, and hand in a **copy of page 1** at the beginning of the lab period. Do not proceed any further. We will complete the exercise together during the lab. The characters and taxa used in our exercise should have been covered in your pre-requisite introductory course. However, I suggest you use a botany text, or any other source, rather than just relying on your memory.

Taxa
1. Anthophyta (Angiosperms)
2. Cyanobacteria (Blue green algae)
3. Pterophyta (Ferns)
4. Chlorophyta (Green Algae)
5. Bryophyta (Mosses)
6. Bacillariophyta (Diatoms)
7. Coniferophyta (Gymnosperms)

Characters
For each of the above taxa determine the presence/absence of the following characteristics:
A. Chlorophyll: e.g. a, b, c, d, etc. (some taxa have more than one)
B. Vascular tissue (xylem & phloem)
C. Seeds
D. Dominant sporophyte
E. Chloroplasts
F. Embryos
G. Flowers

1. Complete the data matrix below.

Taxon\Character Matrix (complete the table below)							
Taxon\Character	A	B	C	D	E	F	G
Anthophyta							
Cyanobacteria							
Pterophyta							
Chlorophyta							
Bryophyta							
Bacillariophyta	a	c	No			Yes	
Coniferophyta							

2. Copy the information from the matrix above into the matrix below, but substitute 0 for No and 1 for Yes. What should you do about the chlorophylls?

Taxon\Character Matrix								
Taxon\Character	A	B	C	D	E	F	G	

3. In the matrix below re-order the characters (i.e., change the order of the columns of the table from step two) so that the column with the most 0's is on the left and the column with the most 1's is on the right.

Taxon\Character Matrix								
Taxon\Character								

4. Complete the table below using the information from the table above in step three. Add up the number of "1's" for each taxon. For each taxon then subtract the number of autoapomorphies.

Taxon	# of 1's	# of autoap.	Difference

