COVER PAGE

Phylogenetics Lab Exercise

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Very simple activity -- however, it's deceptively simple. This exercise really challenges students.
Easily adaptable to whatever material you have available. You don't even need fossils.
You can make it as hard or as easy as you want. No matter what "taxa" you use, students will struggle to identify characters that are shared by some but exclude others.
They will come to appreciate the difficulty of constructing hierarchies of relatedness.
Students will also better appreciate the value of phylogenetically informative data.

GEOL 4510
Fall 2008

Lab Three

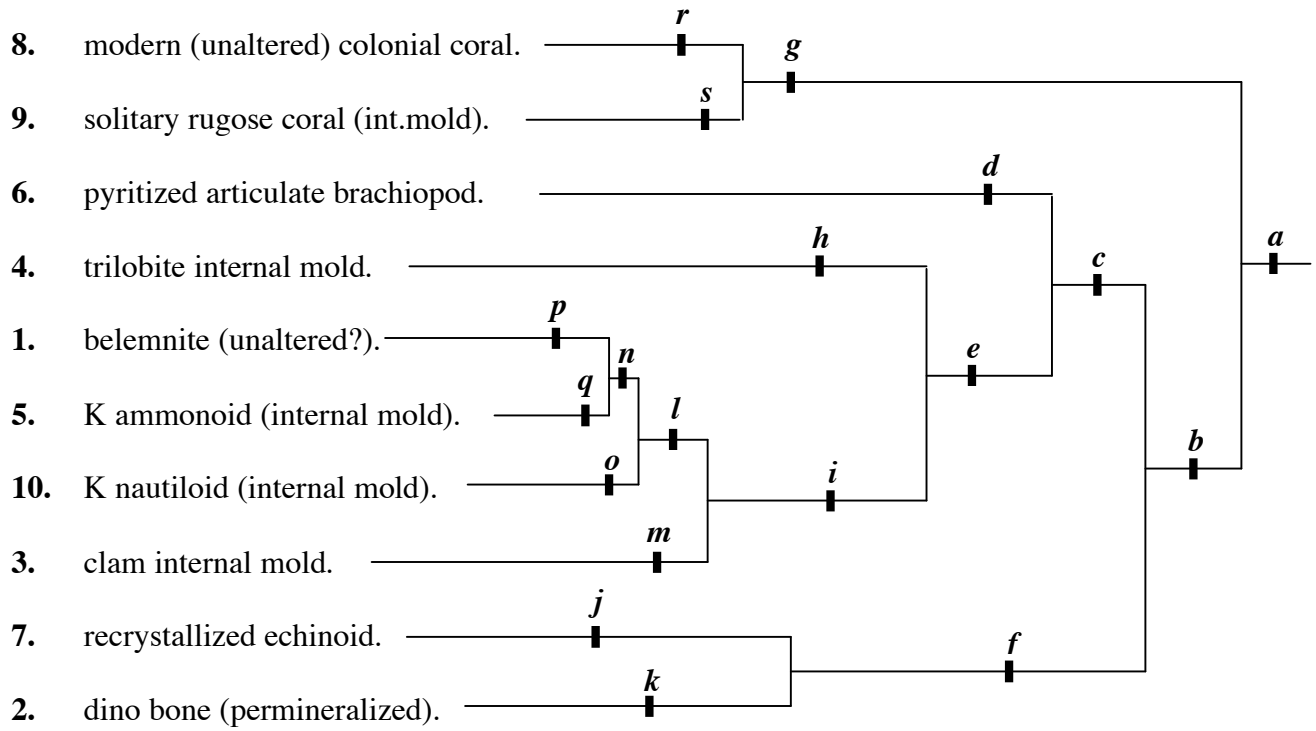
Please examine the specimens out on the lab bench, and construct a phenogram to classify them.

Note: It doesn't really matter if you know what the organisms are or not – all you need to do is make careful observations about morphology, and then classify them according to what you consider the important common characteristics that unite some taxa and differentiate them from other taxa. There are multiple acceptable solutions. This activity is about "the process" not "the product".

set of taxa:

1. belemnite (unaltered?).
2. dino bone (permineralized).
3. clam internal mold.
4. trilobite internal mold.
5. K ammonoid (internal mold).
6. pyritized articulate brachiopod.
7. recrystallized echinoid.
8. modern (unaltered) colonial coral.
9. solitary rugose coral (int.mold).
10. K nautiloid (internal mold).

for example:



a: multicellular animals
b: triploblastic animals
c: protostomes
d: lophophorates
. . . etc. . .