

Mystery organism

Use the information given below to narrow down the mystery organism. List three organisms that fit into each level listed. Try not to repeat organisms, if possible.

Domain: Eukaryotes _____

Kingdom: Animalia _____

Phylum: Chordata _____

Class: Mammalia _____

Order: Carnivora _____

Family: Mustelidae _____

Subfamily:

Genus:

Species:

Hint: Some organisms would care very deeply if they were correctly identified from its phylogenetic classification. However, this organism likely would not give an ounce of digested proteins, carbohydrates and lipids.

Bio 27.2

Goals: Map out organisms based on their phylogenetic

Plan:

Review levels of organization

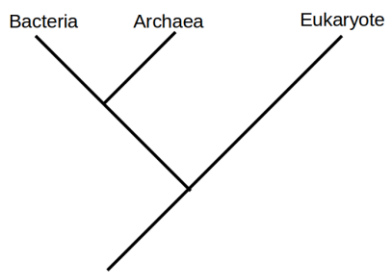
Map out movies based on their genres and relations to each other

Biology

In class worksheet

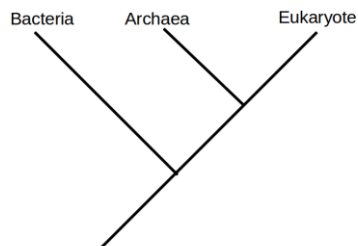
Name _____ Hour _____

1. Prokaryotes is a group which includes both domains Bacteria and Archaea, but does not include the domain Eukaryote. When first proposed, the domain organization looked like this.



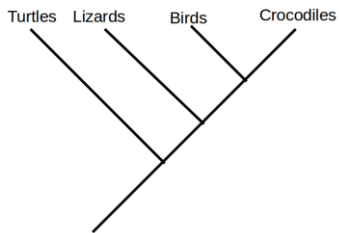
Was the group prokaryote a monophyletic group? Explain why or why not.

2. A few years after it was discovered, the domain Archaea was reclassified as shown below.



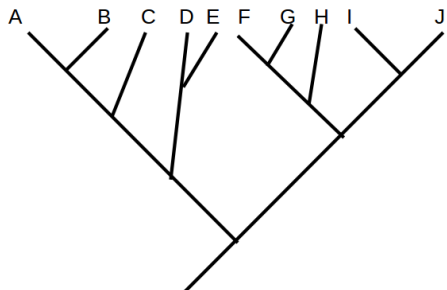
Is the group still monophyletic? Explain why or why not?

3. The group of reptiles includes turtles, lizards, and crocodiles, but does not include birds.



Is the group monophyletic? Why or why not?

4. You're asked to define taxonomic categories for the following cladogram. Describe the members of



your groups, and give them names.

Classes:

Orders:

Families:

Genera:

Of course, unless there's information on precisely how closely these are related, we can't be sure that the groups actually are classes, orders, etc. But assume that's the scale of this cladogram.

5. Draw a cladogram which includes the following three species

	Cottontail rabbit	Grey kangaroo	Big Lebowski Spider
Domain	Eukaryote	Eukaryote	Eukaryote
Kingdom	Animal	Animal	Animal
Phylum	Chordata	Chordata	Arthropod
Class	Mammal	Mammal	Arachnid
Order	Lagomorph	Diprotodontia	Aranease
Family	Leporidae	Macropodidae	Theridiidae
Genus	<i>Sylvilagus</i>	<i>Macropus</i>	<i>Anelosimus</i>
Species	<i>S. floridanus</i>	<i>M. giganteus</i>	<i>A. biglebowski</i>

(Yes, the Big Lebowski spider is a real species.)

6. On your cladogram above, add in the Dude spider (*Anelosimus dude*). Why is it not necessary to be given the full taxonomy, if you know the genus is *Anelosimus*?

7. Make a cladogram using the following organisms

	<u>Japanese pine tree</u>	<u>Lebanon cedar</u>	<u>Tuberculosis</u>
Domain	Eukaryote	Eukaryote	Bacteria
Kingdom	Plant	Plant	Actinobacteria

Phylum	Pinophyta	Pinophyta	Actinomycetales
Class	Pinopsida	Pinopsida	Actinobacteridae
Order	Pinales	Pinales	Corynebacterinaea
Family	Pinaceae	Pinaceae	Mycobacteriaceae
Genus	Pinus	Cedarus	Mycobacterium
Species	<i>P. densiflora</i>	<i>C. libani</i>	<i>M. tuberculosis</i>

	<u>Salmonella</u>	<u>Ostrich</u>	<u>Wolf</u>
Domain	Bacteria	Eukaryote	Eukaryote
Kingdom	Eubacteria	Animal	Animal
Phylum	Proteobacteria	Chordata	Chordata
Class	Gammaproteobacteria	Aves	Mammal
Order	Enterobacteriales	Struthioniformes	Carnivore
Family	Enterobacteriaceae	Struthionideae	Canidae
Genus	Salmonella	Struthio	Canis
Species	<i>S. enterica</i>	<i>S. camelus</i>	<i>C. lupus</i>

	<u>Brown bear</u>	<u>Pink salmon</u>
Domain	Eukaryote	Eukaryote
Kingdom	Animal	Animal
Phylum	Chordata	Chordata
Class	Mammal	Actinopterygii
Order	Carnivore	Salmonformes

Family	Ursidae	Salmonidae
Genus	Ursus	Oncorhynchus
Specis	<i>U. arctos</i>	<i>O. gorbusca</i>