

Name: _____

Date: _____

CLADOGRAM Option 1

What is a cladogram? It is a diagram that depicts evolutionary relationships among groups. It is based on **PHYLOGENY**, which is the study of evolutionary relationships. Sometimes a cladogram is called a phylogenetic tree.

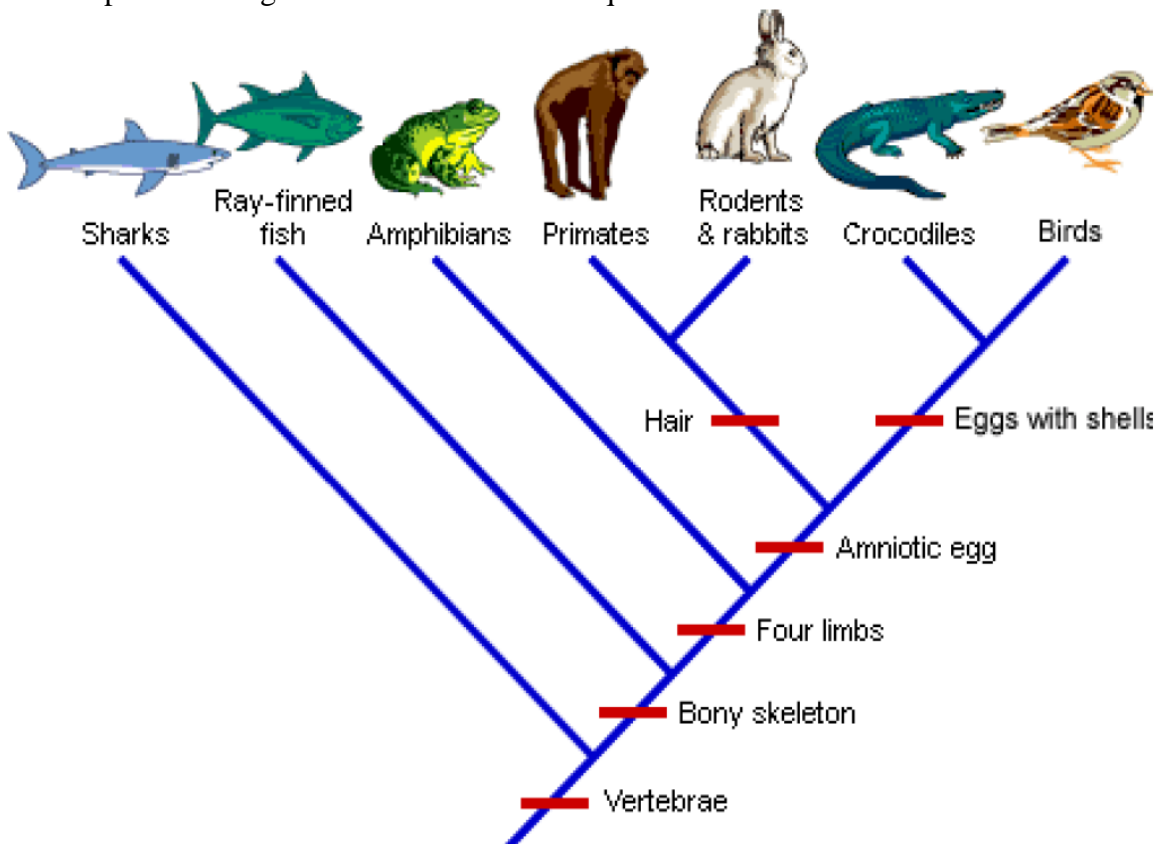
*You will need headphones for this set of worksheets. View the movie that shows you how to construct a cladogram below. You will need this set of skills to do the rest of this worksheet.

<http://ccl.northwestern.edu/simevolution/obonu/cladograms/Open-This-File.swf>

Draw the diagram that you see on the above website below:



Use the completed cladogram below to answer the questions on the back.



What trait separates amphibians from primates on this cladogram? _____

What separates rabbits and primates from crocodiles on this cladogram? _____

Which organism is most related to the bird on this cladogram? _____

What 5 traits do these two organisms share? _____

Which organism will have DNA most similar to the bird? _____

Which organism's DNA will differ the most from the bird?

Cladograms are diagrams which depict the relationships between different groups of taxa called "clades". By depicting these relationships, cladograms reconstruct the evolutionary history (phylogeny) of the taxa. Cladograms can also be called "phylogenies" or "trees".

Cladograms are constructed by grouping organisms together based on their shared derived characteristics.

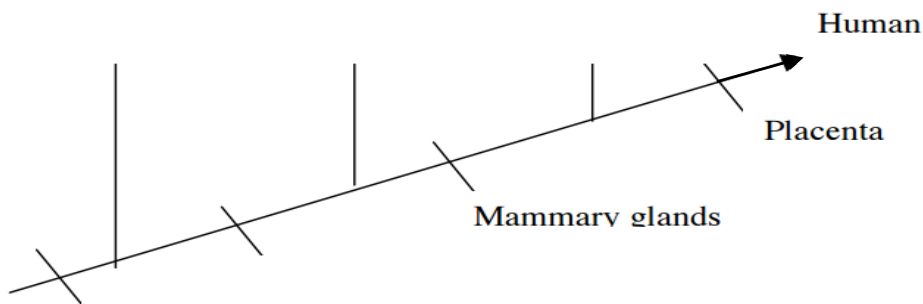
Example:

1. Given these characters and taxa:

Taxa

Characters	Shark	Bullfrog	Kangaroo	Human
Vertebrae	X	X	X	X
Two pairs of limbs		X	X	X
Mammary glands			X	X
Placenta				X

Fill in the cladogram below with the names of the organisms and the character traits. Two were done for you.

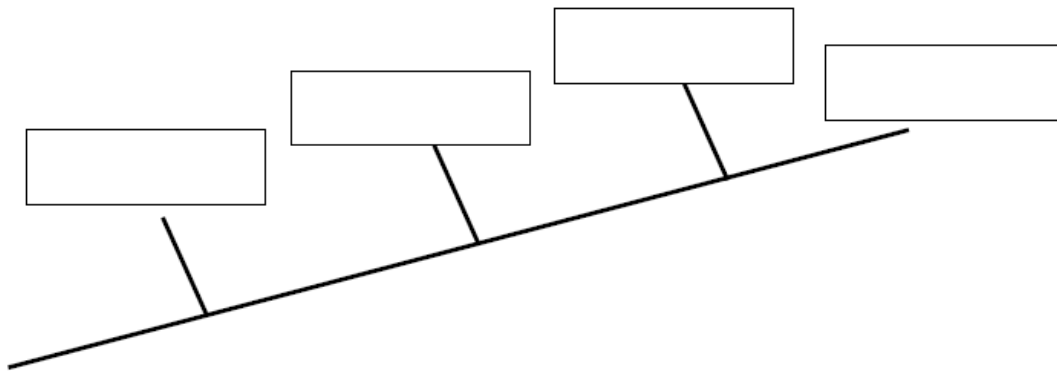


1. Fill in the following table. Mark an "X" if an organism has the trait.

	hair	legs	opposable thumbs	eyes
Human				
Snake				
Monkey				
Lizard				

2. Add each of these organisms to the cladogram below: human, snake, monkey, lizard

3. USING complete sentences, explain why you put each organism where you did on the cladogram.



4. On the cladogram above, add traits that make the organisms different from each other.

5. According to your cladogram, which two species are more closely related: humans or snakes or humans or monkeys? How do you know?

6. According to your cladogram, what species are humans most closely related to? How do you know?