



Phylogenetic Trees & Cladograms 101 video notes

- Phylogenetic trees and cladograms represent a _____

- Each branch point represents _____
- _____ are groups that share an _____
- A _____ includes a branch to represent the _____

- A _____ is a branch from which more than _____

Draw and label the Phylogenetic tree in the video below

What is Phylogeny? – Phylogeny is the study of _____

Why is Phylogeny important? - Understanding and classifying the diversity of life on Earth

Testing Evolutionary hypotheses:

- Trait evolution, coevolution, mode and pattern of speciation, correlated trait evolution, biogeography, _____

Analyzing & Interpreting Phylogenetic Relationships – Draw the Phylogenetic relationship chart below:

Branching diagram showing relationships between _____

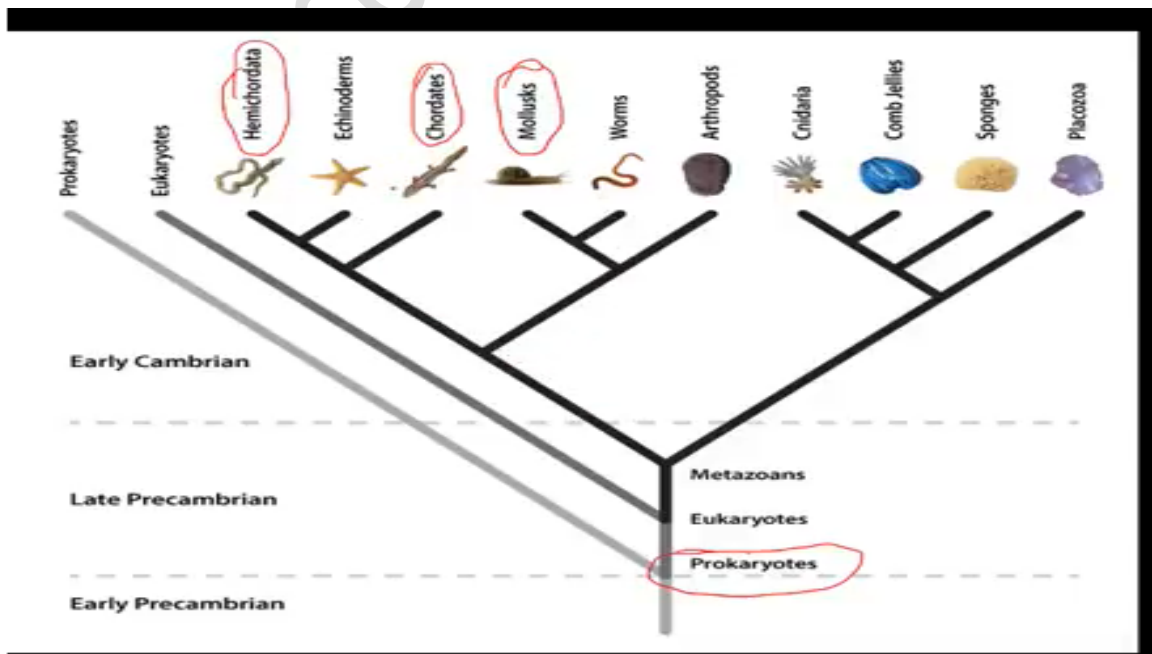
Draw the phylogenetic trees below:

A & B are most closely related because they _____

A + B + C are more closely related to each other than to D because they share _____

Check for Understanding 1 – Analyze the phylogenetic tree and answer the comprehension questions

1. What type of organisms do all of the other organisms originate from? _____
2. What are worms closest related to? _____
3. Which are more closely related, Chordates and Mollusks or Chordates and Hemichordata? _____
4. Which organism are Cnidaria least related to on their branch? _____



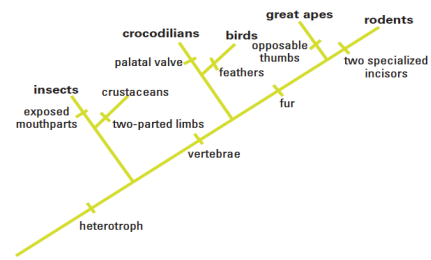
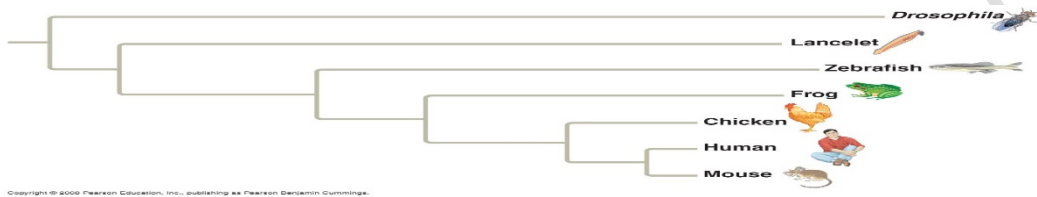


Figure 4. Fossil Cladogram

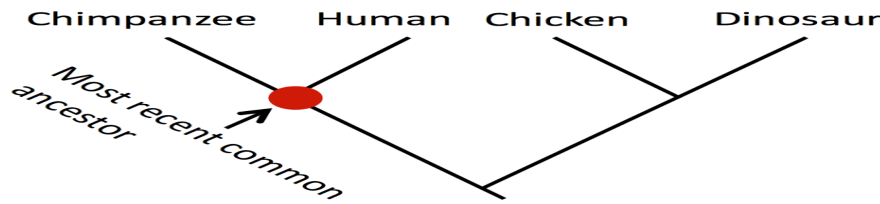
What is the difference between a phylogenetic tree and a cladogram?

- Many biologists use these terms _____
- Both are based on _____
- Some scientists associate phylogenetic trees with showing _____
- Some scientists consider _____ to represent _____ about a group of organisms' _____ based on a common trait usually _____
- Phylogenetic trees branch lengths can represent the amount of _____



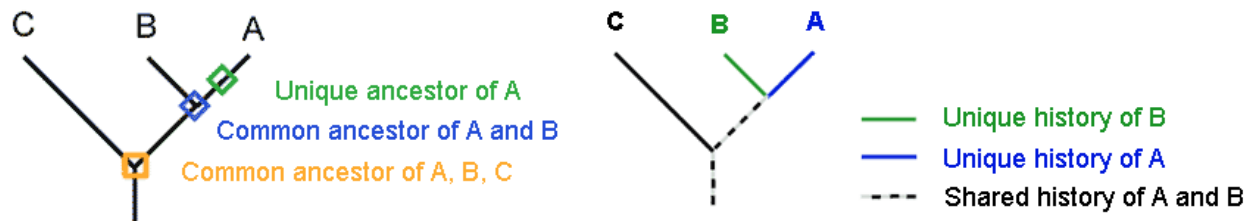
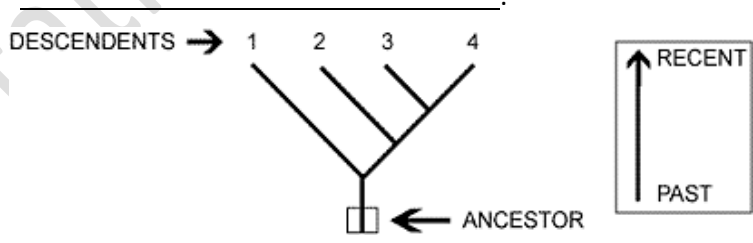
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- In cladograms the branch lengths are usually considered to be _____ (does not have much meaning)



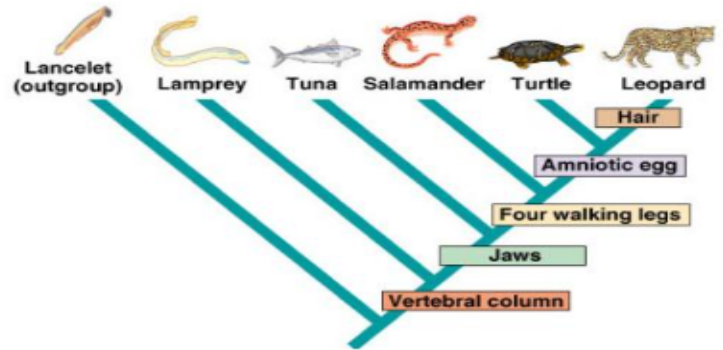
How to read a Cladogram

- This diagram shows a relationship between four relatives. These relatives share a _____
- Note that this diagram is also a _____. The older organism is at the _____
- The four descendants at the top of the tree are _____. This is called _____

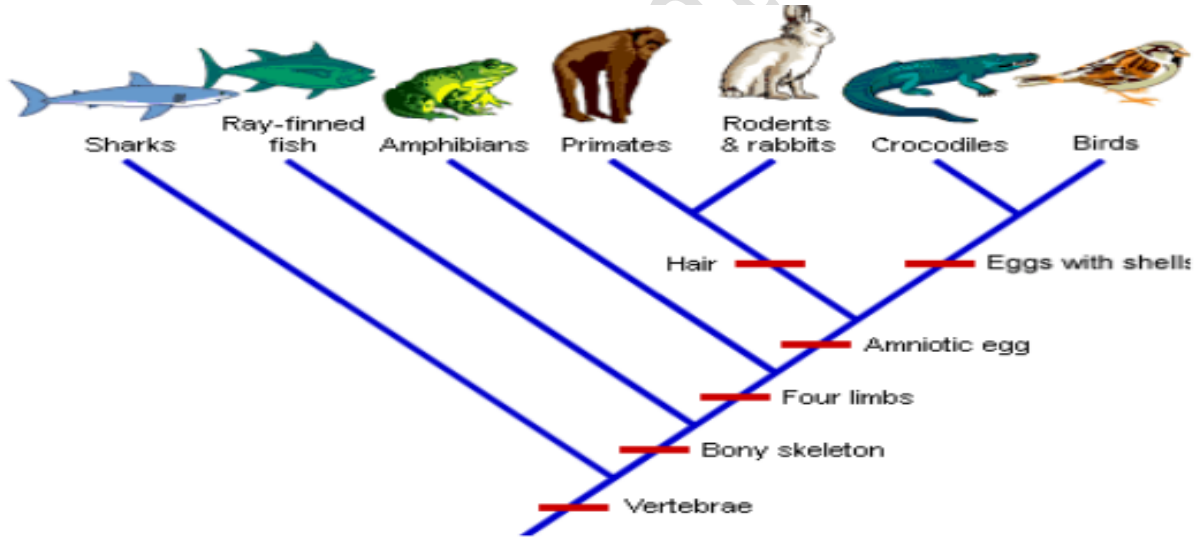


Analyzing and Interpreting Cladograms

1. What trait separates Lampreys from tuna on this cladogram? _____
2. What separates a salamander from a turtle? _____
3. Which organism is most related to the leopard? _____
4. What 4 traits do these two organisms share? _____
5. Which organism will have DNA most similar to the turtle? _____
6. Which organism's DNA will differ the most from the leopard? _____



Check for Understanding 2 – Analyzing the following Cladogram and answer the questions below.



7. What trait separates amphibians from primates on this cladogram? _____
8. What separates rabbits and primates from crocodiles on this cladogram? _____
9. Which organism is most related to the bird on this cladogram? _____
10. What 5 traits do these two organisms share? _____
11. Which organism will have DNA most similar to the bird? _____
12. Which organism's DNA will differ the most from the bird? _____