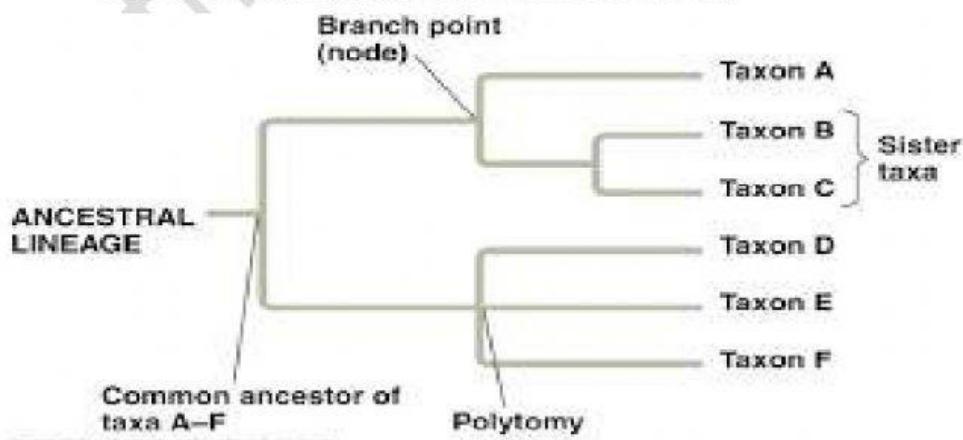




- Phylogenetic trees and cladograms represent a \_\_\_\_\_
- Each branch point represents \_\_\_\_\_
- \_\_\_\_\_ are groups that share an \_\_\_\_\_
- A \_\_\_\_\_ includes a branch to represent the \_\_\_\_\_
- A \_\_\_\_\_ is a branch from which more than \_\_\_\_\_

**Draw and label the Phylogenetic tree in the video below**



Created By: Chivas & Jordan Spivey

What is Phylogeny? – Phylogeny is the study of \_\_\_\_\_

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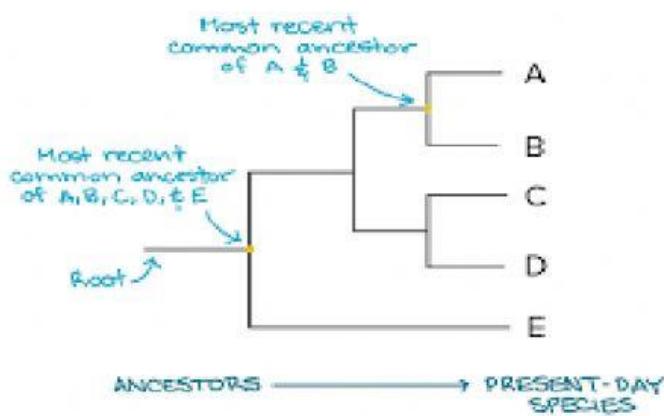
Why is Phylogeny important? - Understanding and classifying the diversity of life on Earth

Testing Evolutionary hypotheses:

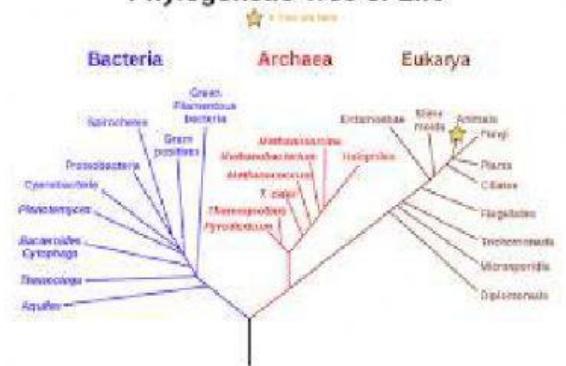
- Trait evolution, coevolution, mode and pattern of speciation, correlated trait evolution, biogeography, \_\_\_\_\_

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### Analyzing & Interpreting Phylogenetic Relationships



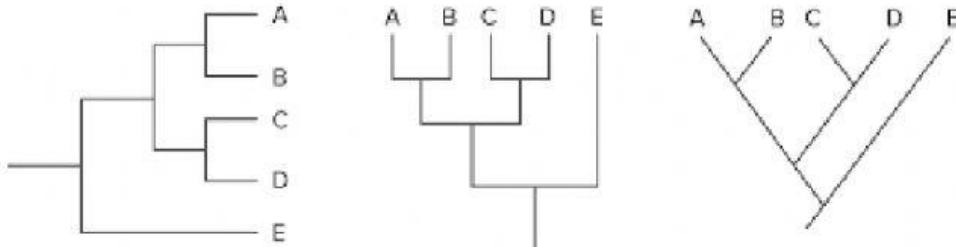
### **Phylogenetic Tree of Life**



Branching diagram showing relationships between \_\_\_\_\_

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Draw the phylogenetic trees below:



A & B are most closely related because they \_\_\_\_\_

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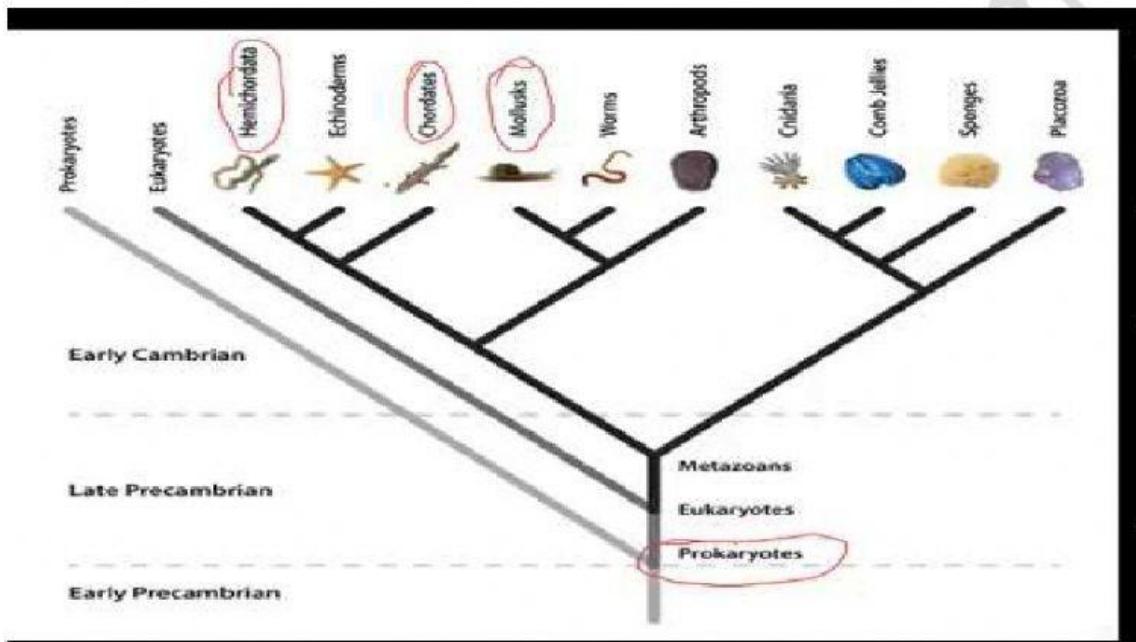
A + B + C are more closely related to each other than to D because they share \_\_\_\_\_

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Created By: Chivas & Jordan Spivey

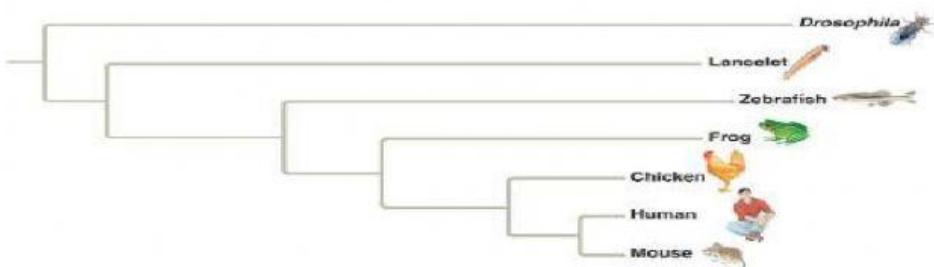
**Check for Understanding 1 – Analyze the phylogenetic tree and answer the comprehension questions**

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? \_\_\_\_\_



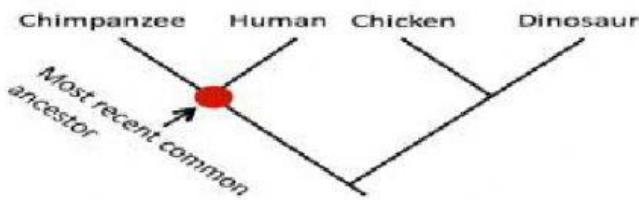
**What is the difference between a phylogenetic tree and a cladogram?**

- 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 \_\_\_\_\_



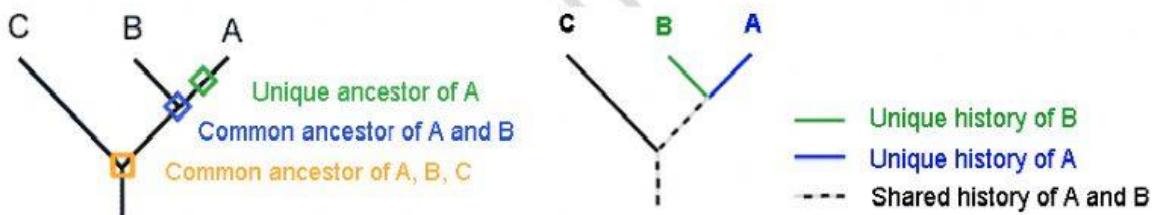
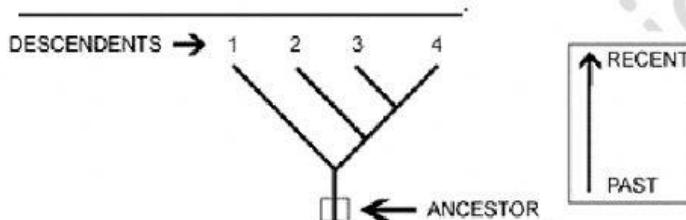
Created By: Chivas & Jordan Spivey

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



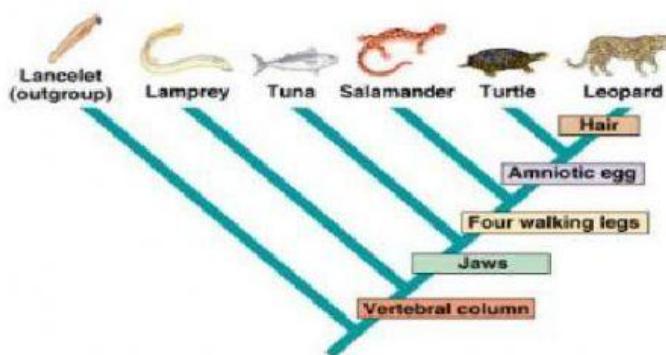
### How to read a Cladogram

- 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 \_\_\_\_\_

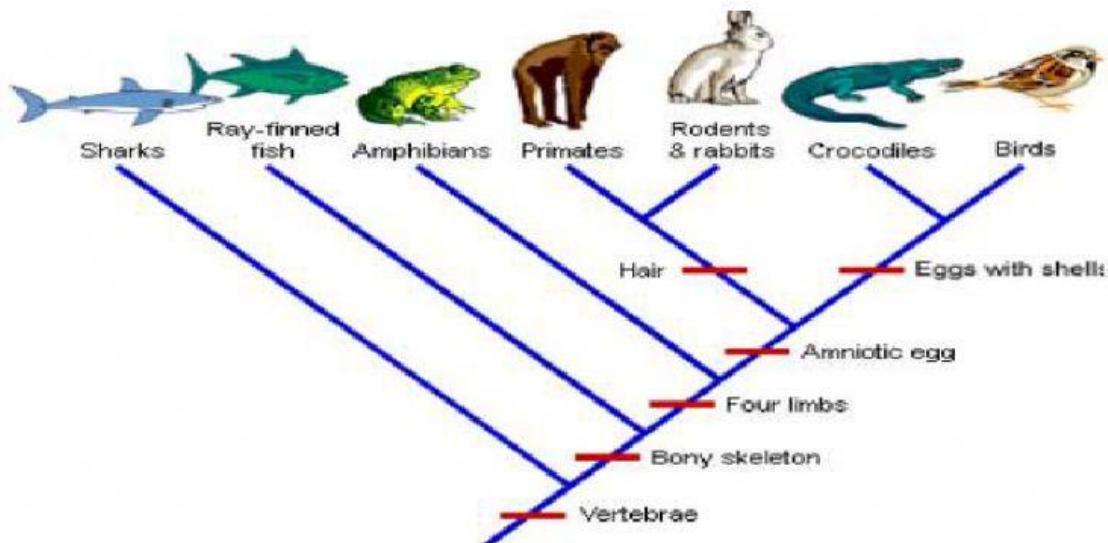


### Analyzing and Interpreting Cladograms

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? \_\_\_\_\_