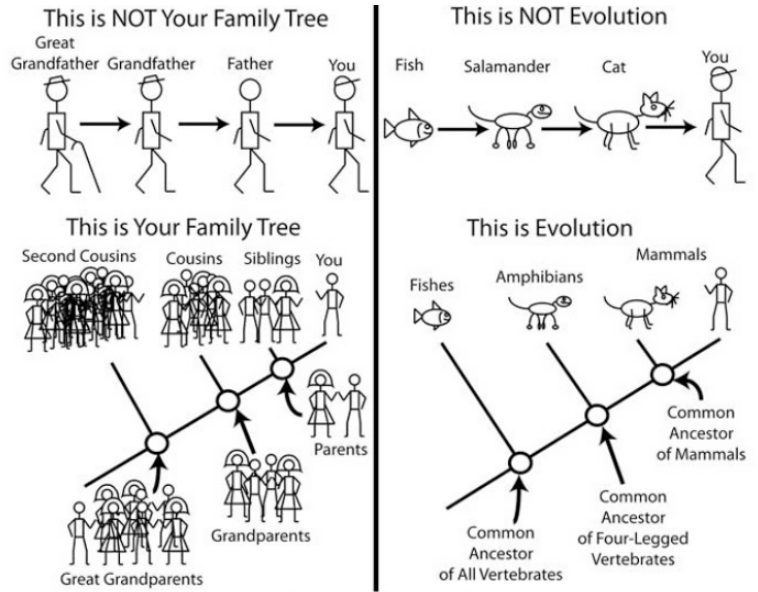


**LT: I can select and explain a cladogram that accurately represents the evolutionary relationships between vertebrates. 4.3.1**

**Interpreting a Cladogram**

Have you ever created a family tree? A cladogram is similar to a family tree, however cladograms are diagrams that represent evolutionary relationships, instead of family relationships. In other words, cladograms represent how different forms of life are related, over very long periods of geologic time. Your task in this unit is to identify the cladogram that most accurately represents the evolutionary relationships between vertebrates (animals with backbones). You will explain and defend the diagram using evidence from your study of comparative reproduction.



Cartoon by Matthew Boman of Macomb, IL, with kind permission of Florida Citizens for Science, Sept. 2010

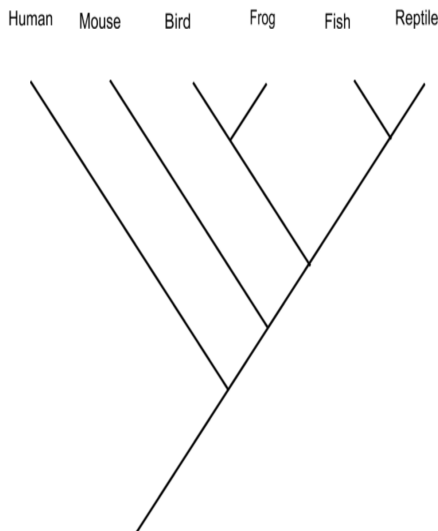
**Interpreting a Cladogram**

*What is a cladogram? How do we interpret cladograms?*

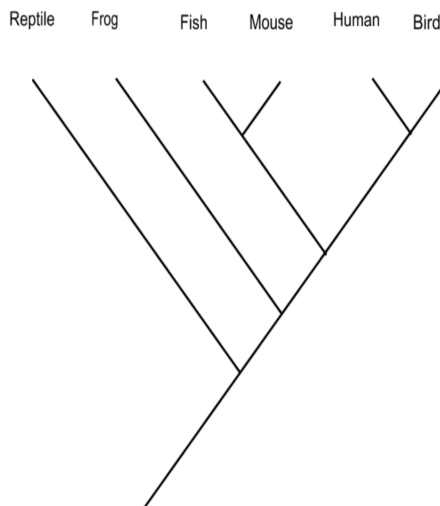
**Predicting**

*Predict which cladogram (A, B, or C) most accurately represents the evolutionary relationships between the organisms given. Justify your choice.*

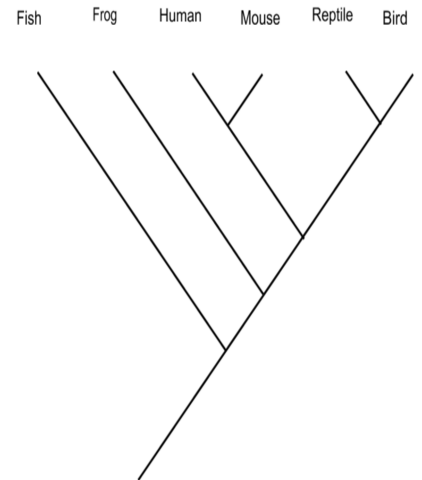
**Cladogram A**



**Cladogram B**



**Cladogram C**



### **Egg Comparison**

*What did you learn about the similarities and differences between the eggs of different species?*

*How will this help you revise your cladogram?*

### **Fertilization Comparison**

*What did you learn about how different species go through the process of fertilization?*

*How will this help you revise your cladogram?*

### **Comparative Embryology**

*What did you learn about embryos and embryonic development across different species?*

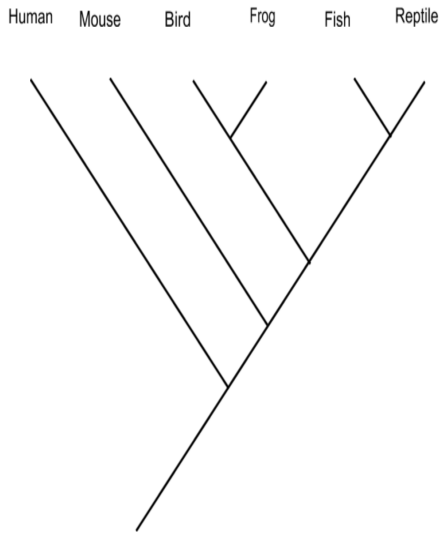
*How will this help you revise your cladogram?*

# Final Writing Task

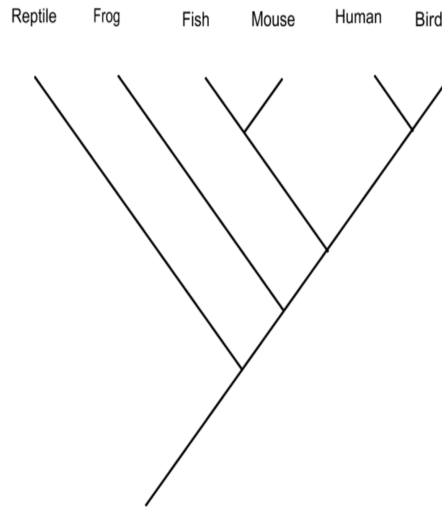
Explain the multiple pieces of evidence you explored to determine the most accurate cladogram.

- Which pieces of evidence were the strongest in determining evolutionary relationships?
- Is there other evidence you explored or would like to explore to further strengthen your choice?
- Can you add other organisms to your tree? For example, where would you place a plant?

Cladogram A



Cladogram B



Cladogram C

