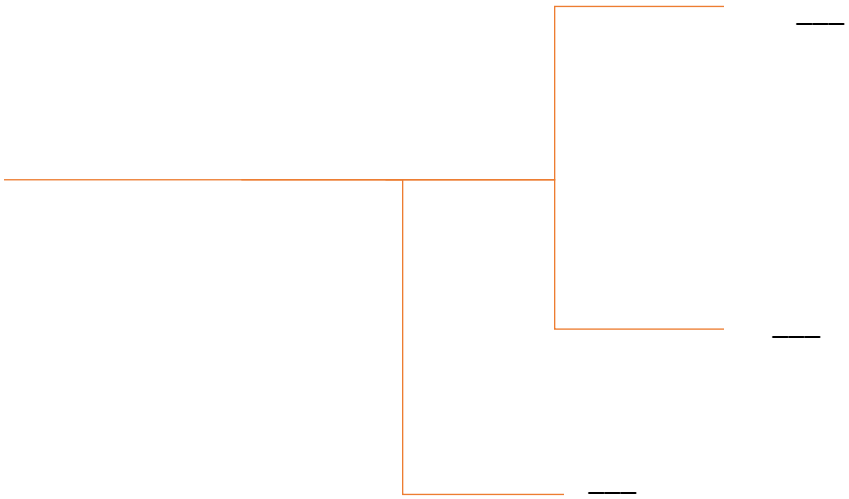
LIFE 1010 01 SI Session #1

1) In the phylogenetic tree below, correctly place each species according the following rRNA sequences:

Species A: AUUGCUCACC
Species B: ACCUAAACUG
Species C: AGUGCUCACC



2) For thousands of years, humans have been breeding dogs for various reasons such as aesthetics, hunting, or even to catch frisbees. Specific traits of each breed have been exploited and emphasized for their various uses. Answer the following questions regarding this prompt.

a) Would this be considered natural or artificial selection and why?

Artificial selection. Human influenced change

b) Can evolution be used to describe breeding dogs over thousands of years?

Yes. Dog population changed its traits over many generations

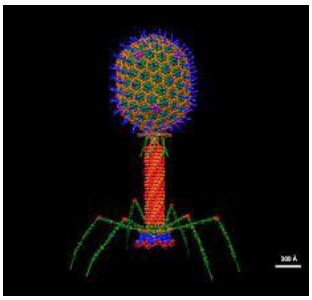
3) Which of the following species is correctly using the rules of binomial naming?

a) Sula Nebouxii

b) *Ailurus fulgens*

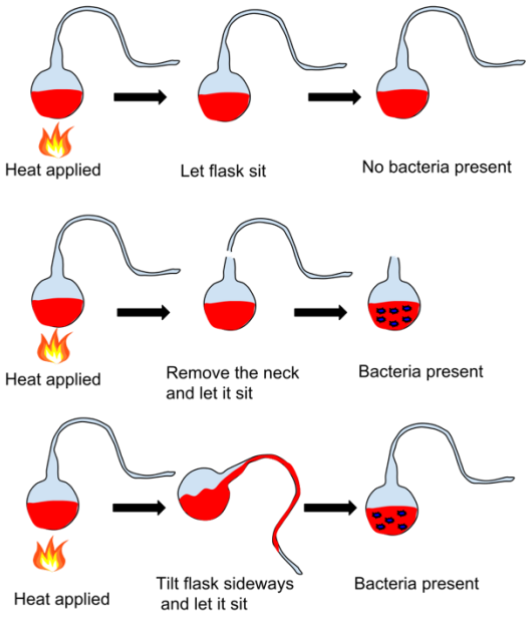
c) *Homo Sapien*

4) Of the pictures below, discuss which examples are considered alive and why. If the example is not alive, why not?



5) In the question above, a mule is listed as an example of a living organism. However, in nature, mules are considered to have very low fitness. Why do you think this might be?

6) Pasteur's experiment revolutionized the way we see the world by providing a mountain of evidence to support Cell Theory.



Use the diagram of the swan neck flask experiment to determine an alternate and a null hypothesis, a prediction, and 3 controls for the experiment.

7) Do we know the theory of evolution by natural selection to be absolutely true? Why or why not?

8) What are the 5 characteristics of living organisms?

Medical Matters

A patient of yours checks into the ER with obvious signs of sepsis; Low blood pressure, fever, and an altered level of consciousness. During the patient's stay in the ER, labs were run 3 times. Each time, the lab found more and more bacteria in the blood stream. What is the theory behind the increase in bacteria found in the patients bloodstream?