Name: _____ Period _____ Date: _____

Evidence for Evolution:
Homology vs. Analogy

Directions: *Navigate through the website, using the "Next" button at the bottom of each page. The lettered headings below go along with each page's title. Read each page fully.*

A. Similarities and differences: understanding homology and analogy

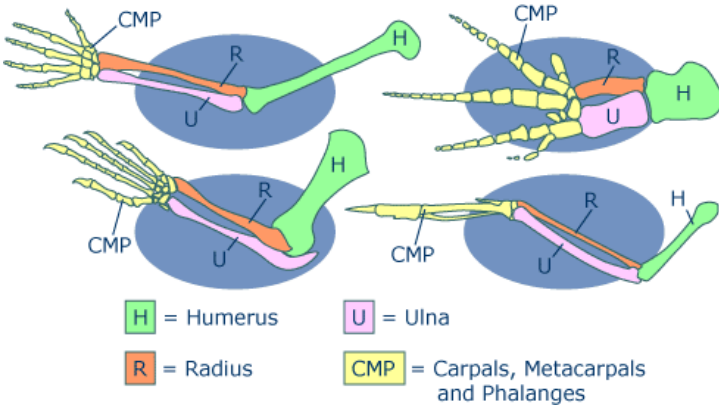
1. Define homology **AND** use the example the site gives to help illustrate the definition of homology.

2. How does an **analogy** differ from a homology?

B. The tale of the limb

C. The tetrapod limb

3. How are the four tetrapod limbs similar?



4. On the diagram above, label each limb with the type of animal that possess each limb.

D. Inheriting homologies – *Read through this section.*

5. How did the whale, human, lizard, and bird end up with the same sort of limb?

6. How old is the common ancestor of the tetrapod clad? _____

E. Homologies are everywhere

7. What is the homologous structure that exists between the oak tree and the ginkgo? _____

8. What is the homology between the dragonfly and the butterfly? _____

TIME TO THINK

9. Do you think that the wing of a bat is homologous to dragonflies and butterflies? _____

   Explain your answer….**AND** in your explanation give an example of an organism that does have a homologous wing structure to that of a butterfly and a dragonfly.

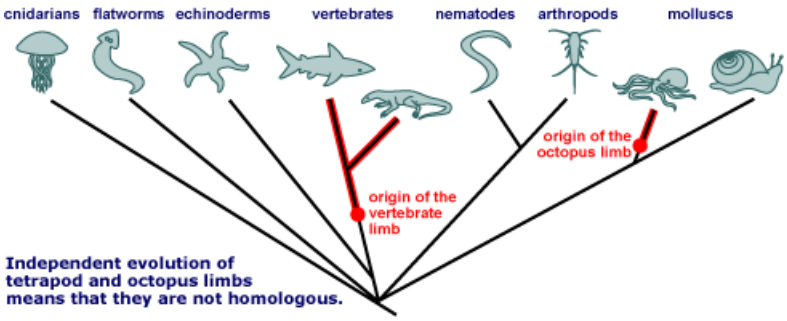
URL: *http://evolution.berkeley.edu/evolibrary/article/similarity_hs_01*

Find the "MORE DETAILS" heading at the top of the right-hand margin on the "Homologies are everywhere" page. Click on the link that says "not just anatomy" and answer the following question before continuing to the next page.

10. So far, you have learned that homologies are anatomical features. Describe below what other types of traits can be homologous.

F. Not all similarity is homology

11. Why is the octopus limb NOT considered to be homologous to the tetrapod limb?



G. Analogies

12. Why are the saber teeth of the *Thylacosmilus* and the *Smilodon* NOT considered to be homologous? What trait *do they share* as a homology? Does the fact that their saber teeth are not a homology mean that they do not share a common ancestor? EXPLAIN

H. How do analogies evolve? – *Read through the section and view the activity on this page.*

I. Homology or analogy? – *Circle your answer.*

13. Do you think that the body shape, fins and flippers of sharks and dolphins are homologies or analogies?

J. Studying homologies and analogies

14. What are the various techniques a scientist can use to determine if a trait is a homology?

K. Using homologies to reconstruct relationships

15. Look at the human hand compared with that of the gorilla and the chimp. Describe what parts appear to be homologous among the three of them, as compared with the panda's analogous "thumb". What's the difference?

L. Test your understanding – *Read through the section and answer the quiz question.*