Understanding Homologies

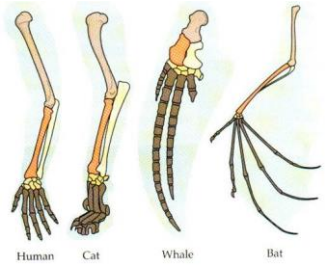
Go to http://evolution.berkeley.edu/evolibrary/article/evo_09 or use the link "Understanding Homologies" on the Evolution Unit page at www.biologybynapier.com

When looking at evolutionary relationships we want to use indicators that are reliable for showing common ancestry. We use homologies and analogies to study these relationships.

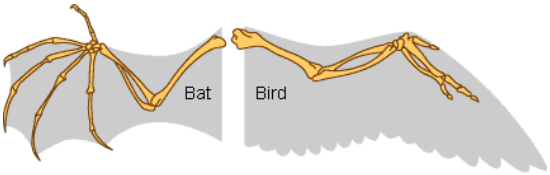
1. **Define homologous structures:**

2. **Define analogous structures:**

3. **The front limbs of a cat, human, bat and whale are said to be homologous. Explain why.**



4. **A bat wing, bird wing and butterfly wing are said to be analogous. Explain why.**



5. **What do homologies tell you about the relationship among organisms that have them?**

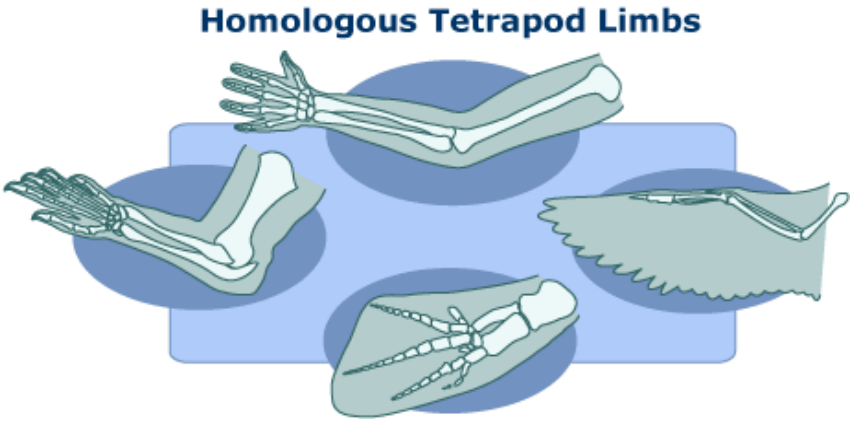
6. **What do analogies tell you about the relationship among organisms that have them?**

Now, go to http://evolution.berkeley.edu/evolibrary/article/similarity_ms_01 or use the link "Part 2" on the Evolution Unit page at www.biologybynapier.com

7. **Which one of the two couples pictured (sisters or Elvis impersonators) could be a metaphor for analogous structures? Explain why.**

Click NEXT. On the next pages you will be looking at HOMOLOGOUS structures in tetrapods.

8. **Identify the owner of each limb by writing the name of the animal next to each limb.**



9. **Give two ways homologous structures are similar to one another in tetrapods.**

10. **What did the common ancestor to modern tetrapods look like and how old is it?**

11. **Why is the wing of a butterfly homologous to the wing of a dragonfly?**

12. **Why are some homologies not obvious?**

13. **What is the difference between a marsupial and a placental animal?**

14. **The canine teeth of each serve the same function. Are the teeth in these two animals homologous or analogous?**

15. **A dolphin is a mammal with a dorsal fin that aids in balance while swimming. A shark is a fish with a dorsal fin that aids in balance while swimming. Are these fins homologous or analogous structures?**

16. **Read about the flying squirrel and sugar glider. Are their flaps of skin homologous or analogous and WHY?**

17. **Two structures that have different structures (origins) but have the same function are _____ structures.**

18. **Two structures that have similar structure (origin) but have different functions are _____ structures.**

Watch the video on vestigial structures. It is "Why Some Humans Are Born With Tails" and can be found on the Evolution Unit page at www.biologybynapier.com **Answer the questions below.**

19. **What is a vestigial structure?**

20. **Why do we have vestigial structures?**

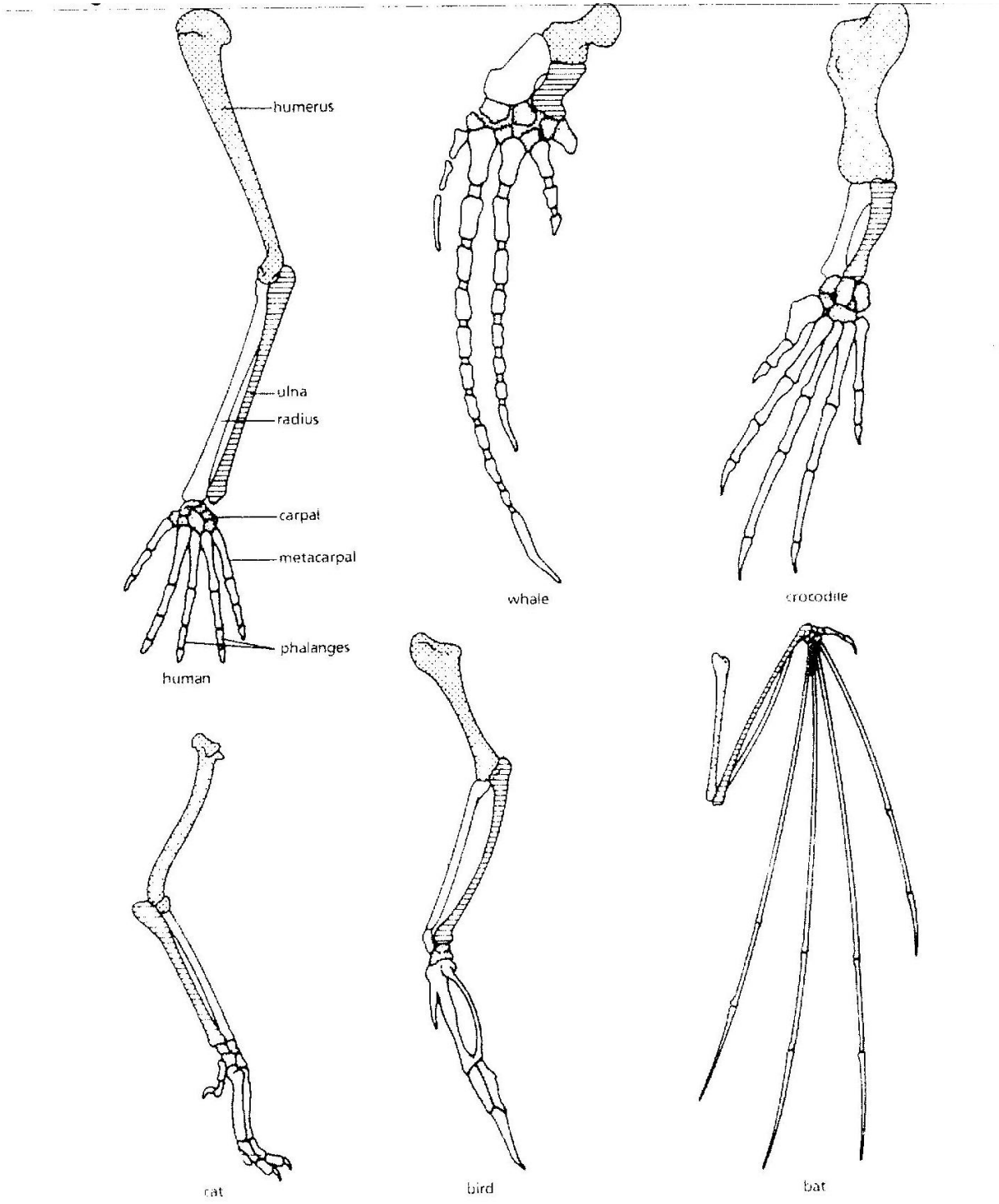
21. **List four human vestigial structures.**

Color the bones in each organism using the key:
humerus - yellow **ulna – green** **radius - orange**
carpals - red **metacarpals –blue**

22. How does each structural modification suit the function of the modern limb?

_____

_____



Get signed off before moving on. _____