Name:

## Comparative Anatomy

Comparative anatomy uses homologous, vestigial and analogous structures as evidence for evolution. Use your notes to answer the questions that follow.

## For questions 1-6 circle the underlined words that make statements correct.

- 1. Homologous structures have a similar/different structure and a similar/different function.
- 2. Homologous structures can be found in organisms that are <u>related/not related</u> and have adapted to <u>similar/different</u> environments.
- 3. Analogous structures have a <u>similar/different</u> structure and a <u>similar/different</u> function.
- 4. Analogous structures can be found in organisms that are <u>related/not related</u> and have adapted to <u>similar/different</u> environments.
- 5. Vestigial structures in an organism have no purpose/an important purpose.
- 6. Vestigial structures in an organism are <u>increased/reduced</u> in size.

## For questions 7-13 determine whether each structure is homologous, analogous or vestigial.

- 7. The human appendix
- 8. The forelimbs of the mammals in the image on the right:
- 9. The wings of bugs, birds and bats:
- 10. Wisdom teeth in humans
- 11. Wings on a flightless bird
- 12. The fins of a shark (fish) and a dolphin (mammal)
- 13. Eyes on a blind fish
- 14. Bird wings and reptile limbs: (Hint: birds and reptiles are related)



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## **Natural Selection Practice**

Below is a series of pictures representing changes in a population of cacti over many generations.



- 1. Figure 4 shows the situation several months later. What has happened?
  - a. Why would a deer be more likely to eat the left cactus than the right cactus?

In figure 3, the right cactus has flowers, but the cactus that has been eaten by the deer is too damaged to make flowers.

- b. Do you think that evolution by natural selection is occurring in this cactus population? Explain why or why not.
- c. What adaptation seems to increase the fitness of the cacti on the right? How do you think this adaptation increases the ability of the cacti on the right to survive and reproduce?
- 2. You have seen how natural selection favors those individuals with certain traits. Based on what you have seen AND on what you know about genetics, answer the following:
  - a. Is the dominant characteristic ALWAYS the one that is seen most in a population?
  - b. Assume that in the cactus population, the presence of thorns in a recessive characteristic. Will the frequency of the allele for thorns become greater or lesser over time?