Honors Biology
Unit 6: Evolution

Due Wednesday April 5th!

Name: _____ Period: _____

Lab 20: Investigating Evidence for Evolution

Part A: Homologous Structures

1. List two or more similarities in the bone structure of the organisms.

2. List two or more differences in the bone structure of the organisms.

3. In the table below, identify the number of each bone found in the forelimbs of the selected animals.

Bones	Human	Horse	Dolphin	Bat
Humerus				
Radius				
Ulna				
Carpals				
Metacarpals				
Phalanges				

4. Given the definition of homologous, in 2-3 COMPLETE sentences, describe how different animal forelimbs are homologous to each other. Use diagram 2 to provide evidence!

5. Describe how these forelimbs are similar to each other in their FUNCTIONS in their respective organisms.

Part B: Homologous Embryos

1. List two or more similarities in the appearance of the embryos.

2. List two or more differences in the appearance of the embryos.

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3. Given the definition of homologous, in 2-3 COMPLETE sentences, describe how different embryos are homologous to each other. Use diagram 1 to provide evidence!

Part C: Geographic Distribution of Species

1. Research the four organisms that are shown on the diagram. Complete the table below to identify the following characteristics of each organism.

	Specific Location	Approximate Size	Diet	Front Paws/Limbs Description
Giant Pangolin				
Giant Armadillo				
Giant Anteater				
Spiny Anteater				

2. List two or more similarities in these four organisms.

3. The diagram shows these four related organisms in different locations on the globe. In 2-3 COMPLETE sentences, describe what kind of inferences can be made from this diagram. Refer back to the definition and principles of evolution. (Reminder: the continents on the earth's surface were at one time all connected and have slowly separated.)

4. Observing diagram 2: in 3-5 sentences, describe what you think is being demonstrated in panels 1-4. Start by comparing the differences in panels 1 and 2.

Part D: Fossil Record

1. Observing diagram 1: make an inference about what this picture represents. Answer in 1-2 COMPLETE sentences.

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2. In diagram 1, if you were to dig up a fossil from the "bottom" layer, what kinds of organisms do you think you would find? Would they still exist? How would they compare to organisms living on the surface?

3. Put your skeletal diagrams in order; list the numbers of the diagrams in order from oldest to current: _____

4. List two or more similarities in the bone structure of the organisms.

5. List two or more differences in the bone structure of the organisms.

6. In 2-3 COMPLETE sentences, describe what inferences can be made about these organisms and their evolution over time.

Part E: Vestigial Structures

1. What does vestigial structure mean?

2. In this description, what structure or structures in the Blind Salamander could be called vestigial? Explain your answer.

3. What is thought to have caused the salamanders to "go blind"?

4. One of the common misconceptions about evolution is that organisms are evolving to become more complex. How is this example evidence against this misconception?

5. Give an example of a vestigial structure found in the human body. If you can't think of one, look it up!

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Part F: DNA Similarities

1. Which organism is most closely related to organism A? Explain your answer.

2. Which organism pair is the LEAST closely related? Explain your answer.

3. Which organism pair most like shares a recent common ancestor? Explain your answer.

4. A new organism, organism E, has been discovered. How could scientists use its DNA to compare and classify this new organism?