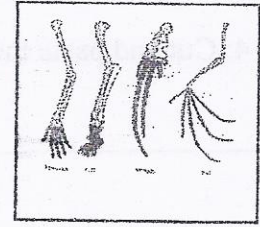


Name _____

Date _____

Activity: Comparing Homologous Structures



Goals:

- 1: To compare limb structure in a variety of animals.
- 2: to observe how similar body structures in various organisms may indicate that they share a common ancestor.

Background Information: An organism's body structure is its basic body plan, such as how its bones are arranged. Fishes, amphibians, reptiles, birds and mammals, for example, all have a similar body structure- an internal skeleton with a backbone. Hence, scientists classify all five groups of animals together as vertebrates. It can then be assumed, that these groups all inherited these similarities in structure from an early vertebrate ancestor that they shared. Similar structures that related species have inherited from a common ancestor are called **homologous structures**. Information from homologous structures, similarities in DNA, similarities in early development, and the fossil record are all used by scientists as evidence for evolution and to determine if organisms share a common ancestor.

Materials: Colored pencils, glue, scissors, *Human Arm Bones Worksheet*, and *Homologous Structures Worksheet*

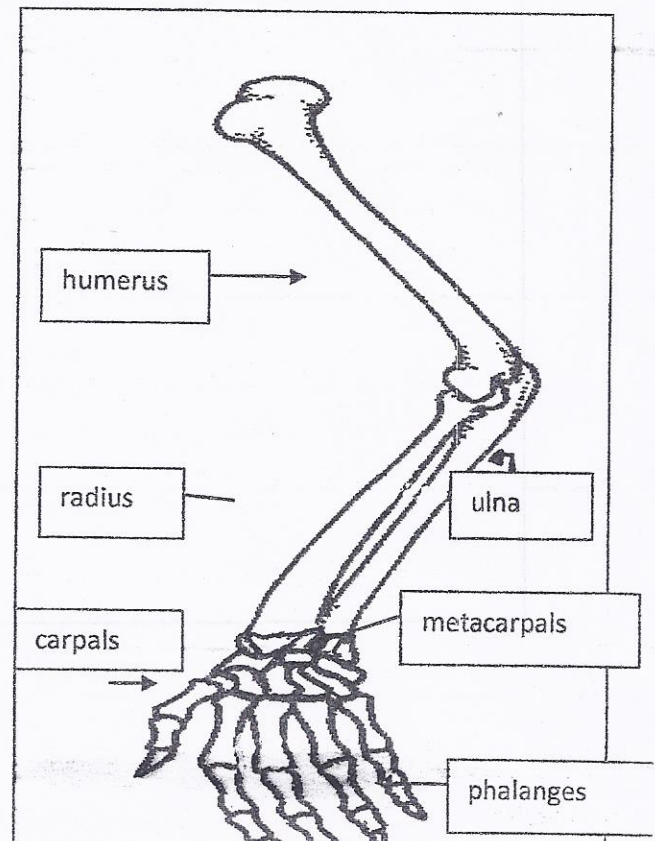
Procedures:

1: **What I Know:** Write at least two sentences describing what you already know about homologous structures.

2: The diagram to the right represents the bones of the human arm. Work with a partner and familiarize yourselves with the different parts of the limb's structure. As you do so, color the bones of the human arm according to the key below.

Key:

- humerus- red
- radius- green
- ulna- blue
- carpals- yellow
- metacarpals- brown
- phalanges- orange



3: Select any two limbs from the Homologous Structure Worksheet and color the bones according to the key.

4: Cut and paste the two limbs side by side on the table below.

Species 1: _____

Species 2: _____

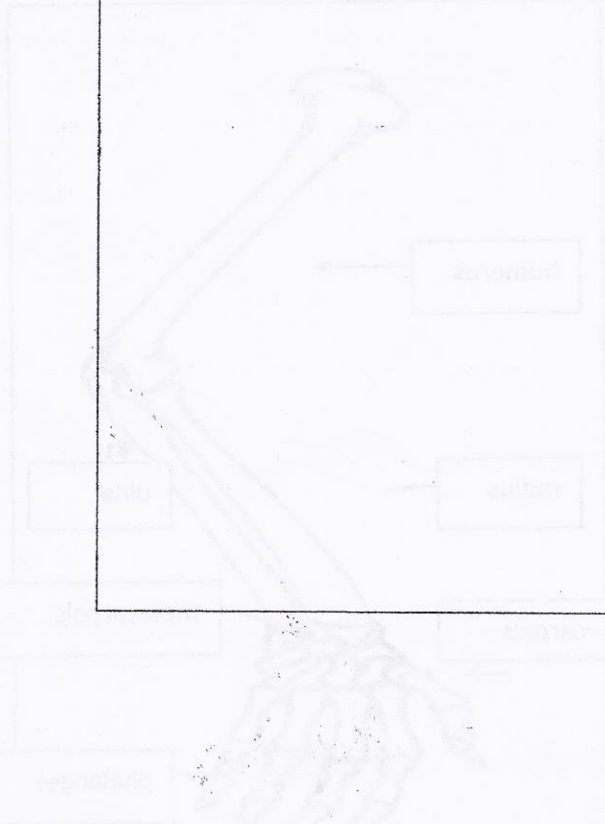
Background information: An organism's body structure is its basic body plan, such as how its bones are arranged. Fishes, amphibians, reptiles, birds and mammals, for example, all have a similar body structure—an internal skeleton with a backbone. Hence, scientists classify all the groups of animals together as vertebrates. It can then be assumed that these groups all inherited their similar structure from an early vertebrate ancestor that they shared. Similar structures that related species have inherited from a common ancestor are called homologous structures. Information from DNA, fossil structures, similarities in DNA, similarities in early development and the fossil records are all used by scientists as evidence for evolution and to determine if organisms share a common ancestor.

Materials: Colored pencils, glue, scissors, Human Arm Bones Worksheet and Homologous Structures Worksheet.

Procedure:

1: What I Know: Write at least two sentences describing what you already know about homologous structures.

2: The diagram to the right represents the bones of the human arm. Work with a partner and familiarize yourselves with the different parts of the arm's structure. As you do so, color the bones of the human arm according to the key below.



Key	
humerus	red
radius	green
ulna	blue
carpals	yellow
metacarpals	brown
phalanges	orange

5: Label and color the species' bones using chart of the human arm as a reference.

6: What I Observed: List two differences and two similarities among the human's limb and the two homologous structures you selected. Use the table below.

Species	The similarities between the species	The differences between the species
A) human		
B) Species 1: _____		
C) Species 2: _____		

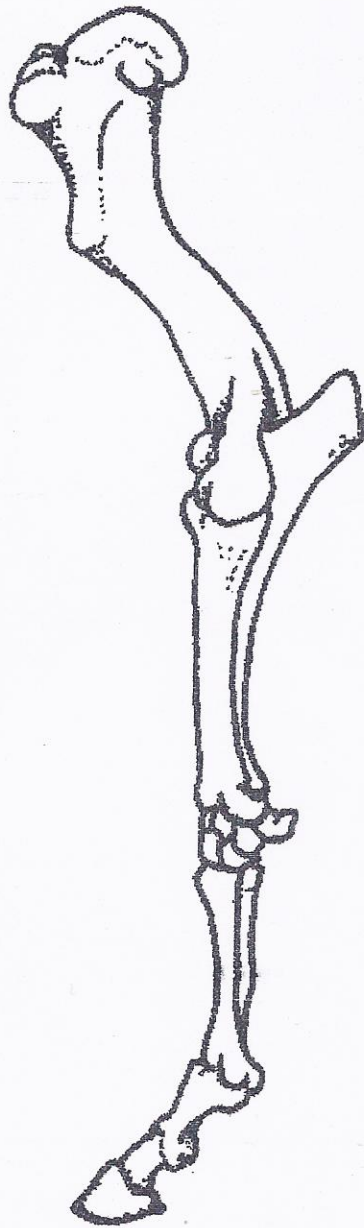
7: Explain how the two homologous structures you selected is used and how they are specifically adapted for their functions.

Name of species	How is its limb used?	How its limb is well adapted for its function(s)?

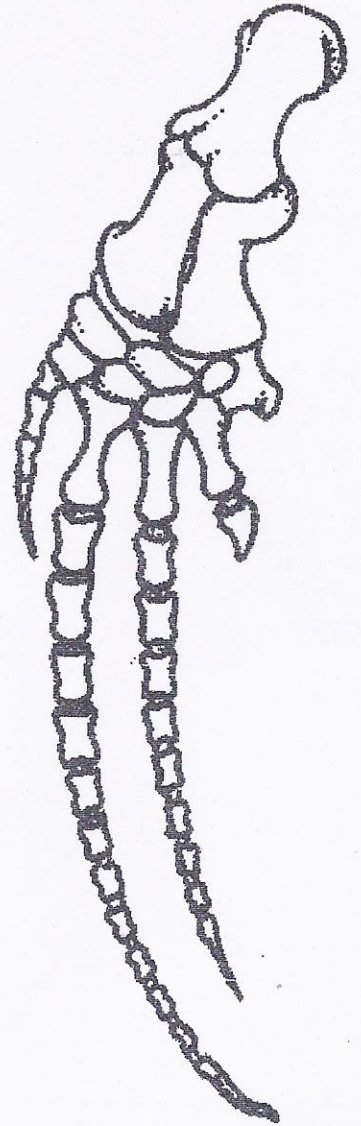
Homologous Structures Worksheet



cat



horse



whale