

**MS-LS4-2.** Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

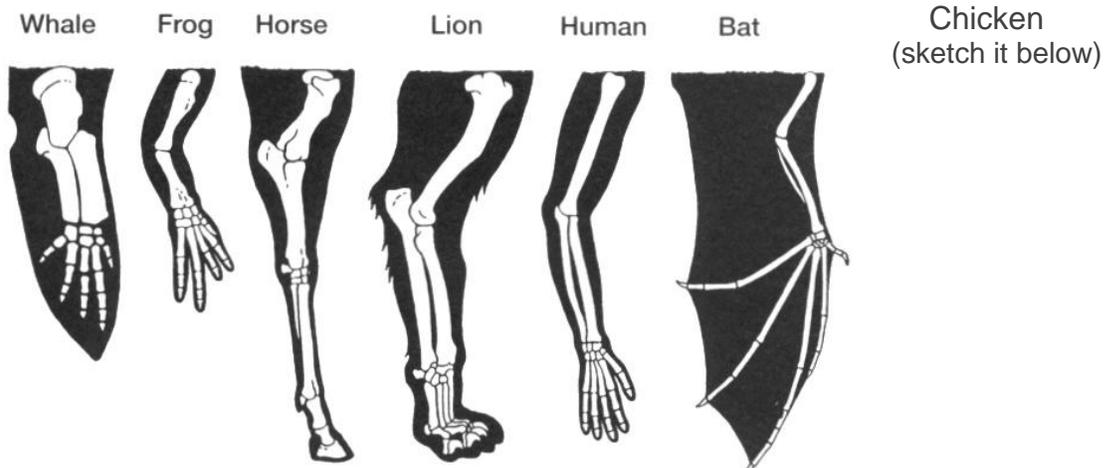
## Similarities or Differences of Anatomical Structures Homology of Forelimbs

**INTRODUCTION:** In this activity you will observe the forelimbs of different animals and determine if they are homologous structures. A homologous structure is a similarity between organisms due to common ancestry. Homologous structures are evidence for evolution because they show how organisms are related to a common ancestor they evolved from.

**MATERIALS:** bleached chicken wing, dissection tools, paper towels, disposable gloves, hand sanitizer

**PROCEDURE:**

1. Observe the six limbs in the picture below and record your observations in the chart.
2. To fill in the information about the chicken wing, sketch it in the place provided.
3. You may have to peel the skin off the chicken wing and trim the muscles off the bones (if this is not already done for you).



	<b>Bones in the upper limb</b> (humerus, radius, ulna)	<b># of fingers</b>	<b>Function of the Limb</b> (Flying, swimming, grasping, etc)
<b>Whale flipper</b>	Humerus (yes/no) Radius (yes/no) Ulna (yes/no)		
<b>Frog front arm</b>	Humerus (yes/no) Radius (yes/no) Ulna (yes/no)		
<b>Horse front leg</b>	Humerus (yes/no) Radius (yes/no) Ulna (yes/no)		
<b>Lion front leg</b>	Humerus (yes/no) Radius (yes/no) Ulna (yes/no)		
<b>Human arm</b>	Humerus (yes/no) Radius (yes/no) Ulna (yes/no)		
<b>Bat wing</b>	Humerus (yes/no) Radius (yes/no) Ulna (yes/no)		
<b>Chicken wing</b>	Humerus (yes/no) Radius (yes/no) Ulna (yes/no)		



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**CONCLUSIONS:**

1. How are the forelimbs of the whale, frog, horse, lion, human, bat, and chicken the same?
2. How are the forelimbs of the human and chicken different?
3. How are the forelimbs of the human and chicken similar?
4. Are the humerus, radius, and ulna homologous structures?
5. What does that tell us about our relationship to chickens, lions, horses, etc?
6. How is this evidence for evolution?

**Part 2**

Homologies: Create a color key, then color in the bones for the human, lion, and pig forearms.

**Human**

**Lion**

**Pig**

color

r= Radius

u= Ulna

e= Trapezoid

g= Hamatum

h= phalanges (fingers)

