Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block \_\_\_\_\_\_\_\_

Homologous Structure Lab

**Background Information:** An organism’sbody 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, scientist classify all five groups of animals together as vertebrates. It can be then assumed, that these groups all inherited 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**.

1. Looking at the picture of the human arm shown below, based on the structure,

 what activities is the human arm adapted for to do well?

humerus

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

radius

Color the arm based on the color code shown

ulna

to the right

metacarpals

Key:

**Humerus**- red **Carpals**- yellow

**Radius**- green **Metacarpals**- brown

**Ulna**- blue **Phalanges**- orange

carpals

phalanges

Choose 2 limbs from other organisms and color the bones based on the key.

|  |  |
| --- | --- |
| Species 1\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Species 2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

In the table shown below, list 2 similarities and 2 differences among the human’s limb and the 2 homologous structures you selected

|  |  |  |
| --- | --- | --- |
| **Name of Species** | **Similarities to human bones** | **Differences to human bones** |
| Species 1: |  |  |
| Species 2: |  |  |

In the table shown below, explain how the organism uses the limb, and how they are specifically adapted for their function

|  |  |  |
| --- | --- | --- |
| **Name of Species** | **How is the limb used?** | **How is the limb well adapted for its function** |
| Species 1: |  |  |
| Species 2: |  |  |

Questions:

Define **homologous structures: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

Explain how homologous structures are used to show evolutionary relationships. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Of the types of evidence that we discussed (hint: look at notes), which type of evidence do you think is most accurate in showing evolutionary relationships. Explain your answer.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

HOMOLOGOUS STRUCTURE LAB



Horse

Cat

Whale

HOMOLOGOUS STRUCTURE LAB

