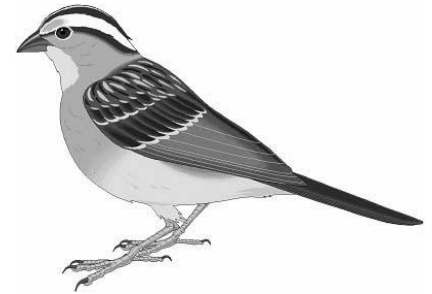


Comparing a Human and Avian Skeleton

The avian (bird) skeleton has many features that resemble the human skeleton, and the majority of the bones are the same, they are only shaped differently. When structures are similar in different organisms, they are called homologous. The main difference between the human and bird skeleton is that the bird's skeleton is adapted for flight. For instance, the bones of a bird are hollow which makes the skeleton lighter. The collarbone of the bird is fused for stability and is called the furculum.



The arm bones of the human consist of the humerus, the radius and the ulna. These bones are also found in the bird. On both skeletons, **color the humerus (G) pink. Color the radius (F) green and the ulna (E) light green** ☐.

The leg consists of a long femur which attaches to the pelvis and then two bones of the lower leg. In the bird, these two bones: the tibia and fibula are fused together. In humans, they are separated. You are probably familiar with the tibia of the bird, that's the part you eat called the drumstick. When you eat the thigh of the bird, the bone within it is the femur. On both skeletons, **color the pelvis (M) yellow, the femur (N) orange, and the tibia (O) light blue. On the human only, color the fibula (P) dark blue** ☐. Also on the human skeleton, the patella, also called the kneecap is visible. **Color the patella (S) green** ☐.

The heads of both birds and humans are protected by a large cranium. The upper jaw of the human, and the upper beak of the bird is composed of a bone called the maxilla. The lower jaw and lower beak is composed of a bone called the mandible. On both skeletons, **color the cranium (A) red, the maxilla (B) grey, and the mandible (C) pink** ☐.

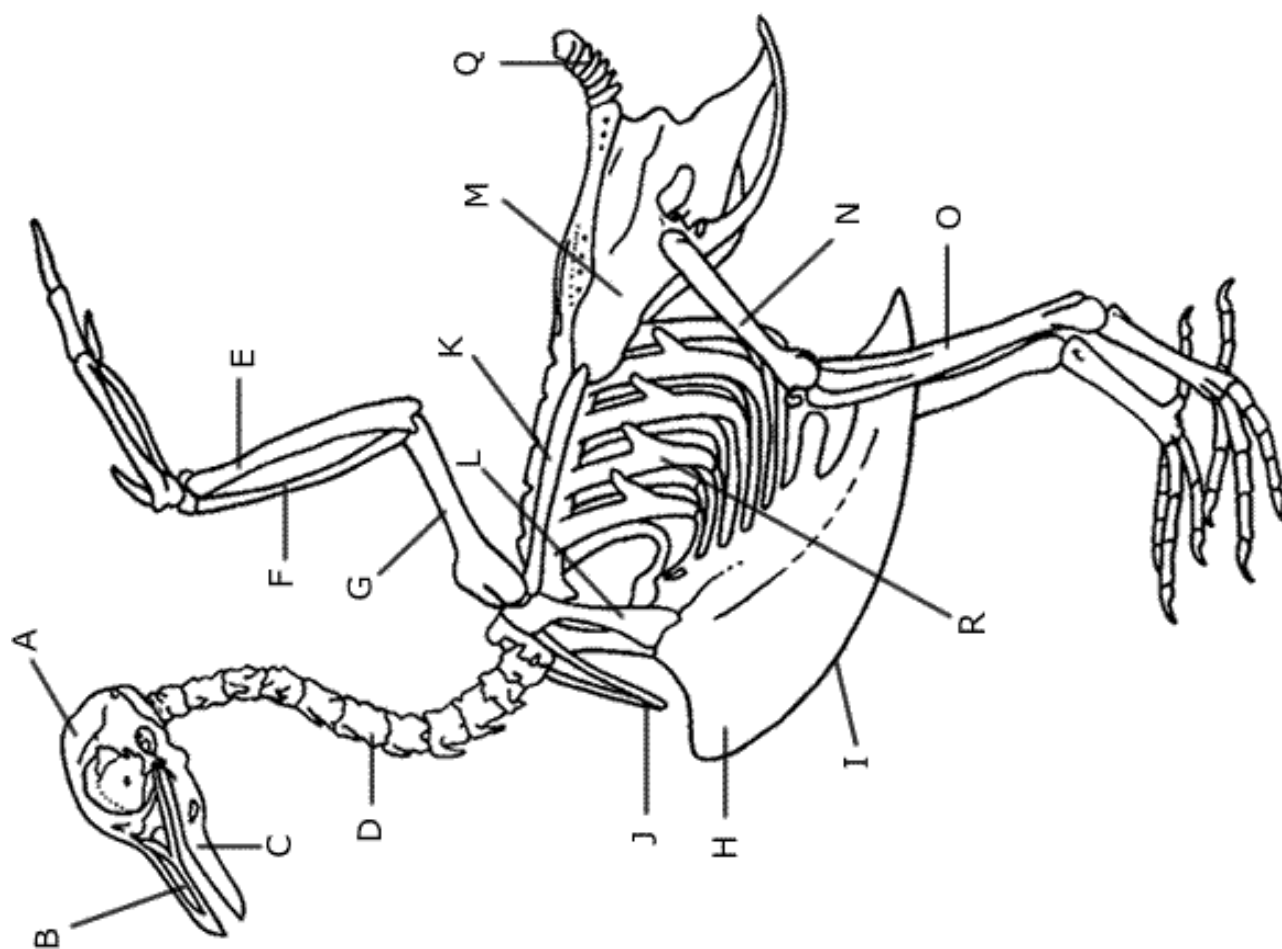
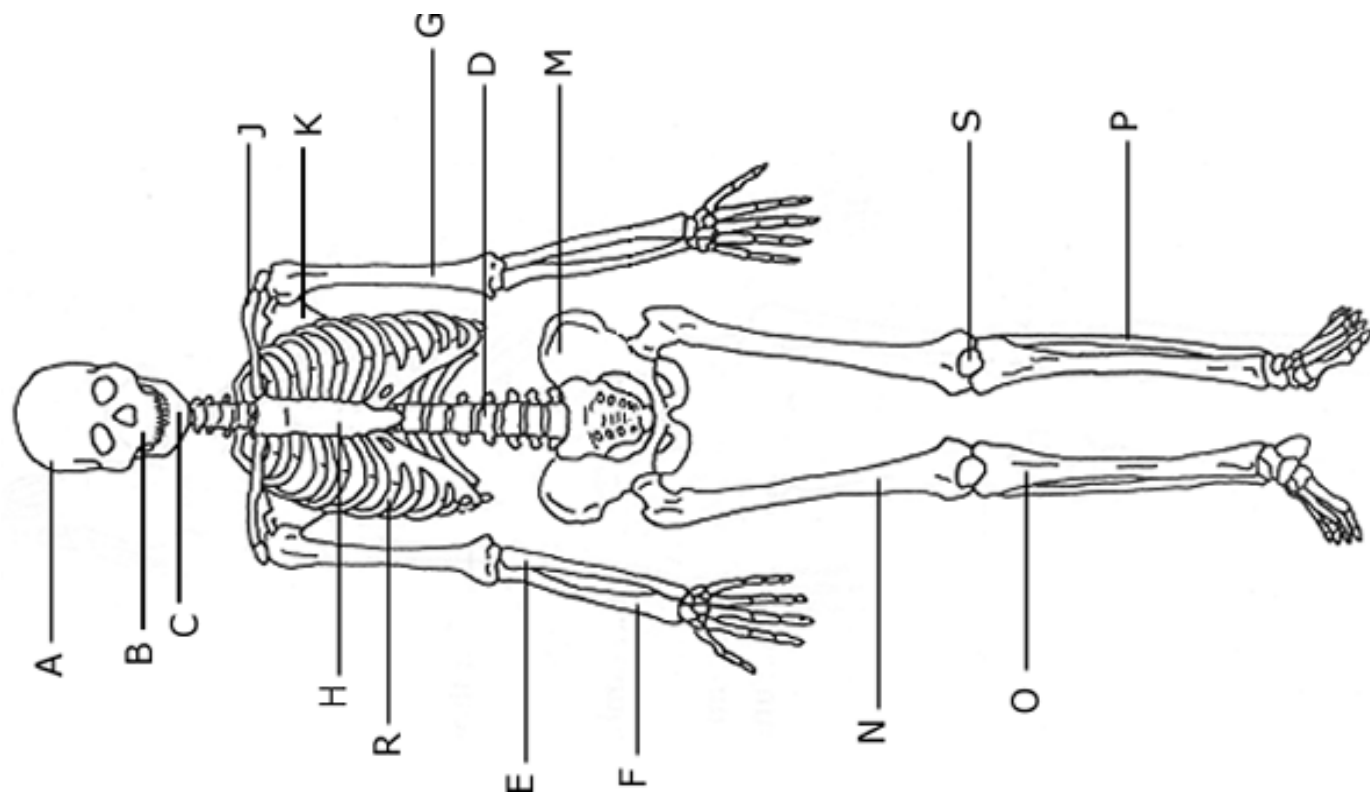
The differences between the bird and human skeleton are very apparent in the pectoral girdle, which is the place where the forelimbs attach to the spine. The bird's forelimbs are wings and must have a strong support system. The collarbone of the bird is fused to form the furculum, or wishbone. The "shoulder blade" of the human is actually a bone called the scapula, birds have a scapula and they also have an additional shoulder bone called the coracoid. **On both skeletons, color the scapula (K) dark brown. On the bird, color the furculum (J) black and the coracoid (L) light brown. On the human, color the collarbone (J) black** ☐.

Another obvious difference between the human and bird skeleton is the shape and size of the sternum. A bird's sternum is large and positioned under the body - flight muscles attach to this bone. The ridge of the bird's sternum is called a keel. The ribs are attached to the spine and to the sternum. On both skeletons, **color the sternum (H) red and the ribs (R) blue** ☐. On the bird, trace the edge of the sternum in **green to show the keel (I)** ☐.

The vertebrae of the bird and human are similar except for the bone where the tail feathers attach, called the pygostyle. Humans have a tailbone that is similar, but it is not pictured. **Color the vertebrae (D) yellow and the pygostyle (Q) purple** ☐.

Name _____

1. Define homologous.
2. Name two ways in which the bird's skeleton is adapted for flight.
3. What bone is the drumstick? _____
What bone is the wishbone? _____
4. What two bones make up the bird's beak? _____
5. What three bones make up the bird's forelimb? _____
What two bones make up the bird's hindlimb? _____
6. The pectoral girdle is the area of the skeleton that attaches the arm bones to the spine. In humans the pectoral girdle consists of the scapula and the clavicle (collarbone). What three bones make up the pectoral girdle of the bird? _____
7. The patella is also called the _____
8. The "thigh" of the bird contains what bone? _____
9. What is the scientific name for the "shoulder blade"? _____
10. The tail feathers attach to what bone? _____
11. List two bones you will find in a bird, but not in a human. _____
12. List two bones you will find in a human, but not in a bird. _____
13. How many bones are in a human's leg? _____ In a bird's? _____
How many bones are in a human's arm? _____ In a bird's wing? _____
The longest bone in the bird's leg is the _____ In a human? _____
14. Next to each letter on the human skeleton, write the name of the bone.



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