

## Dissecting a Leg Activity Instructions

### Purpose:

The purpose of this activity is to make students aware of the elements of the skeletal system and how they interrelate.

### Materials:

- Raw chicken leg quarter - one for each adult supervised group
- Sharp scissors – one pair per group
- Plastic gloves for each adult
- Copies of these activity instructions – one per group
- Wax paper, about 2 X 2 foot square – one per group
- 3 or 4 adult volunteers if possible – for smaller group dissections
- One copy of the PowerPoint presentation “Dissecting a Leg” to use as a visual reference while dissecting and to assist students in viewing the various parts of the skeletal system. This PowerPoint presentation can be downloaded from the link on the lesson plan. Then click File, Save As, and save the PowerPoint presentation to your computer or disk. Remember that these are NOT copyrighted, so you can legally make as many copies and put them on as many computers as you would like.

### Procedure:

1. Download the PowerPoint presentation described above.
2. Have the PowerPoint presentation available for each group to view while the dissection is in progress. This can be done on individual computers, or using a display device such as a computer connected to display on a television, or using a projector connected to your computer. Most school media centers have these projectors, so if you are not familiar with the operations of the projector ask your media specialist for assistance.
3. Distribute the group instructions for the dissection to each adult.
4. Divide the class into groups. The number of groups will depend on the number of adults volunteering to assist. You should have one adult per group who will be doing the actual dissection as students observe.
5. Cover the work area with a piece of wax paper about 2 X 2 foot square.
6. Follow the instructions on “Dissecting a Leg, Group Instructions”.

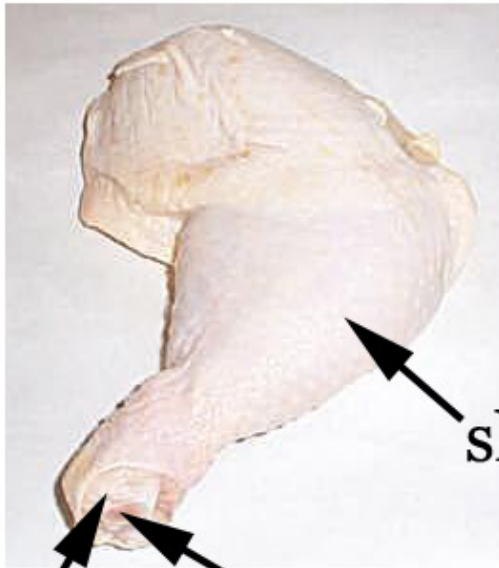
## Dissecting a Leg Group Instructions

1. Introduce students to the fact that many animals have skeletal systems that are very similar. Our leg is very much like that of a chicken including the femur (thigh bone), knee (hinge joint), fibula and tibia (smaller bones of the shin), cartilage, and ligaments that are all part of our skeletal system. Beyond that, we also have similar muscle structure, tendons, fat, and skin. We will be exploring each of these similar characteristics. [PowerPoint slide 2]
2. Place the chicken leg, skin side up, on the wax paper. Point out the texture of the skin. Note the follicles where feathers grew. Allow students to feel the skin. [PowerPoint slide 3 or photo #1 below]
3. Turn the chicken leg over. Question students as to what they are seeing. Be sure that students understand that the part they call the meat is actually the muscle. Note the fat. You may want to pull off some of the fat and show the difference in the consistence of the muscle and fat. Locate the end of the bone that may be seen at either end of the leg. Identify the cartilage as the white tissue that surrounds the end of the bone to protect it. The purpose of the cartilage is to keep bones from touching each other. It stops the wearing down of bone that would occur if the bones were in constant contact with each other. [PowerPoint slide 3 or photo #1 below, continued]
4. Return the chicken leg to the skin up position. Pull the skin of the thigh back to show the underside of the skin. Locate the blood vessels of the skin. [PowerPoint slide 4 or photo #2 below]
5. Remove the remainder of the skin. Review the other tissue that is now visible (fat, muscle, cartilage, bone). [PowerPoint slide 4 or photo #2 below, continued]
6. Pick up the leg and bend the joint. Show that it is a hinge joint because it only moves in one direction. Demonstrate the movement of the joint. [PowerPoint slide 4 or photo #1 below, continued]

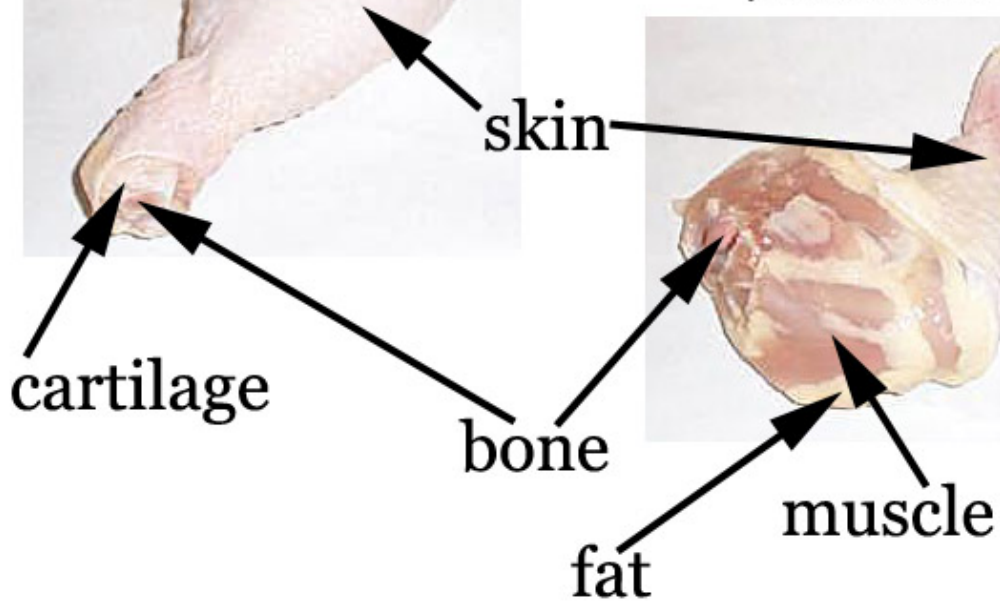
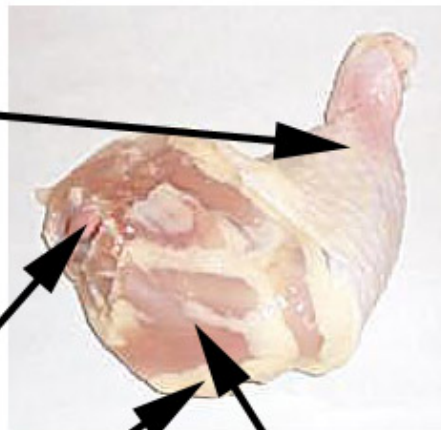
7. Using scissors, carefully cut away some of the muscle to expose tendons (white areas of the muscle) that connect the muscle to the bone. Tendons are part of the muscular system. They become very evident near the ends of the bones. Ligaments are more difficult to locate. Ligaments attach the bones to other bones. Look around the joint and attempt to locate ligaments. Also expose the cartilage for viewing. Show that the cartilage surrounds the bone where it would be touching another bone. Cartilage is the protective cushion between bones. DO NOT expose the joint yet. Point out the various shapes of the muscles. [PowerPoint slide 5 or photo #3 below]
8. Carefully cut away the muscle, fat, tendons, etc. to expose as much of the bone and joint as possible. Show that the joint is well protected by cartilage. Again, demonstrate the hinge joint and the type movement possible with a hinge joint. It will only move in one direction. [PowerPoint slide 6 or photo #4 below]
9. Carefully break the hinge joint. Students should view both parts of the hinge joint. Demonstrate how they fit together. Note the amount of cartilage protecting each part of the joint. Review again that cartilage is between bones, ligaments hold bone to bone, tendons hold muscle to bone. [PowerPoint slide 7 or photo #5 below]
10. Carefully break the largest bone. Do not crush the bone. Observe the red jelly-like tissue inside the bone. This is the bone marrow. Marrow produces red blood cells and platelets for use throughout our body. Red blood cells carry food and oxygen to all cells in our body. Platelets allow blood to clot rather than continue free flowing. Use the point of the scissors to show the consistence of the marrow. Also discuss how brittle the one is and how easily it was broken. Relate this breakage to their own bones and how easily they can be broken. [PowerPoint slide 8 or photo #6 below]
11. Review the various parts of the skeletal system and how the systems work together. The skeletal system holds muscles in place, and in return the muscular system moves the skeletal system. The skeletal system makes red blood cells and platelets, and in return the circulatory system feeds the cells of the skeletal system. The skeletal system protects the lungs with ribs and in exchange, the respiratory system supplies oxygen to keep the cells of the skeletal system alive. The skeletal system protects the spinal column and brain, and in exchange, the nervous system keeps the entire body running correctly. Review the vocabulary words bone, cartilage, joint, ligament, marrow, and skeleton. [PowerPoint slide 9]

Dissecting a Leg  
Photo #1

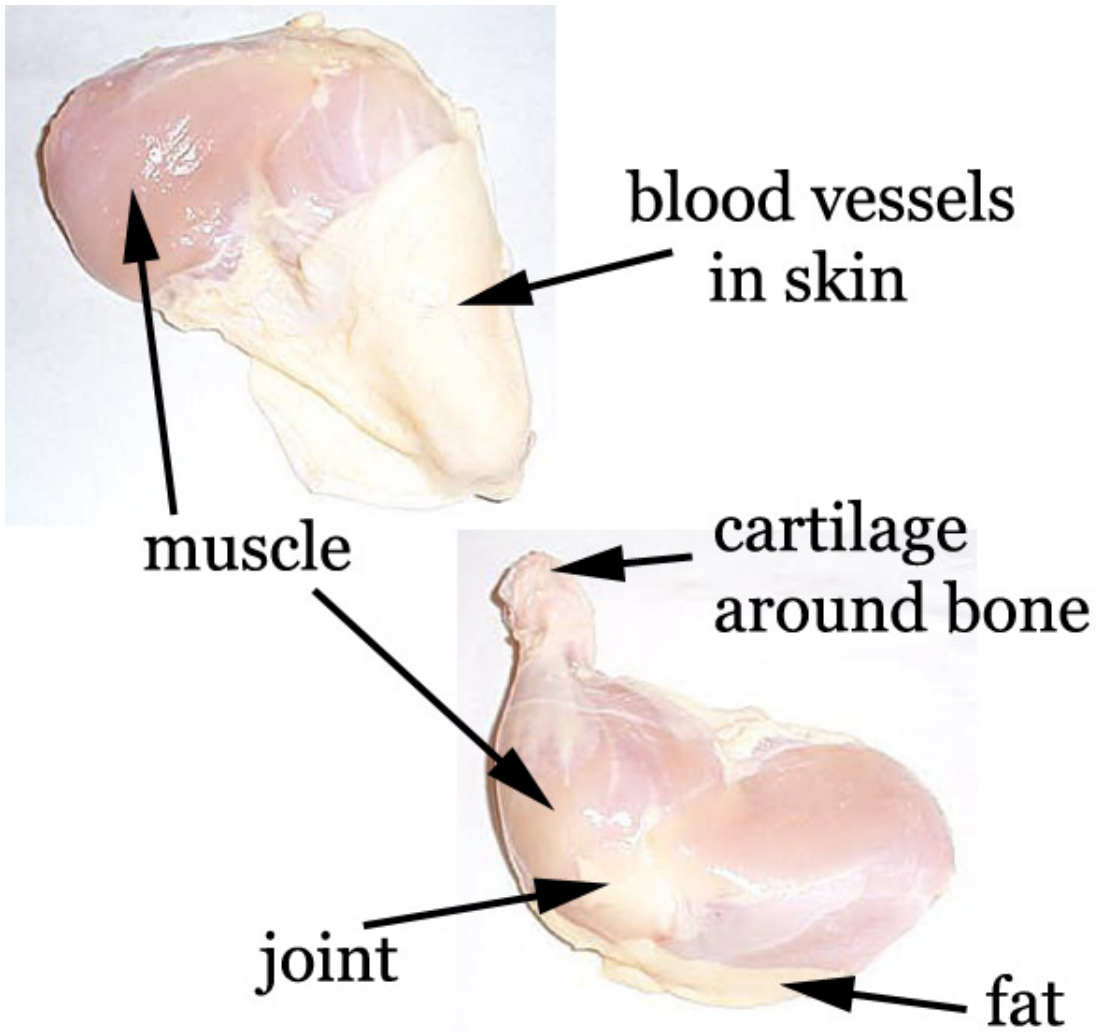
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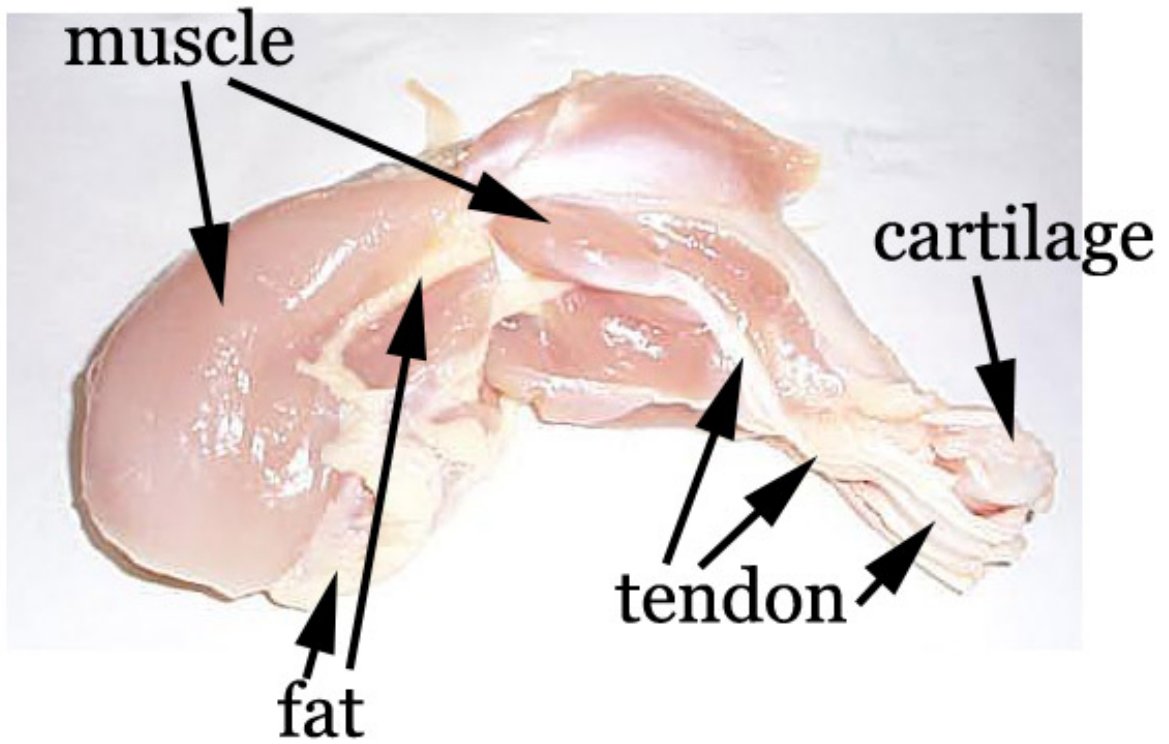
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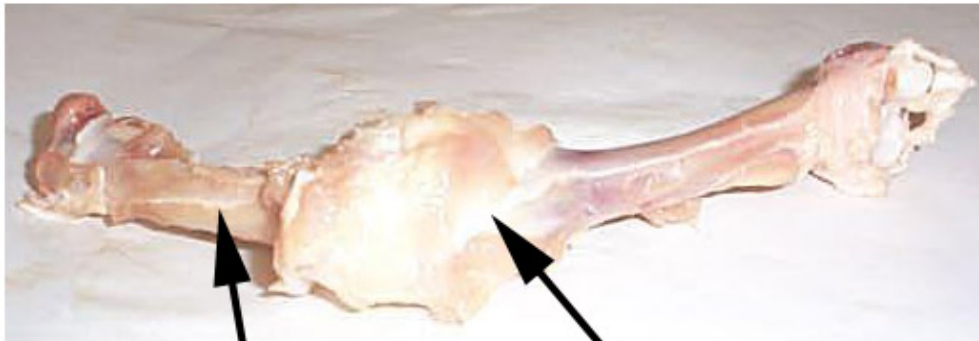
Dissecting a Leg  
Photo #2



Dissecting a Leg  
Photo #3



Dissecting a Leg  
Photo #4

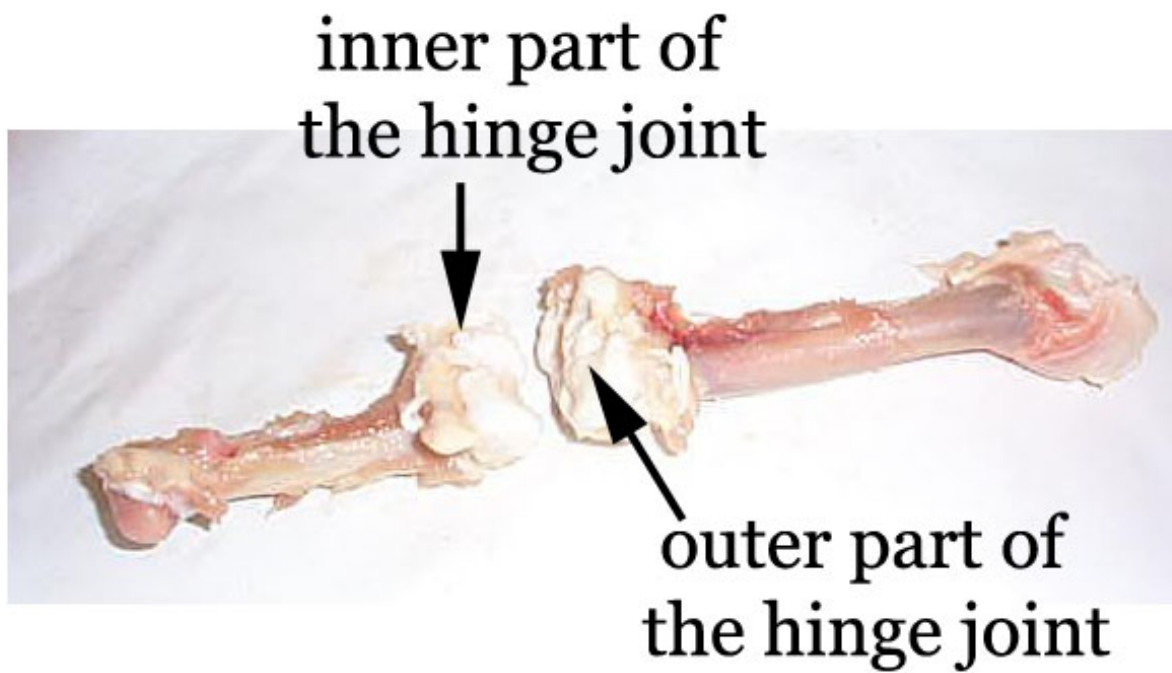


bone

cartilage  
covering  
joint



Dissecting a Leg  
Photo #5



Dissecting a Leg  
Photo #6

