INVESTIGATING TISSUES

PROBLEM: What are the tissues in a chicken wing?

MATERIALS:

chicken wing (raw)	paper towels
scissors	dissection pan
dissecting needle	hand lens

PROCEDURE:

1. Line dissection pan with paper towels. Obtain a chicken wing from your teacher.

2. Using the hand lens, examine the outside of the wing. Notice the bumpy texture of the skin. That's from the feather follicles, like the hair follicles in human skin.

3. Remove the skin from the wing by pulling the skin off the chicken wing. The best technique is to forcefully lift the skin with your thumb, grab the skin with paper toweling, and pull hard to remove. Notice the skin is held tightly to the muscle. The thin connective tissue holding the skin and muscles together is called *fascia*. Fascia connects skin to the muscle so it doesn't slip around.

4. Look at the underside of the removed skin. Observe the blood vessels that run through the skin. These are in the dermis layer of the skin. You would also find sense organs, oil glands, and follicles in this layer. Observe the yellowish tissue on the inside of the skin...this is fat tissue. Fat is stored food and helps to insulate.

5. Observe the muscles in the chicken wing. The muscles are bundles of pale pink tissue that surround the bone. Use the dissecting needle to pry apart some bundles of muscle tissue. Note the material that separates the bundles. Each muscle is surrounded by epithelial (lining) tissue, too. Muscle tissue is "meat." When you eat hamburger, a steak, fish, or chicken - you are eating <u>muscles</u>.

6. Observe the shiny white tissue, or tendons, at the ends of the muscles. The tendons seem to blend right into the muscle. They connect muscle to bone to allow movement. Tendons are often referred to as the gristle in cooked meat. It's not tender like the muscle tissue.

7. Notice the whitish tissue, or ligaments, between the bones. It is dull (not shiny) and looks almost ropelike. Ligaments hold bone to bone.

8. Locate a blood vessel with the dissecting needle. Blood vessels are thin reddish-brown strands. You may be able to slide some blood out. Notice it is thick, or coagulated. Blood clots in the air, which is good if you have a cut so you don't bleed to death! Blood carries oxygen and food to muscles and carbon dioxide and wastes (like lactic acid) away.

9. Bend the wing at its "elbow" joint. Observe the motion of the muscles, tendons, ligaments, and bones. Notice how smoothly all parts move together. Now bend the joint to dislocate (pop the bones from their sockets) and examine the ends of the bones. Cut the ligaments within the joint to see the cartilage pads on the ends of the bones. Feel how they are slippery and smooth. Cut into the cartilage with the scissors. It is soft, not hard like the bone. Try to pop a pad off the end of the bone. Feel the end of a bone. It is very rough. Cartilage makes a joint (bone to bone) move smoothly and cushions the pressure from bone on bone stress.

10. The chicken wing is similar to the arm of a human. Chickens have a humerus, radius and ulna, too. Dissect away the muscles to see these bones (brute force works best). Carefully crack open one of the bones of the wing. Look at the cracked end. Observe the inside. Dig out some marrow. Bone marrow is what makes red blood cells for the body and what dogs love to eat in the bones. See how pink colored a bone is (not a "dead" white bleached out bone). This is from the living blood vessels and living cells that make bone tissue. When you see a "dead" bone it is just the minerals (calcium, phosphorus, etc.) left behind.

11. Clean up! Please wash your hands, dissecting tools, and table. Pay close attention to scrubbing under your fingernails! Throw the chicken parts away. No souvenirs from this lab, please.

12. Answer the conclusion questions for homework.

Name:

INVESTIGATING TISSUES CONCLUSION QUESTIONS:

1. What is the **function** of a tendon?

_____

_____

2. What is the **function** of a ligament?

_____

_____

3. **Why** is there fat in the skin?

_____

_____

4. **Why** are blood vessels attached to the muscles?

_____

_____

5. **Why** is cartilage found on the ends of the bones in joints?

_____

_____

6. **Why** is there marrow inside bones?

_____

_____

7. The chicken wing is similar to the _____ of a human. Explain how it is **similar**.

_____

_____

8. Tissues are made from cells working together. We observed tendons, cartilage, skin, bones, blood and blood vessels, fat, fascia, muscles, and marrow. Which of these tissues of the chicken wing is referred to as the "meat"?

Meat is _____ tissue.

For a work ethic boost, when you are home you can dissect a chicken wing or leg, a turkey wing or leg, or even look at another cut of meat on the bone looking for the same structures (or similar structures) as the chicken wing and show/explain to your family the tissues you see.

A parent signature below will tell me you did this dissection (or at least examined your food in more detail!).

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