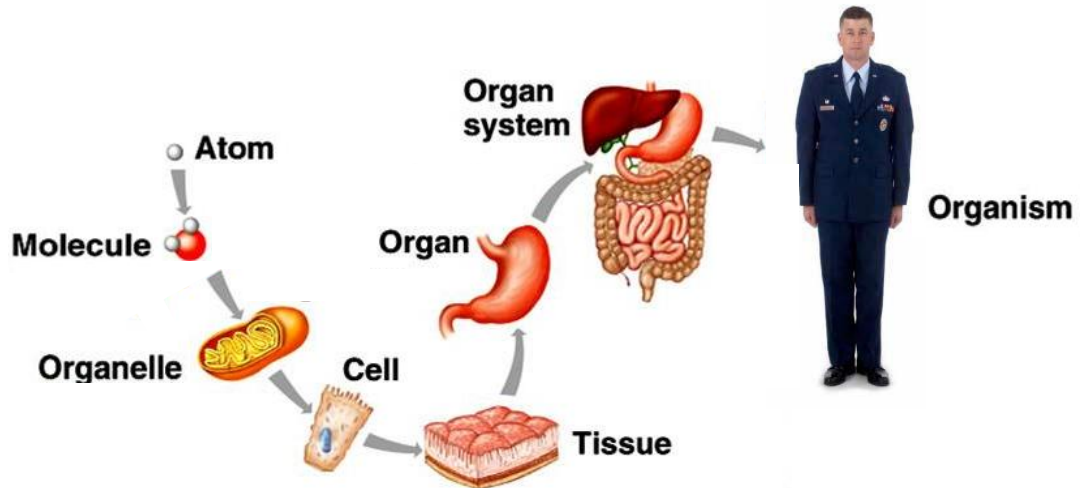


Name: _____

Per: _____ Date: _____

Levels of Biological Organization

Background: In unicellular (single-celled) organisms, the single cell performs all life functions. It functions independently. However, multicellular (many-celled) organisms have various levels of organization within them. Individual cells may perform specific functions and also work together for the good of the entire organism. The cells become dependent on one another.



Activity 1: Use the descriptions on your handout to determine which level of organization (organelle, tissue, organ, system, etc.) is being described. Write the level of organization in the parentheses provided above the picture.

Activity 2: After reviewing the different levels of organization, use your handout to help you fill in the following chart by selecting the example that meets the requirement listed. (Hint: You will need to use “epithelial tissue” twice to complete the chart).

	Organelle	Tissue	Organ	System
Protects by forming a selective barrier				
Breaks down food for energy				
Removes waste				
Provides means of transportation				
Gives structural support				
Controls and coordinates actions				

Cell Membrane (_____)



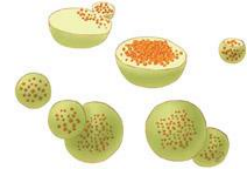
This organelle is a selectively permeable barrier that controls what goes in and out of the cell.

Bladder (_____)



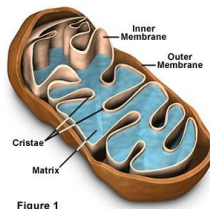
The bladder is a hollow, muscular organ that collects urine excreted by the kidneys before disposal by urination.

Lysosomes (_____)



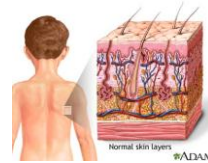
Lysosomes are organelles that contain enzymes to break down and remove waste in the cell.

Mitochondria (_____)



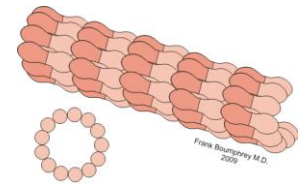
Mitochondria are the site of cellular respiration in which sugar molecules are broken down to release energy.

Skin (_____)



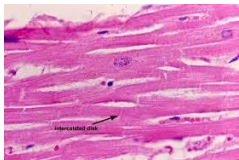
The skin is the largest organ of the integumentary system. It protects the underlying muscles, bones, and organs as well contributing to heat regulation and sensory perception.

Microtubules (_____)



Microtubules serve as part of the cell's system of structural support. They are also involved in the process of cellular division.

Cardiac (_____)



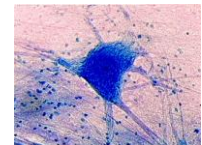
Coordinated contractions of cardiac tissue in the heart pump blood throughout the body.

Digestive (_____)



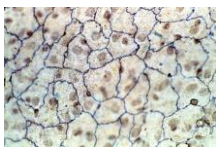
Although digestive systems take many forms in organisms throughout the world, the main function of digestion is to break down food so that it can be used for energy by the body.

Nervous (_____)



Nervous tissue is the main component of the brain and spinal cord which regulate and control body functions.

Epithelial (_____)



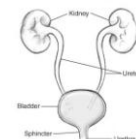
Epithelial tissue is located on the very outside of an organism (i.e. skin) as well as in the lining of hollow organs such as the bladder. Its purposes include protection and secretion.

Skeletal (_____)



The skeletal system is a rigid framework to which the softer tissues and organs of the body are attached. It provides protection and structural support for the body.

Urinary (_____)



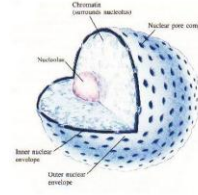
The urinary system produces, stores, and eliminates urinary waste. Through this process, the body is able to regulate electrolyte balance as well as maintain a healthy pH level.

Bones (_____)



Bones are rigid organs that form part of the endoskeleton of vertebrates. They help to move, support and protect the body as well as producing red and white blood cells.

Nucleus (_____)



This organelle contains the cell's genetic material (DNA) and therefore controls the cell's activities.

Brain (_____)



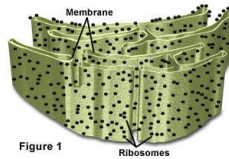
In most vertebrate animals, the brain is the central organ of the nervous system. It controls the other systems of the body by either activating muscles or releasing chemicals.

Heart (_____)



The heart is a muscular organ found in all animals with a circulatory system. It is responsible for pumping blood throughout the body through the use of coordinated contractions.

Endoplasmic Reticulum (_____)



The endoplasmic reticulum is an organelle that forms an interconnected network of tubules that serve to transport newly synthesized proteins.

Stomach (_____)



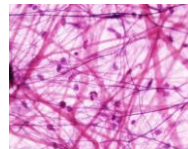
The stomach is a muscular, hollow organ that works with the digestive system. It releases enzymes and strong acids that help to break down food to release useable energy.

Circulatory (_____)



This system transports nutrients (gases, hormones, etc.) carried in blood and lymph throughout the body. It is powered by the involuntary contractions of the heart.

Connective (_____)



Connective tissue is made of a network of protein fibers that provide structural support. Bone, blood, cartilage, and fat are the four main types of connective tissue.

Nervous (_____)



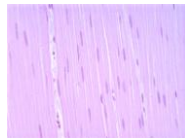
This system contains a network of specialized cells called neurons that coordinate actions by transmitting signals throughout the body.

Integumentary (_____)



The integumentary system consists of the skin and its appendages (hair, feathers, nails, etc.). It serves to protect the body as well to detect pain, sensation, and pressure.

Smooth Muscle (_____)



Smooth tissue is able to contract on its own without a signal from the brain. These involuntary contractions help organs such as the stomach and intestines to break down and move food through the digestion process.