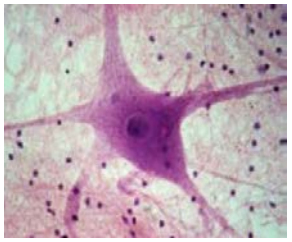
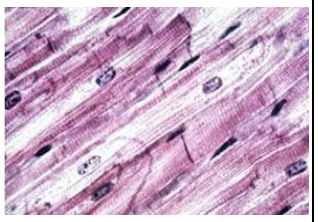
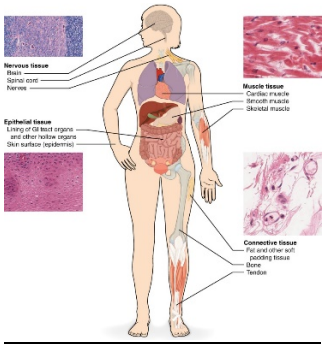
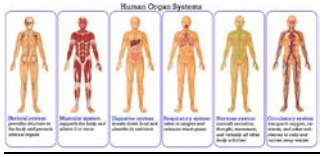
Main Topic: Levels of Organization in Cells

Learning Objectives/Outcomes: recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms.

Topic 1: Cell Specialization	**Topic 2: Tissues**	**Topic 3: Organs**	**Topic 4: Organ Systems**	**Topic 5: Organisms**
Ideas What dictates cell structure? Cell function will dictate cell structure including organelle types, numbers, and cell shape What is the function of a neuron? The neuron is specialized to send messages very quickly Explain how two cells can have the same DNA but have a different structure and function. DNA codes for specific proteins which determine the cell's structure and function.	**Ideas** What forms a tissue? Different types of cells performing specialized functions form a tissue List 4 types of tissue and their function Nervous: sensory input, integration, and motor response Muscle: the fibers contract and relax to provide movement Connective: bind other organs together, hold organs in place, cushion them, and fill space. Epithelial: secretion, selective absorption, protection, transcellular transport, and sensing	**Ideas** What forms an organ? Two or more different types of tissue working together to perform a specific function Give an example of an organ and its function. Lungs perform the process of gas exchange. Oxygen comes in and enters the blood stream and carbon dioxide exits as a waste product of metabolism	**Ideas** What forms an organ system? Organs working together to perform certain functions form organ systems. What are the six organ systems and its function? Skeletal: support, movement, protection, blood cell production Muscular: movement, stabilization of joints, and generate heat Digestive: digestion and absorption of nutrients Respiratory: process of gas exchange Nervous: sensory input, integration, and motor response Circulatory: transport blood and oxygen throughout the body	**Ideas** What forms an organism? Organ systems working together to form a fully functional living being that can thrive in a particular environment Define organism. A complex structure of interdependent and subordinate elements that create a life form

Key Vocabulary cell neuron	**Key Vocabulary** tissue nervous tissue muscle tissue connective tissue epithelial tissue	**Key Vocabulary** organ	**Key Vocabulary** organ system skeletal system muscular system digestive system respiratory system nervous system circulatory system	**Key Vocabulary** organism
Pictures  Neuron (brain)  Muscle cells	**Pictures** 	**Pictures** 	**Pictures** 	**Pictures**