                - Gets rid of waste
                - Protects from harsh conditions
        - Cells are specialized for maintaining certain aspects of the internal environment
            - Allows for multicellular animals to be larger, thicker, and more complex
        - Set point is compared with feedback which sends error signal to regulatory systems and then control systems
- Organs
    - Organs are always made of epithelial tissue and usually all 4 types
        - Epithelial tissue protects the body and its compartments and controls what goes in and out of the body
            - Skin
            - Secrete hormones, milk, mucus, sweat, digestive enzymes
            - Provide information for the nervous system
        - Muscle tissues generate force and movement
            - Skeletal muscle is attached to bone for locomotion and other body movements
            - Cardiac muscle is responsible for pumping blood and makes up the heart
            - Smooth muscle makes up the inside of hollow organs
        - Connective tissue cells are generally dispersed in the extracellular matrix that they make themselves
            - Strength, resistant to stretch, structural shape
            - Cartilage and bone provide support
            - Blood cells dispersed in plasma
            - Adipose is fat cells that are a major source of stored energy
        - Neural tissue processes information
            - Neurons encode and conduct information through electrical and chemical signals that are received by target cells
            - Glia provide support functions for neurons and can send chemical signals
- How does temperature affect living systems?
    - Cells can only function over a narrow range of temperatures
        - Lower temp for most cells is 0 celsius and upper is 40-45 celsius
    - Q10 is a measure of temperature sensitivity
        - =1 if the reaction is not temperature sensitive
            - Reaction rate doubles as temperature goes up by 10 celsius
- Endotherms produce more heat because their cells are less efficient at using energy
    - Na+ ions are constantly diffusing into the cells and K+ ions are constantly diffusing out of cells which means they expend more energy and release more heat
- Ectotherms can use behavior to maintain a fairly stable temperature