- 2Skeletal System
    - Purpose
        - Supports body
        - Protects internal organs
        - Provides for movement
        - Stores mineral reserves
        - Provides a site for blood cell formation
    - Structure
        - CALCIUM
        - 206 bones
        - Periosteum
            - Tissues that forms membrane of bones
        - Bone marrow
            - Yellow
                - Made up of fat cells
            - Red
                - Produces red blood cells, some white blood cells, platelets
        - Haversian Canals
            - Contain blood vessels and nerves
        - Solid network of living cells and protein fibers that are surrounded by deposits of calcium salts
        - Cartilage
            - Tissue, flexible
        - Ossification
            - Process by which cartilage replaced by bone
    - Joints
        - Ball and socket
            - Free moving
            -
        - Hinge
            - Slightly movable
        - Pivot
            - Immovable
        - Saddle
        - Free moving
    - Structure of joints
        - Ligaments
            - Connective tissue
        - Synovial fluid
            - Produced by cells in a joint capsule for lubrication
        - Bursa
            - Sacs of synovial fluid
            - Reduces friction between joints

- If damaged, swelling, ect.

➢

❖ Muscular system
- ➢ Purpose
  Move food through your digestive tract
  - Cardiac
    - Heart muscles
    - involuntary movement
  - Smooth
    - Muscles found in organs
    - Move food through your digestive tract
    - Control the way blood flows through your circulatory system
    - Decrease the size of the pupils of your eyes in bright light
    - Involuntary
    - Electrical impulses control, pass from cell to cell
    -
  - Skeletal
    - Only consciously controlled muscles
    - Attached to bones by tendons
    - Used in all bodily movement
- ➢ Contraction
  - Muscle fibers composed of myofibrils
    - Myofibrils composed of filaments
    - Filaments alternate thin, thick
    - Thick contain protein myosin
    - Thin contain protein actin
  - Units of filaments called sarcomeres, separated by Z-Disks
  - Thin slides over thick filaments
  - Energy supplied by ATP
- ➢ Controlling of contraction
  - Neuromuscular junction
    - Contact between a motor neuron and skeletal muscle cell.
  - Acetylcholine molecules
    - Is a neurotransmitter
    - Acetylcholine molecules produces an impulse in the cell membrane of the muscle fiber.
    - The impulse causes the release of calcium ions within the fiber.
      - ◆ Calcium ions affect regulatory proteins that allow actin and myosin filaments to interact.
    - It takes a few milliseconds nerve impulse reaches a muscle cell and then the muscle contracts.
    - A muscle cell remains contracted until the release of acetylcholine stops and an enzyme produced at the axon terminal destroys any remaining acetylcholine.

        - The cell pumps calcium ions back into storage, the cross-bridges stop forming, and contraction ends.
- Muscle bone interaction
    - Conjoined by tendons
        - Tough connective tissue
    - Usually work as pairs (One muscle contracts, another relaxes)

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