The Musculoskeletal System

- The organ system that is made up of ____bones____ and ____skeletal muscle (voluntary)____
- This system ____ supports the body ______, ____ protects delicate organs ______, and ____ makes movement possible ________

Structural Features
- The skeleton contains three types of connective tissue:
  - **Bone**
    - hard and dense
    - consist of bone cells within minerals (mainly calcium and phosphorus) and collagen fibres
  - **Ligaments**
    - are strong tough elastic bands of connective tissue that can stretch
    - hold bones and movable joints together
    - surround the joint to give support and limit the joint’s movement
  - **Cartilage**
    - hard but slippery tissue that covers the ends of bones where they meet to form a joint.
    - helps reduce the friction of movement by allowing bones to glide over one another
    - absorbs the energy from the shock of physical movement

The Muscular System

- bones need ____ muscles ______ to move them
- there are about _____600____ muscles in the human body
- made up of bundles of long cells called ____ muscle fibres ____ that contain ____ specialized proteins ____

How Muscles Make Bones Move
- ____ proteins ____ in muscle cause the muscle to ____ contract ____ when signalled by nerve cells
- each end of a skeletal muscle is connected by ____ tendons ____ to one or more bones in the skeleton
- when they ____ contract _____, muscles get ____ shorter _____ and ____ thicker ______
  - _____ pulling motion ____
- this force moves ____ one or both ____ of the bones
- muscles can ____ pull ____ but not ____ push ____
  - they always work in ____ opposing pairs ____ or groups