

Revision Notes
CHAPTER – 8
Body Movements

Locomotion: Movement of organisms from place to place.

Locomotion in the human body:

(i) Human skeleton: It forms a framework that gives shape and support to the body. It consists of 206 bones. It protects internal organs.

The human skeleton has two parts:

1. **The axial skeleton system:** It includes the skull, vertebral column and the chest bones or the rib-cage.
2. **Appendicular skeleton system:** - It includes shoulder and hip girdles and the limbs (two hands and two legs).

The human skeleton is made of:

- **Bones:** - Bone is the unique combination of flexibility and stiffness.
- **Cartilages:** - It is a flexible bone which gives support to body parts like ears and nose. It also connects bones together.
- **Tough fibres, the tendons:** - Tendons are strong, white cords made from collagen. they attach to bones.
- **Collagen:** - Bones in a just born baby are made from soft fibres of a protein called ' collagen '.
- **Ligaments:** - Ligaments may be in the form of cords or sheets.

(a) Skull: It protects the brain. It is a rigid box made up of plates of bone firmly joined together.

- The skull is bony, forming cranium or the brain-case and the face.
- Twenty-two small flat big bones join to form the skull.
- Eight flat bones are fitted together forming a protective box for the brain.
- Fourteen bones of different shapes fuse together to form the face.

(b) Rib cage: It is a flexible case of ribs. Each rib curves round the side of the chest from the backbone and is joined in front to a plate of bone called sternum. Ribs are connected to one another by the muscles. Two lowermost pairs of ribs are called ‘floating ribs’.

(c) Backbone or the vertebral column: It is also called the spine or vertebral column.

- Backbone is made from 33 rings like pieces.
 - Each piece is called a vertebra.
 - It is a chain of small bones called vertebrae.
 - It protects the spinal cord, which carries messages between the brain and body.
 - It also supports the skull, ribs and limbs.
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(d) Limbs: It is made up of long bones with joints that allow them to move. They are mainly for support.

(i) **Arms:** fore-arms is made up of two bones and hands have several small bones. Shoulder bones have a pair of collarbones in front and a pair of shoulder blades.

(ii) **Legs:** Lower leg is made up of two bones and feet have several small bones. Hip bones or griddles bear the weight of the body and are attached to thigh bones.

(iii) **Joints:** The point where two bones meet. Allow movement to take place. Bones are held together by ligaments.

(a) Movable Joints: It allows movement between bones and has cartilage between them.

Type of movable joints are:

(i) **Hinge Joints:** It allows movement only in one plane backwards and forwards. Example: elbow joints, knee joints and the joint between phalanges of fingers and toes.

(ii) **Ball and Socket Joints:** It permits a circular movement. Example: the shoulder.

(iii) **Gliding Joints:** It allows bones to slide a little. Example: bones inside wrists and feet.

(iv) **Pivotal Joints:** Joint where the neck joins the head. It allows the head to move backwards and forward and turn to the right and left.

(b) Immovable or Fixed Joints: The bones cannot move at these joints. Example: bones in skull, joint between upper jaw and rest of skull.

Locomotion in other animals:

(i) **Fish:** Locomotion achieved by lateral contractions of the muscular body with a final thrust by the tail. Fish swim by forming loops alternately on two sides of the body.

(ii) **Birds:** When the large flight muscles contract, they pull the wings down.

(iii) **Snails:** The muscular foot helps in locomotion.

(iv) **Earthworms:** Move by stretching out the body in front and keeping the hind end fixed to the ground.

- The bones are moved by alternate contractions and relaxation of two sets of muscles.
- The bone joints are of various kinds depending on the nature of joints and direction of movement they allow.
- Strong muscles and light bones work together to help the birds fly. They fly by flapping their wings.
- Snakes slither on the ground by looping sideways. A large number of bones and associated muscles push the body forward.
- The body and legs of cockroaches have hard coverings forming an outer skeleton. The muscles of the breast connected with three pairs of legs and two pairs of wings help the cockroach to walk and fly.