

Movement: change in position of a part of the body.

Locomotion: movement of an whole organism from one place to another.

- Ways of movement can be walking, crawling, jumping, flying, creeping, hopping, swimming, etc.
- Different animals showcase different style of movement due to their body structures.

Skeleton (support structure of an organism)

- Endoskeletons (skeleton present inside the body e.g. bones, joints etc)
- Exoskeleton (skeleton present outside the body e.g. shell of a snail and tortoise)

Human skeletal system

- the skeletal system of an adult human is made up of 206 bones.
- A child has 300 bones at the time of birth. These bones fuse together as the child grows.
- It consists of various other parts.

1. Skull: comprises of bones of face and head region

All bones of the skull are fixed except of the lower jaw.

Functions

- protects brain
- bears jaws which helps to cut & chew food.
- protects & support ears.

2. Backbone

- consist of 33 small vertebrae joined to each other by means of slightly movable joint.

Functions

- protects the spinal cord
- carries the weight of the body.

3. Rib cage

- consists of 24 bones arranged in 12 pairs of thin, flat & curved bones called ribs
- First seven pairs are attached to the breastbone called true ribs whereas 2 pairs of floating ribs

Functions

- protects important internal organs such as heart and lungs.
- provides surface for the attachment of muscles.

4. Limbs

- include the bones of arms (forelimb) and legs (hind limb)

5. Pelvic bones

- the portion of body below Stomach.

6. Shoulder bones

- bony region of which arms are attached to shoulders.

Movements of bones in humans

Muscles

- have a unique property of contraction and relaxation.
- Responsible for the movement of bones.
- attached to bones by tendons.

- Work in pairs. If one bone contracts the other one relaxes to make the movement.

Joint

- a place where two bones are joined together.
- immovable/fixed joints - which do not move at all . e.g. skull.
- slightly movable - which can move in a particular direction. e.g. vertebral.

Freely movable

- Hinge joint - movement in one plane. e.g. Knees, ankles
- Ball & Socket - movement in all direction. e.g. shoulder
- Pivot joint - movement up and down e.g. neck
- Gliding joint - movement in side to side and back and forth e.g. wrist & ankle

Cartilage

- Soft & flexible tissue present at the ends of bones, upper part of ear, nose, etc.

Movement in other animals

- **Earthworm:** muscles with tiny bristles present on the underside helps in movement
- **Snail:** muscular organ called foot which produces a slimy fluid called mucus helps in movement.
- **Cockroaches:** have 3 pairs of legs for walking and wings for flying these different units joined together helps in movement.
- **Fish:** streamlined body, scales, tail fin and other paired and unpaired fins help it to swim under water.
- **Snakes:** have a long backbone, scales, muscles, ribs that help them to move fast in wave-like manner.
- **Birds:** have streamlined body, hollow & light bones, presence of wings and feathers, strong breast muscles, etc which help them to fly easily.

