

**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.

**Joints**

- 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 o particular direction. e.g. vertebral.

**Freely movable**

- Hinge joint - movement in one plane. e.g. Knees tetras
- Ball & Sacket - movement in all direction. e.g. shoulder
- Pivot joint - movement up 1 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, uppert part of ear, nose, eco.

**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 walling 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 stream lined body, hollow \& light bones, presence of wings and feathers, strong breast muscles, etc which help them to fly in sly.