BODY MOVEMENTS

HUMAN BODY AND ITS MOVEMENTS

A human body shows two types of human body movements:

(1) Movements of body parts:

When we move our body parts our body remains at the same place.
Example – Mouth, foot, head, arms, legs etc.

(2) Movement of the whole body from one place to another:

The ability of a human being to move its body from one place to another is called locomotion.

JOINTS

- ✗ The places where two bones are joined together are called joints. The joints of bones help in body movements.
- ✗ Types of joints in the human skeleton:

1. Ball and socket joints:

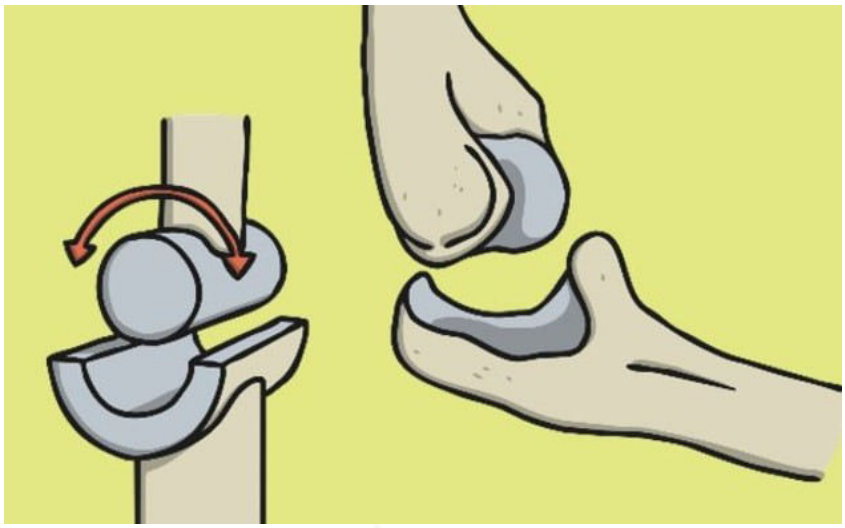
In the ball and socket joint, one end of the bone has a round shape like a ball which fits into a hollow space (socket or cavity) in the other bone. It allows movement in all directions.

Example – Shoulder joints and hip joints

2. Hinge joints:

The hinge joint allows the movement of bones in only one direction (forwards and backwards).

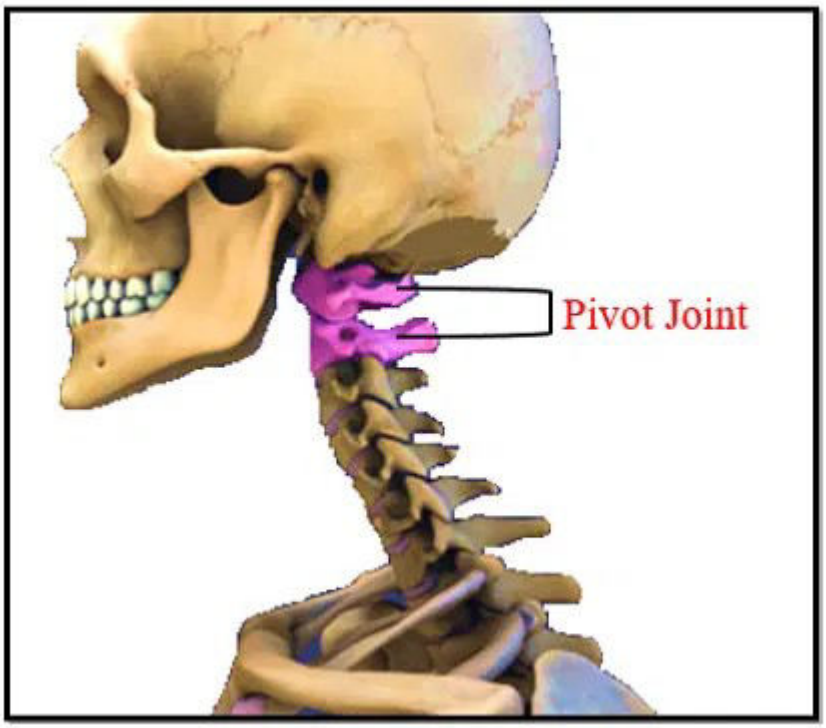
Example – Knee, elbow and lower jaw.



3. Pivot joints:

The pivot joint connects our head to the neck. It allows bending of our head forward and backwards and turning our head right and left.

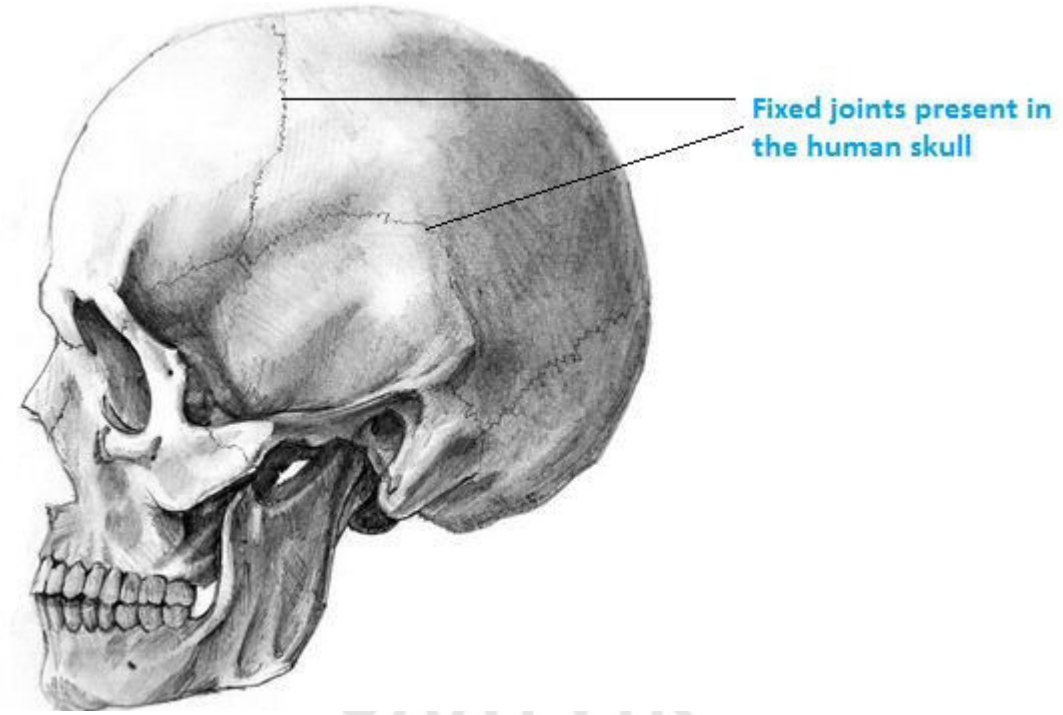
Example – Head and forearm.

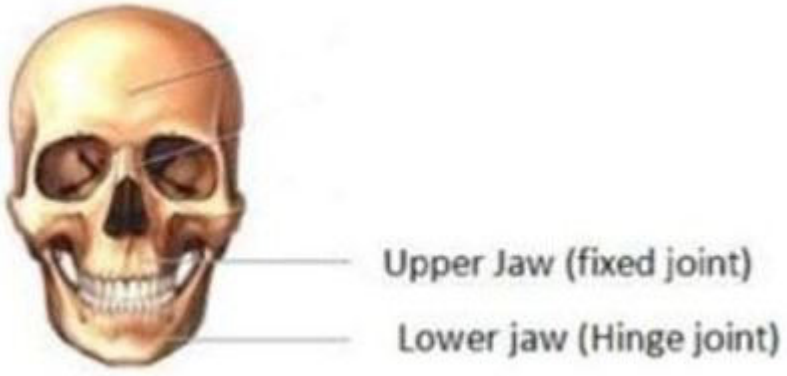


4. Fixed joints:

Some bones are held so tightly together that they cannot move at all, such joints are called fixed joints. The fixed joints are immovable joints. It provides strength and support to the body.

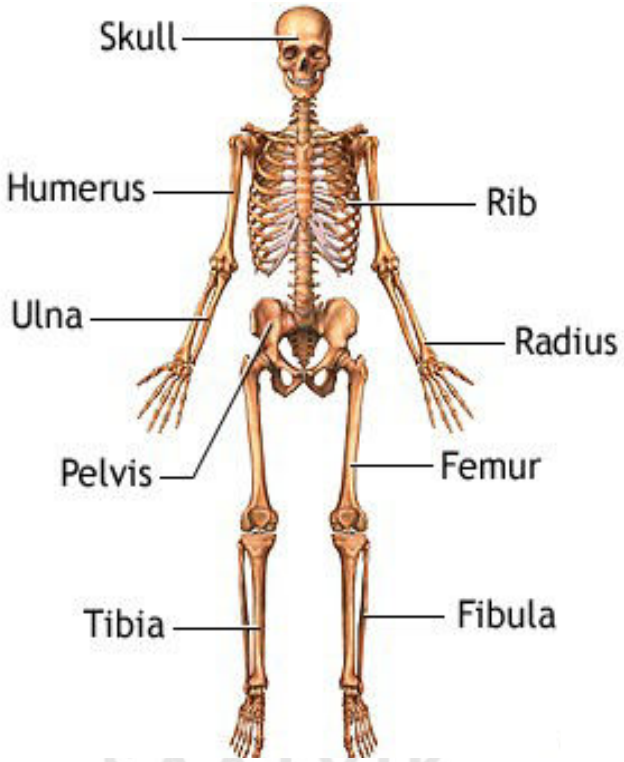
Example – The Fixed joint is present between the skull and upper jaw. Hip bone is connected to the backbone by a fixed joint.





SKELETAL SYSTEM

Our body is supported on a hard framework of bones. This bony framework inside our body is called the Skeleton.



Functions of Skeleton:

- ✗ It holds the whole body and gives shape.
- ✗ It protects the delicate internal organs of the body.
- ✗ It provides many joints which allow the muscles to move our body and body parts.

Endoskeleton – When skeleton is inside the body it is called endoskeleton.
Example – Human beings.

Exoskeleton – When skeleton is outside the body it is called exoskeleton.
Example – Cockroach.

- ✗ There are 206 bones in the human skeleton. These bones of the skeleton are connected through joints.
- ✗ There are total 305 bones in a human skeleton during birth. When the child grows some bones fumed together and by adulthood, the number of bones decreases to 206.

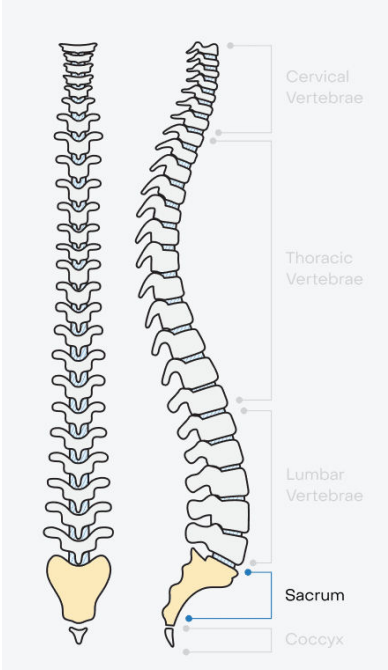
The skeletal system consists of:

a) Skull:

- ✗ The bony part of our head is called the skull.
- ✗ The skull is made up of many bones joined together.
- ✗ It holds the whole body together and gives it a shape.
- ✗ It encloses and protects a very important part of our body, the brain.
- ✗ It also protects our main sense organs like eyes, ears and nose.

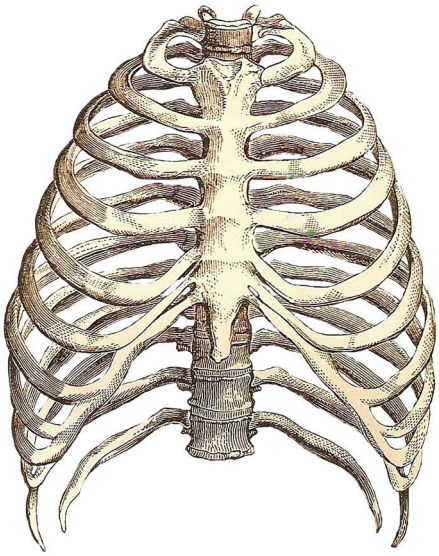
b) Backbone:

- ✗ It is a long, hollow and rod-like structure running from the neck to the hips inside our body.
- ✗ It supports the head at the top.
- ✗ Ir provides main support to the body by protecting the spinal cord.
- ✗ It is made up of many small bones called vertebrae. There are 33 vertebrae.



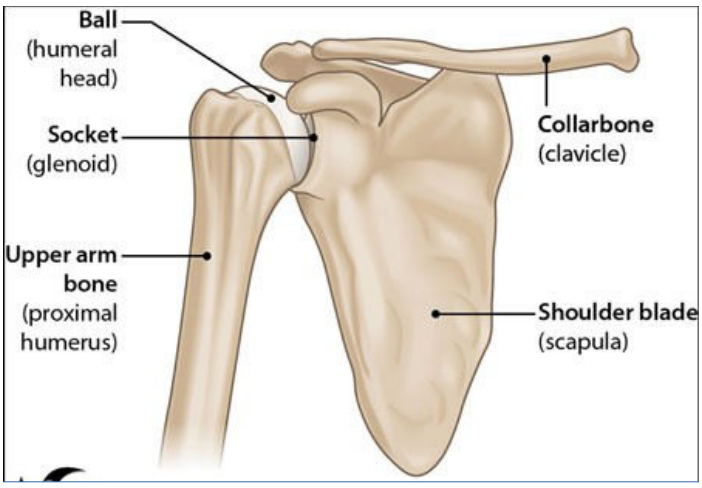
c) Ribcage:

- ✗ The thin, curved bone in our chest is called ribs.
- ✗ There are 12 ribs on each side of our chest.
- ✗ One end of the ribs is joined to the backbone and the other end is joined to the breast bone forming a hollow bony structure called rib cage.
- ✗ It protects the important internal organs of our body like the heart, lungs and liver which lie inside the rib cage.



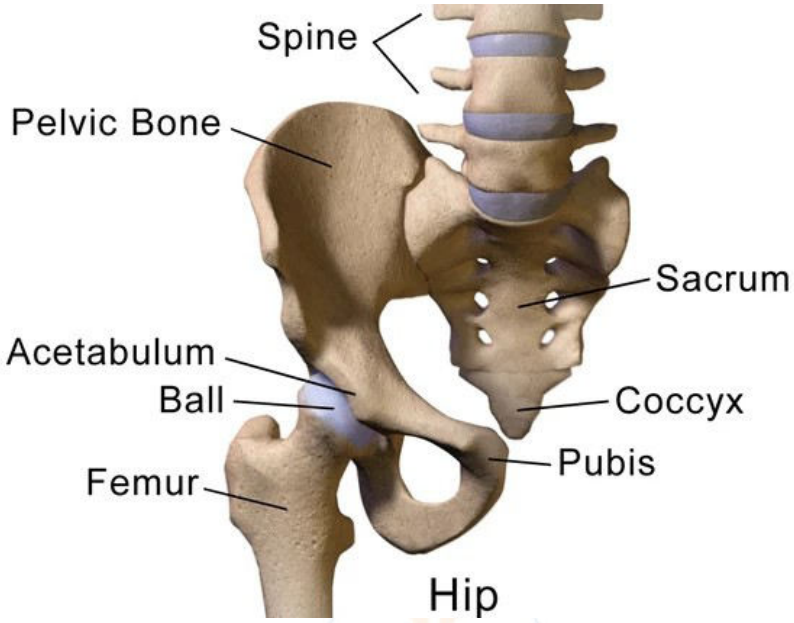
d) Shoulder bones:

- ✗ Shoulders are that part of the body to which the arms are attached.
- ✗ There are two shoulder bones: Collar bone and shoulder blade.
- ✗ Collar bone keeps the shoulder apart.
- ✗ The shoulder blade is attached to the backbone by muscles that allow the free movement of body.



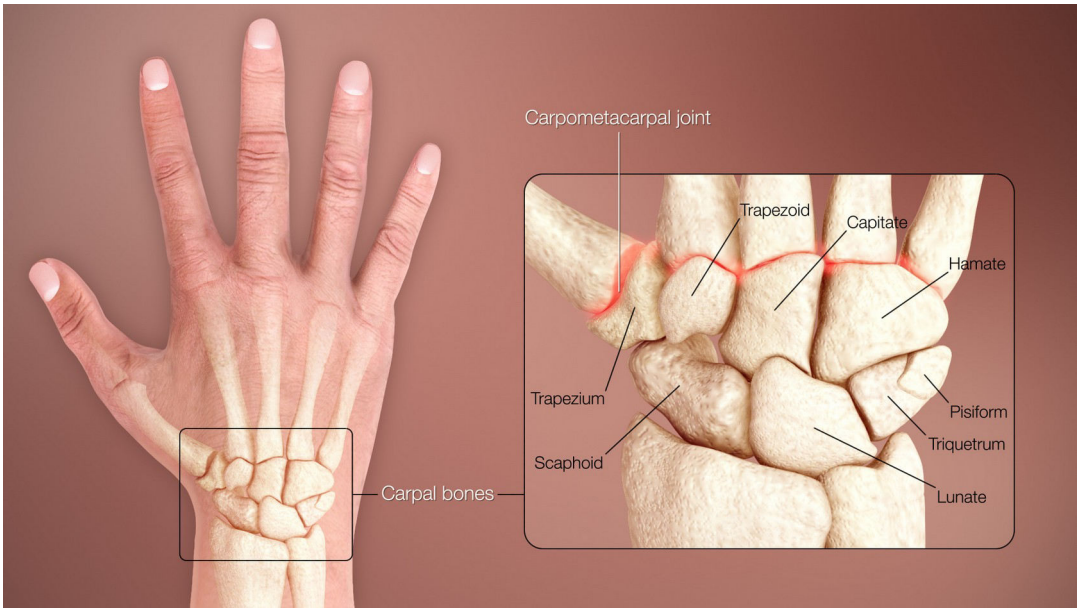
e) Hip bone (Pelvic bone):

- ✗ The hip bone attaches the legs to our body.
- ✗ It supports and protects the lower organ of the body such as the intestine, urinary bladder.
- ✗ It is the part of skeleton on which we sit on.



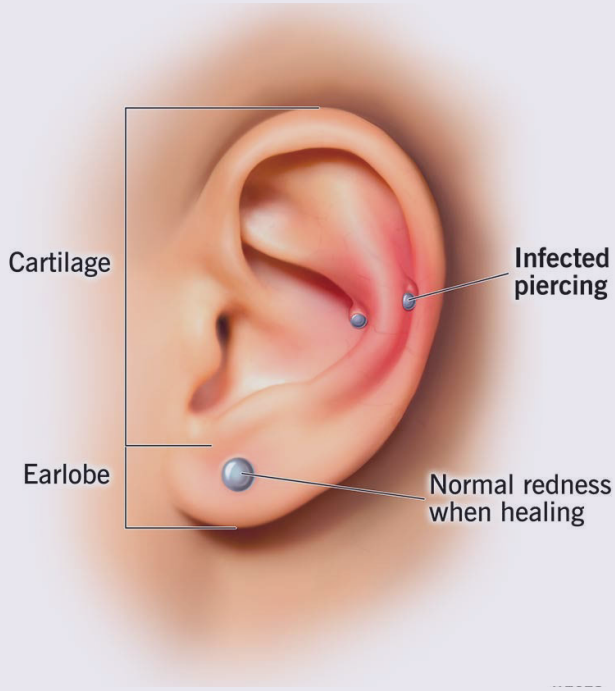
f) Arm and leg bones:

- ✗ Arms is made up of three long bones.
- ✗ The wrist of our hand is made up of several small bones called carpals. There are 8 carpals on our wrist.
- ✗ Each leg is made up of four bones.



CARTILAGE

The soft and elastic bones which can be bent are called cartilage. Skeleton is made up of bones and cartilage. Cartilage is present in the pinnae of ears, nose. It gives support and shape to the ears.



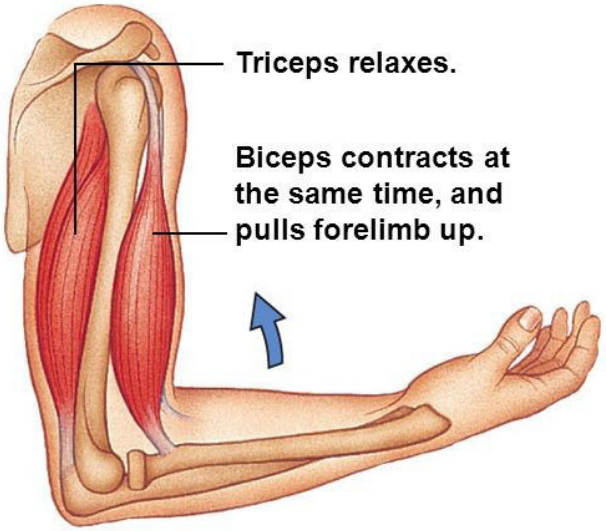
MOVEMENT OF BONES

Muscles are attached to the bones of our skeleton. Bones and muscles work together to move our body parts.

Two muscles (a pair) work together to move a bone. When one of the muscles contracts (becomes smaller), the bone is pulled in that direction. The other muscles of the pair relax (become stretched). To move the bone in the opposite direction, the relaxed muscle contracts to pull the bone towards its original position, while the first relax. Thus, two muscles work together to move a bone.

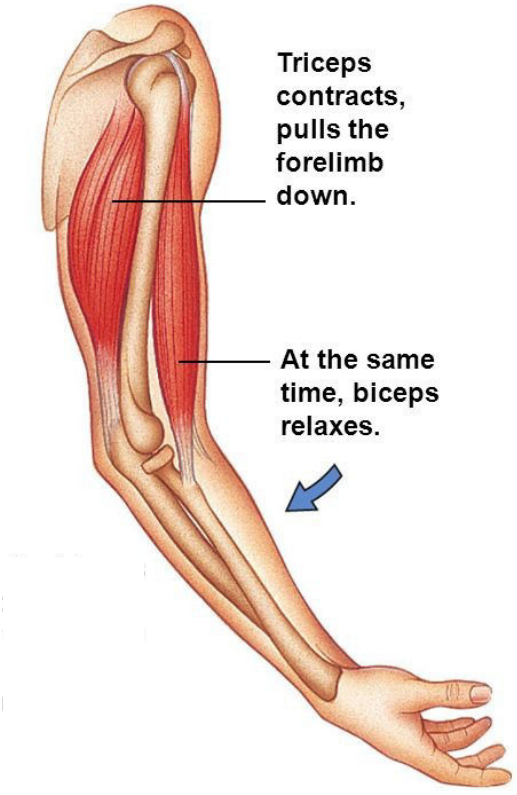
Bending of Arms:

When we bend our arm the bicep muscles contract. The contraction of biceps muscles pulls the lower arm bones due to which the lower arm moves up. When the biceps muscle contracts the triceps muscle relaxes.



Straightening of Arms:

When we straighten our arm the triceps muscles contract. The contraction of triceps muscles pulls the lower arm bones due to which the lower arm moves out. When the triceps muscle contracts the biceps muscle relaxes.

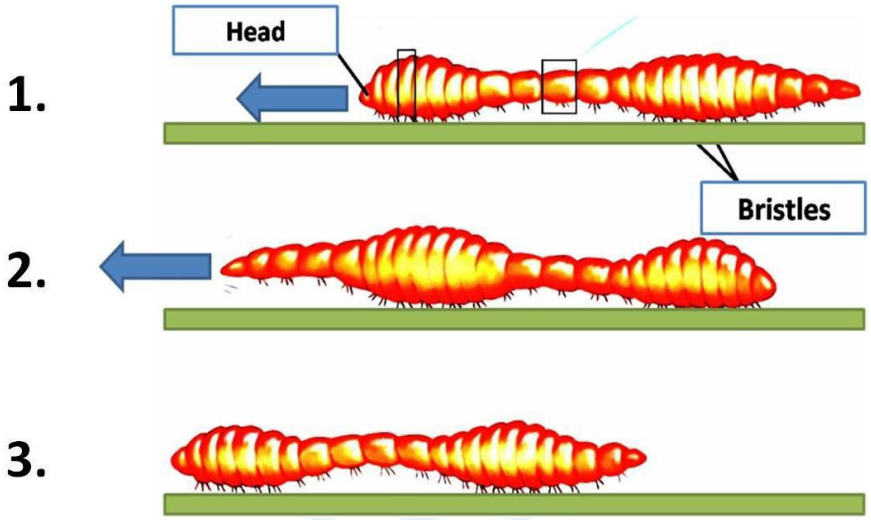


GAIT OF ANIMALS

The manner of movement in animals is called gait of animals.

(a) Earthworm:

Earthworm does not have bones. It has two sets of muscles one that makes it long and thin and the other that makes it fat. The alternate contraction and relaxation of these muscles help in the movement. The tiny bristles on the underside of the body help in gripping the ground.

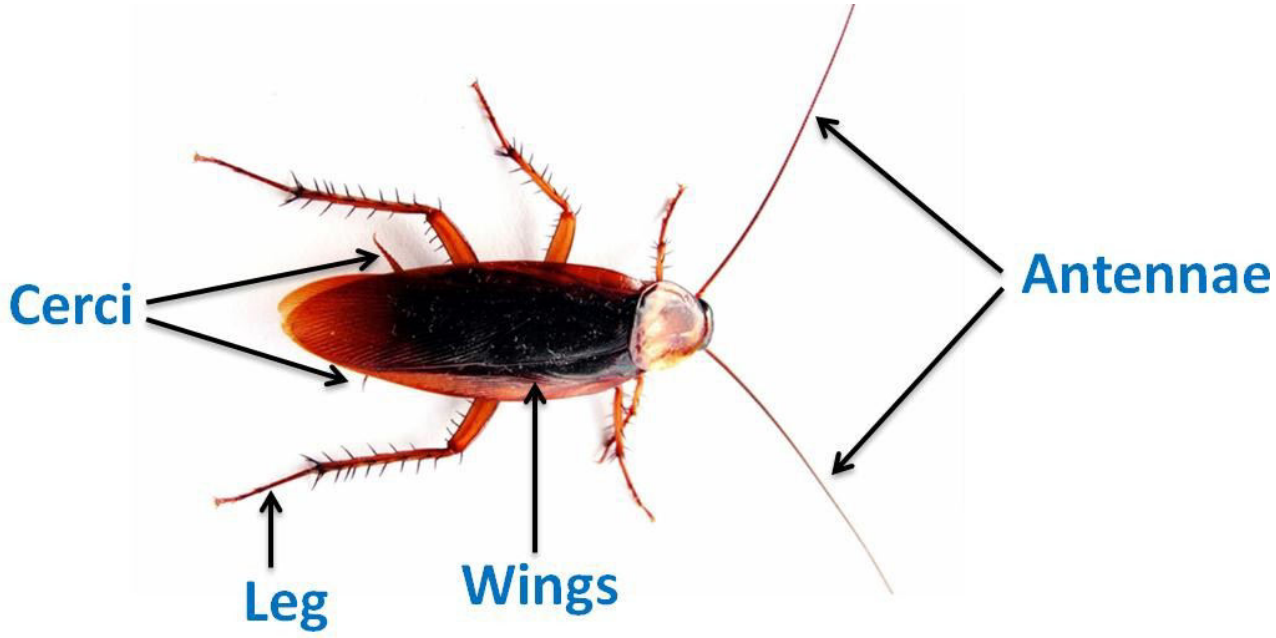


(b) Snail:

The snail has one large, disc-shaped muscular foot under its body which helps them in the movement.

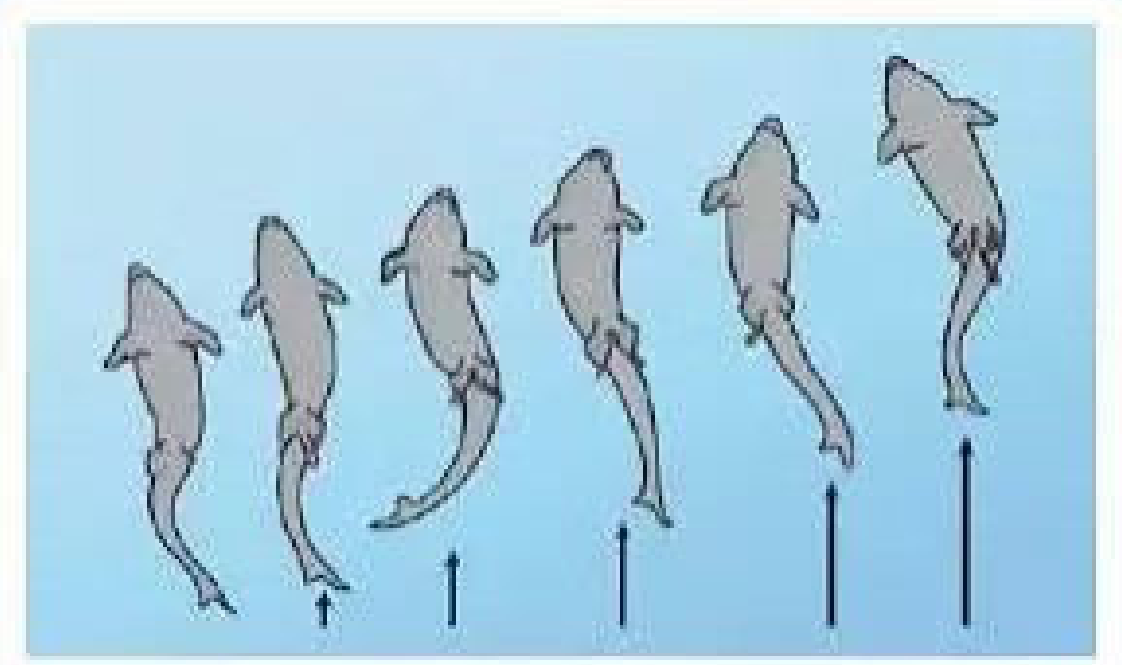
(c) Cockroach:

The cockroach has 6 legs (three pairs) which help in walking. It has two pairs of wings attached to the body which help him to fly.



(d) Fish:

The shape of fish is like a boat (tapered at both ends) called streamlined. The skeleton of fish is covered with strong muscles. During swimming, muscles make the front of the body curve to one side and the tall part onwards the opposite side. The fish swim by forming loops alternatively.



(e) Bird:

Birds can fly in the air and walk on the ground. Some birds like swans and ducks can also float in water. They have hollow and light bones which help them to fly.

How do snakes move?

Snakes have long backbone and many tiny muscles. They are connected to each other even through are far from one another.
The snake's body curves into many loops. Each loop of the snake gives it a forward push by pressing against the ground. Since its long body makes many loops and each loop gives it this push, the snake moves forward very fast and not in straight line.