Form and Movement	
Skills	**Learning Outcomes**
Evaluate	Evaluate the possible reasons for animals showing different movement/gaits and classify them as vertebrates and invertebrates
Compare and contrast	Compare and contrast the different types of joints and interrelate it to the types of movement in the human body.
Relate	Relate the role of bones, muscles and cartilage that enables movements in human body.

Pre-Assessment (in forms) - /5

Thinking Classroom –Pages 71 to 75, 77to 79

Notes -

Vertebrates *Animals that have a backbone are called* ***vertebrates***. For example, fish, frog, lizard, horse, and birds.

Invertebrates *Animals that do not have a backbone are called* ***invertebrates***. For example, earthworm, snail, and cockroach.

Movement in earthworm

An earthworm's body is made up of several parts called *segments*. It moves by lengthening and shortening these segments

The earthworm extends the front part of the body, keeping the rear end fixed to the ground. Then it fixes the front part and pulls the rear end.

The segments also have tiny, hair-like bristles that help the earthworm to grip the surface and pull its body forward.

Movement in snail

Snails move by using a muscular organ called the foot.

The foot produces a slimy substance called *mucous*. The snail actually crawls on the layer of mucous. The sticky mucous reduces the friction between the foot and the ground

Movement in cockroach

cockroaches have two pairs of wings, they can only fly short distances

Cockroaches have three pairs of legs

They walk in a very interesting manner, moving three legs at a time

Movement in fish

fish have a *streamlined* body—the head and the tail are narrow; the middle portion of the body is broader. This kind of shape offers least resistance to the flow of water and makes it easier for them to swim through water.

Fish have fins and a flexible backbone, which help them to swim

Movement in birds

1. Birds have streamlined bodies that make it easier for them to move through air.
2. Their bones are hollow that make them lightweight.
3. They have wings that help them to fly.
4. They have powerful chest muscles that help them flap their wings during flight.

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Movement in snakes

Snakes do not have limbs (legs, arms, or wings). They move by crawling on their bellies.

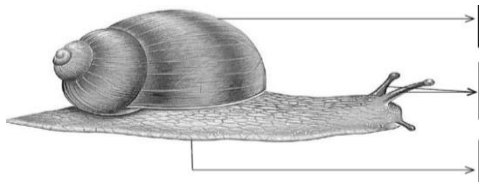
Their flexible backbones help in movement. The body curves like a wave. The wave like motion pushes the body forward by pressing against the ground

Activity Sheet (printout will be given)

Learning Outcome:- Label the parts and thereby evaluate the movement in invertebrates and vertebrates.

1. Name of the animal: _____ (Vertebrate/Invertebrate)

2. Name of the animal: _____(Vertebrate/Invertebrate)



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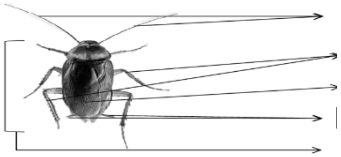
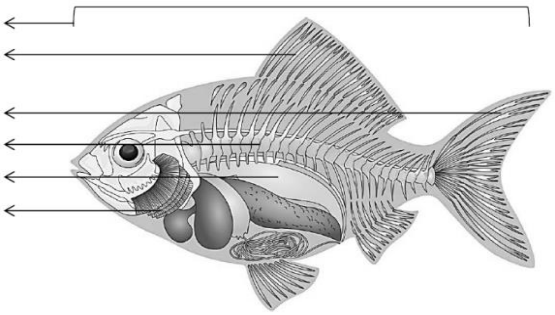
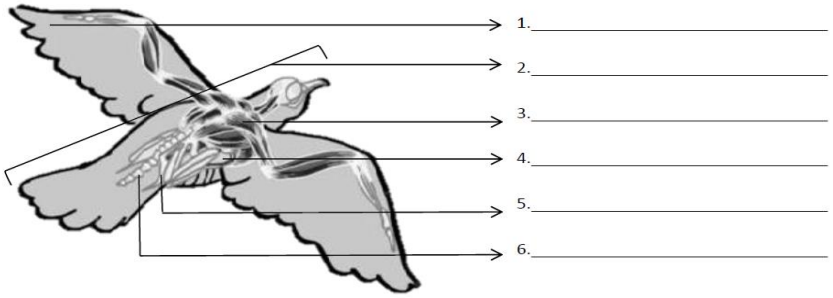


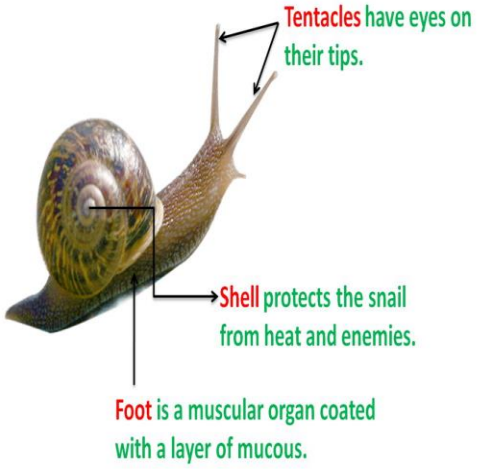
4. Name of the animal: _____ (Vertebrate/Invertebrate)

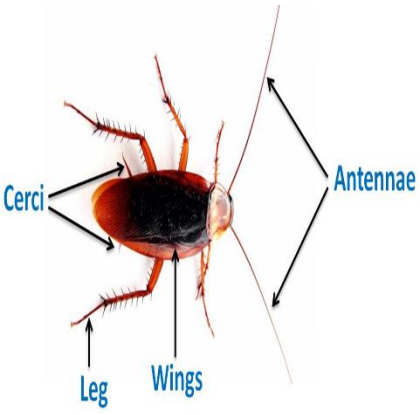


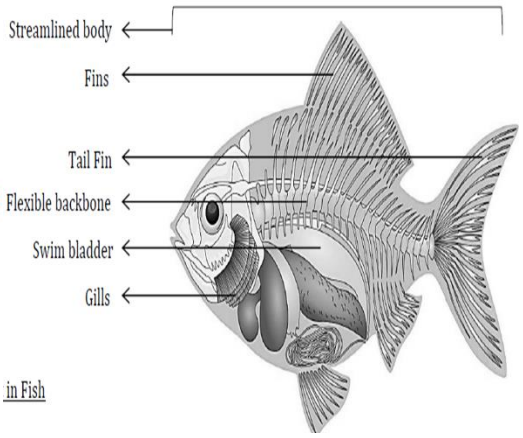
5. Name of the animal: _____
(Vertebrate/Invertebrate)

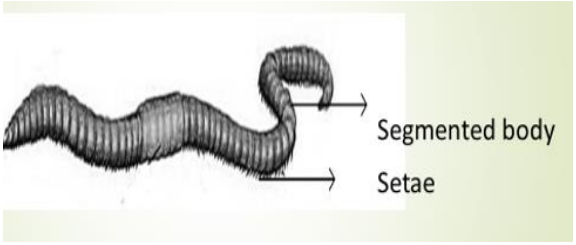


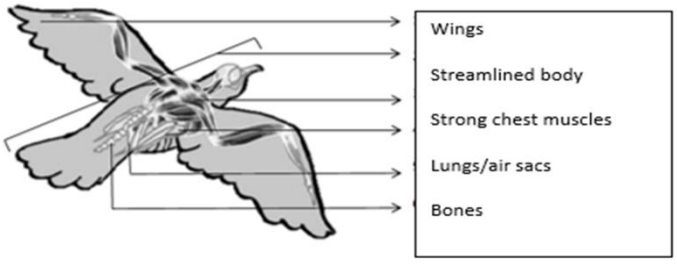
For Reference











My Task

Group 1 Match the following:

S. No	A	B	Answer
1.	Earthworms	Muscular foot	Segmented body
2.	Birds	Have cerci and antennae.	Light and hollow bones.
3.	Snail	Segmented body	Muscular foot
4.	Snake	Have streamlined body.	Have flexible backbone
5.	Fish	Light and hollow bones.	Have streamlined body.
6.	Cockroach	Have flexible backbone	Have cerci and antennae.

Group 2

Write true or false. Correct the statement if false.

1. Snails have skeleton inside their body - False

2. The repeated contraction and expansion makes an earthworm move forward –True

3. A snake uses its muscular foot for movement - False

4. A cockroach has antennae and cerci to sense predator-True

5. An earthworm has a streamlined body -False

Group 3

1. Explain the movement in earthworm.
2. Represent the similarities and differences in movement of bird and fish using a Venn diagram.

Think and answer

a. Explain an earthworm's movement on a plain glass tile.

b. How does a crack or break in the shell affect the snail?

AFL/AQAD

1) The table lists the characteristic features of body movements of various organisms. Which organisms show these movements?

A. The foot of the organism is a thick structure that is made of strong muscles which helps in dragging the shell.
B. The organism curves its body into loops that pushes the body forward.

a) A=fish, B=snail (b) A=snail, B=snake

(c) A=bird, B=cockroach (d)A=snake, B=earthworm

2) The image shows the movement of snake and snail.

What is the likely reason that the movement in snake is side winding while snail moves in a wavy motion?

(a) In snakes, bones are present that are absent in snails.
(b)In snails, the thin muscles are more compared to snakes.
(c)In snakes, thick muscles are present that are absent in snails.
(d)In snails, the number of bones is more compared to snakes.

Learning Outcome: Compare and contrast the different types of joints and interrelate it to the types of movement in the human body.

https://www.youtube.com/watch?v=YbEfPtYR9tY – Types of joints

Notes

Joints

Joints are the place where two bones meet.

Ligaments

Ligaments are strong, elastic bands that hold the bones together at the joints.

Types of joints

Movable	Immovable or fixed
Eg: Ball and socket joint	Eg: Skull
Pivot joint	
Hinge joint	
Gliding Joint	

- Complete the table.

Types of joint	Fixed/Rotates / bends	Location in the human body	Functions

Ball and socket	**Rotates**	**Shoulder joint** **Hip Joint**	**Allows maximum movement**
Hinge joint	**Bends**	**Knee and elbow joint**	**Back and forth movement**
Pivot joint	**Bends**	**Neck**	**Allows neck movement**
Gliding joint	**Bends**	**Joints at ankle and wrist**	**Allows bones to glide over each other**
Fixed joint	**Fixed**	**Skull**	**Protects the brain**

Learning Outcome: -

Relate the role of bones, muscles and cartilage that enables movements in human body.

Notes

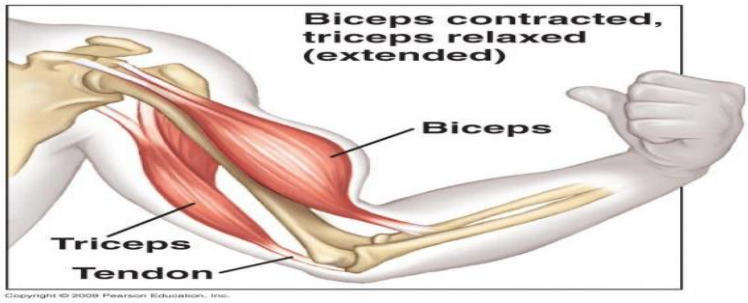
Cartilage - The ends of bones are covered with a soft tissue called cartilage. Cartilage acts as a shock absorber and reduces friction between the bones.

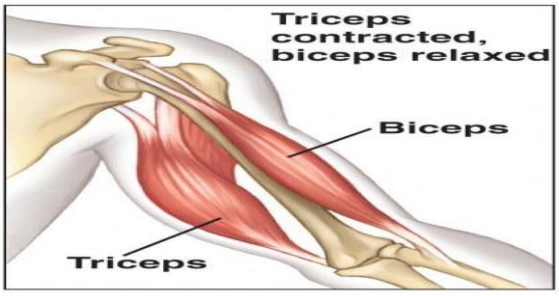
Cartilage is present in various parts of our body. You could feel cartilage in the upper part of your ear and in the front part of your nose. These parts are not as hard as bones and can be bent.

Tendons Muscles are attached to bones by means of tough connecting bands.

- **How bones move?**

Students can illustrate or write answer in the notebook (both illustration and writing answer can also be done)





My Task

Group 1

Q.1 Bones are hard structures and cannot be bent but we still bend our elbow, knee etc. How is this possible?

Group 2-

Q.1 Cartilages are said to be the shock absorbers of the body. Justify this statement using an example.

Group 3

Q1. Which type of movement would have been possible if:

a. our elbow had a fixed joint

b. we were to have a ball and socket joint between our neck and head.

Q.2 Many people think that the bones in our bodies are non-living. Your kid brother is convinced of this. What information could you use to try to get him to change his mind?

AFL/AQAD

1) The table lists the role of different systems of the body.

A. It provides the space for the attachment of muscles. B. It helps in transport of nutrients to the different cells of body. C. It produces hormones that regulate the growth and development of the body.

Which of these roles is/are served by the skeleton system?

(a) A only (b)B only (c)A and C (d)B and C

2) Muscles work in pairs. They contract and relax simultaneously. How does this help an individual?

(a) It assists in the formation of the bones. (b)It prevents any injury to the internal organs.

(c)It allows the movement of bones at the joints. (d)It helps in the absorption of nutrients in the body.