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Experiential Experimental Edutaining

BIOLOGY

SAMPLE BOOK

6 GRADE

BIOLOGY

I'm the

Intelli Kid

and

I'm becoming the

Best Version

of myself with

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GRADE-6

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I AM PROGRESSING

(Tick mark the columns after achieving the Learning Milestones)

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 Food and its Components				
 Our World: Living & Non-Living Things				
 Adapting to the Environment				
 Getting to know Plants				
 Movements in Plants and Animals				
 Garbage In, Garbage Out				

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SAMPLE THEORY

CHAPTER 5

MOVEMENTS IN PLANTS AND ANIMALS

INTRODUCTION

- Variety of organisms show movement. Some of them have a less complex body like bacteria while others have a highly complex body like plants and animals.
- Humans show movement by doing activities like walking, dancing, doing exercise, picking objects & playing etc.
- Plants do not change their place, but animals do change their place by showing locomotion.
  - **Movement:** It is a gesture shown by any part or combination of body parts in any organism.
  - **Locomotion:** It is a process of moving from one place to another.

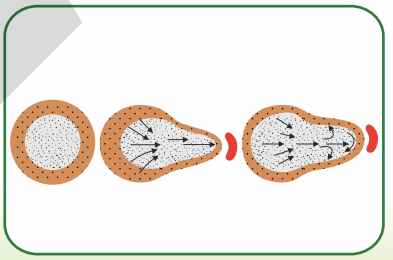
TYPES OF MOVEMENT

Basic movements in organisms are of four types:

1. AMOEBOID MOVEMENT

This movement is generally seen by irregular shape cells because they can change shape, capture food & change the place by forming **pseudopodia** (temporary outgrowth).

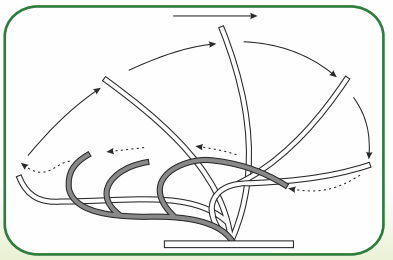
For e.g. It can be seen in unicellular organisms named amoeba.



2. CILIARY MOVEMENT

This movement is seen by the cells that have hair like projection **(cilia)** on their bodies, cilia helps in movement.

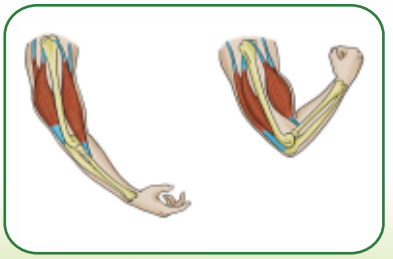
For e.g. It can be seen in a unicellular organism named paramecium.



3. MUSCULAR MOVEMENT

This movement occurs in the muscles present inside the body by which locomotion can be seen in animals.

For e.g. It can be seen in animals that have **muscles** like humans.



4. INDUCED MOVEMENT

This movement occurs due to the stimuli coming from surrounding the organism on which it shows response.

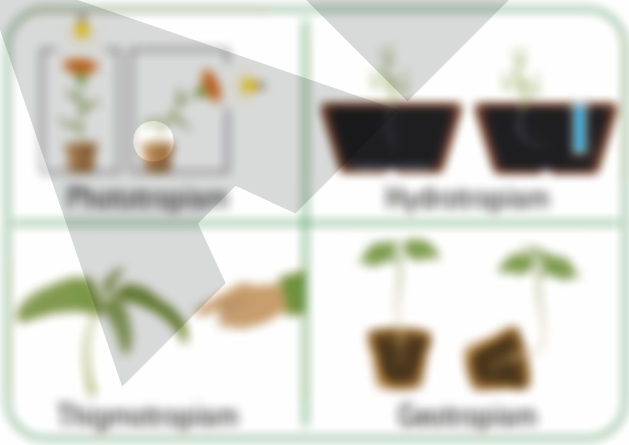
For e.g. It can be seen in plants like sunflowers.

MOVEMENT IN PLANTS

- Plants do not move from one place to another as they remain in a **fixed** position throughout their life, but they show movements by growing their parts like **roots**, **leaves** & **stems** etc.
- Various parts of plants are sensitive towards different kinds of **stimuli** like light, water, touch, temperature & chemicals etc.
- The response shown by parts of the plant towards stimuli is due to the **chemicals** present in the plant.
- There are two major types of movements that occur in plants:
  - Tropic movements
  - Nastic movements

Difference between Tropic and Nastic Movements

Tropic Movements	Nastic Movements
• It is the movement that always occurs towards & away from the direction of the stimulus. • This movement is growth dependent. **For e.g.** Movement of roots towards gravity or ground.	• It is the movement that is direction independent. It only requires stimuli. • This movement is independent of growth. **For e.g.** Coiling of tendrils upon contact to objects for support.



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SAMPLE EXERCISE

EXERCISE

GRADE-6

Movements in Plants and Animals

Directions: Solve the following multiple choice questions by choosing the most appropriate option.

1. I am a bottle gourd plant that shows movement to the external stimuli but it is not direction-specific. I have outgrowth named as tendrils that can curl on any neighboring object for the support.
Which type of movement am I showing ?

(1) Tropic movement (2) Nastic movement (3) Ciliary movement (4) Amoeboid movement

2. Which character differentiates bone from cartilage ?

(1) Bone is a hard tissue, while cartilage is a soft tissue.
(2) Bones can bend easily while cartilages are stiff & rigid.
(3) Bones are present only outside the body, while cartilage is present inside the body.
(4) Both (1) & (2) are correct

3. Match the animals in Column-I with their locomotory organs in Column-II and choose the correct option.

Column-I	Column-II
(a) Cockroach	(i) Setae
(b) Earthworm	(ii) Modified forelimbs
(c) Snail	(iii) Jointed pair of legs
(d) Bird	(iv) Muscular foot

(1) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii) (2) (a)-(iv), (b)-(ii), (c)-(iii), (d)-(i)
(3) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii) (4) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

4. Identify the image & choose the joint type.

(1) Pivot joint (2) Hinge joint
(3) Ball and socket joint (4) Gliding joint

5. Rahul was walking on the road and saw a person who had just met with an accident. Rahul went to the hospital with him. In X–ray, it comes out that he has fracture of the ribcage.
Which of the following organs could be affected ?

(1) Brain and Heart (2) Brain and Lungs
(3) Heart and Intestines (4) Lungs and Heart

6. Which of the following statement is incorrect about muscles ?

(1) Smooth muscles are involuntary muscles.

(2) Muscles that have strip like appearance are called striated muscles.

(3) Haemoglobin present in muscles is known as osteohaemoglobin.

(4) Muscles around the stomach & intestines are non-striated muscles.

7. Humans are complex organisms with separate systems for the proper functioning of life processes. What is the proper passage for forming a complete system in any complex organism ?

(1) Cell → Tissue → Organ → Organ system

(2) Cell → Organ system → Tissue → Organ

(3) Cell → Organ → Tissue → Organ system

(4) Tissue → Cell → Organ → Organ system

8. Select the incorrect match.

(1) Study of bone - Kinesiology

(2) Tissue that connects bone to muscle - Tendon

(3) Liquid filled in earthworm - Hydrostatic liquid

(4) Upward movement of wings in birds - Upstroke

9. Match Column-I with Column-II and select the correct option from the given codes.

Column-I	Column-II
(i) Radius	(a) 14
(ii) Tarsal	(b) 2
(iii) Metacarpals	(c) 1
(iv) Pelvic girdle	(d) 8
(v) Facial bones	(e) 5

(1) (i)-(b), (ii)-(e), (iii)-(d), (iv)-(c), (v)-(a)

(2) (i)-(c), (ii)-(e), (iii)-(d), (iv)-(b), (v)-(a)

(3) (i)-(a), (ii)-(e), (iii)-(d), (iv)-(c), (v)-(b)

(4) (i)-(c), (ii)-(d), (iii)-(e), (iv)-(b), (v)-(a)

10. Pictures of four animals are given below. Choose the characteristic that is common between them.

(1) They all have a vertebral column.

(2) They all have streamlined bodies.

(3) They all have modified forelimbs.

(4) They all have slimy & moist skin.