

Std. X Science (Biology)

Ch-6 Life Processes

Part 1- Introduction

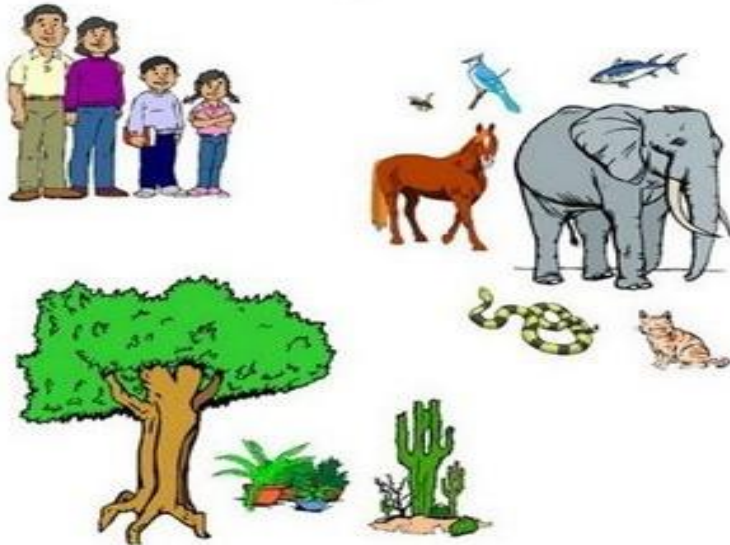
Source- NCERT textbook and internet

Introduction- How do you characterize whether an object is living or non living?

- * Movement.
- * Breathing

- *Plants- Green
- * Growth

living



non-living



For a Biologist the invisible Molecular movement is necessary for life.

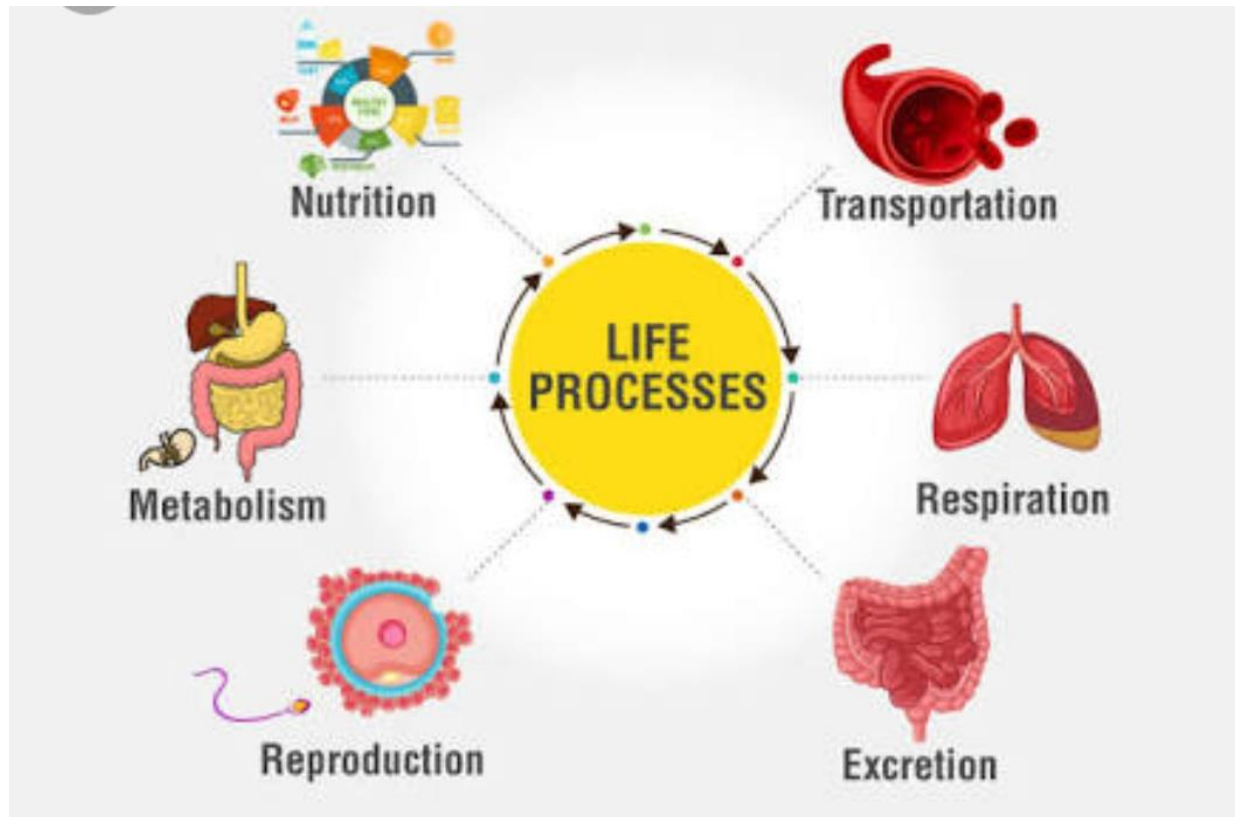
- ▶ Molecular movements are those movements which we cannot observe from naked eyes but play an important role in the life processes
- ▶ For example- breakdown of water molecules during photosynthesis, release of energy from glucose molecule movement of solute molecules to regulate the opening and closing of stomata
- ▶ All these are the examples of molecular movement which regulate the important functions like respiration and photosynthesis etc.
- ▶ Viruses do not show any molecular movement in them until they infection cell and that is partly why there is a controversy about whether they are truly alive or not.

Why Molecular movement is needed for life?

- ▶ Because of the effects of the environment this organised ordered nature of living structures is very likely to keep breaking down overtime.
- ▶ If order breaks down , the organism will no longer be alive. So living creatures must keep repairing and maintaining their structures.
- ▶ Since all these structures are made up of molecules, they must move molecules around all the time.

What are Life Processes?

The basic functions performed by living organisms to maintain life on this earth are called life processes.



Life Processes essential for maintaining life.

- ▶ NUTRITION
- ▶ RESPIRATION
- ▶ TRANSPORTATION
- ▶ EXCRETION

In the case of a single celled organism no specific organs for taking in food, exchange of gases or removal of wastes may be needed because the entire surface of the organism is in contact with the environment. But what happens when the body size of the organism increases and the body design becomes more complex? In multicellular organisms all the cells may not be in direct contact with the surrounding environment. Thus, simple diffusion will not meet the requirements of all the cells.

Home work

In-text questions

1. Why is diffusion insufficient to meet the oxygen requirements of multicellular organisms like humans?
2. What criteria do we use to decide whether something is alive?
3. What are the outside raw materials used for by an organism?
4. What processes would you consider essential for maintaining life?

THANK YOU!