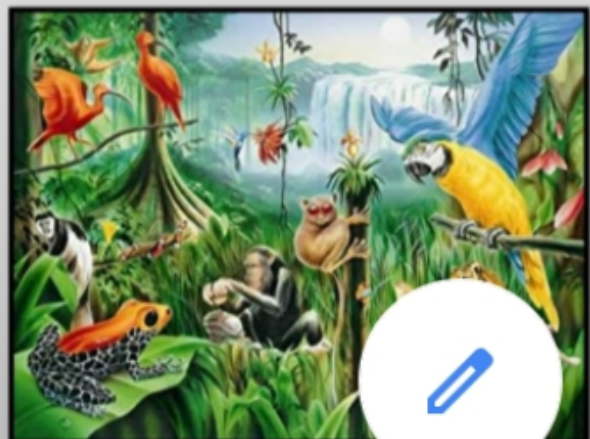




INTRODUCTION :

- ❑ Planet earth is made up of abiotic and biotic components.
- ❑ The biotic components are obviously the living beings present around us.
- ❑ The question is why do we call them living and how do they differ from non-living.





FEATURES OF LIVING ORGANISMS

GROWTH

REPRODUCTION

METABOLISM

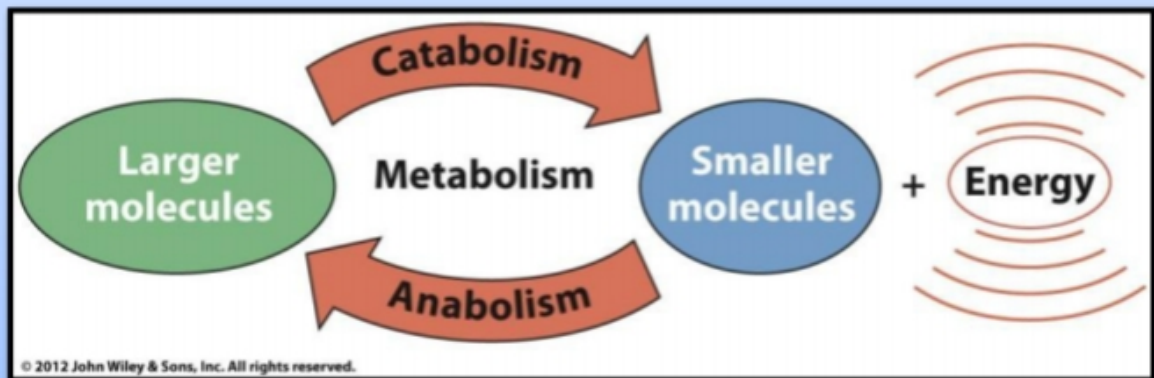
CELLULAR ORGANISATION

CONSCIOUSNESS

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BASIC PRINCIPLES OF LIFE :

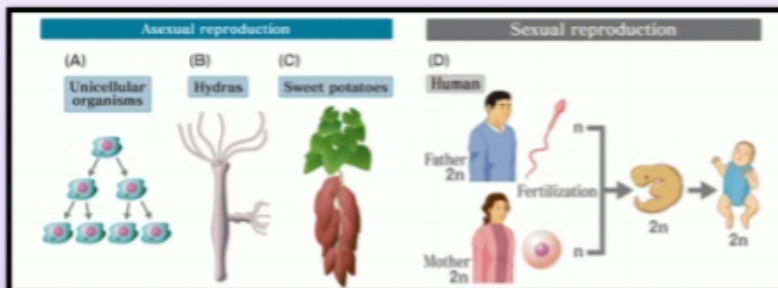
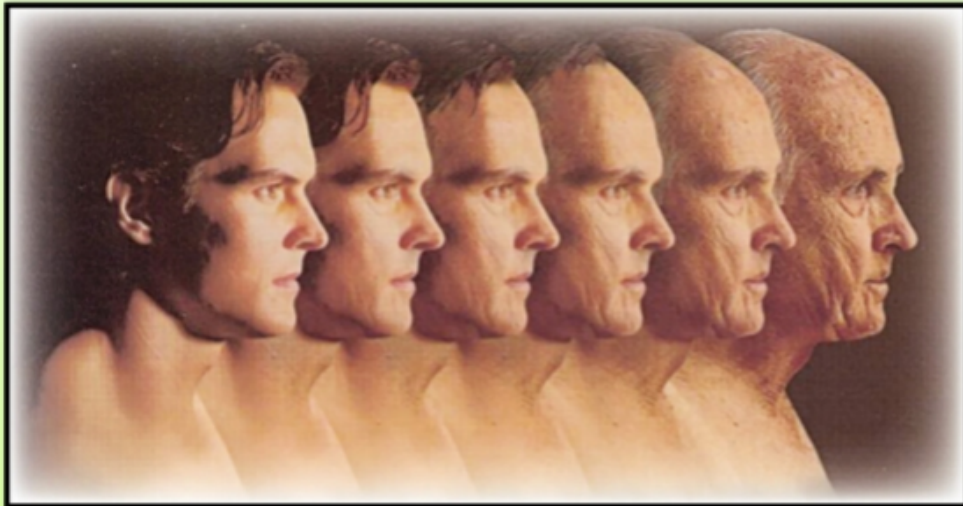
- A. The living being once produced/born has to survive. For survival, it needs energy and many chemical molecules. For energy, it has to perform **metabolism**. Metabolism is breaking of molecules (**catabolism**) and making of new molecules (**anabolism**).



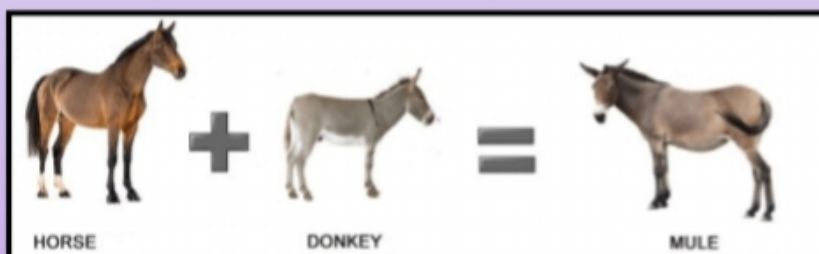
- B. From birth onwards, organisms show tendency of **growth and development**. This growth is a well-orchestrated process. You might have observed sand mounds, boulders grow, etc. this growth is not from within and hence these are not living beings.



- C. Growth development are not the processes which have unlimited time span. At certain point of time, the molecules, organs, systems begin to loose their effective working and become old. This is **ageing** process of the body.



- D. Life has to continue hence the organism tries to produce a young one like itself. It is possible due to **reproduction** (asexual or sexual). This ensures continuity of race. Mules, sterile worker bees do not reproduce; yet are living. Can we call reproduction as inclusive characteristic of life ?



GROWTH

Increase in the mass and overall increase in the size of a tissue is known as Growth.

Remember

Increase in the mass and increase in the size are the twin characters of Growth.



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GROWTH

The changes happening inside the body are due to intrinsic Growth. It occurs inside living organisms. It is a defining feature of Living Organisms.



Whereas, Extrinsic growth occurs outside of Non-Living organisms. It is not a defining feature of Non-living organisms.

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GROWTH

Indeterminant Growth
refers to endless growth.

Example: Plants Body Parts

Determinant Growth
refers to a limited growth.

Example: Animal Body Parts



REPRODUCTION

Increase in number of individuals or progeny.
Reproduction in multicellular organism is the production of progeny possessing features more or less similar to parents.



REPRODUCTION

In unicellular organisms, reproduction refers to increase in number of cells.



REPRODUCTION

In Asexual Reproduction, Sexes are not involved though gamete formation is possible but fertilization and meiosis is not involved.

In Sexual Reproduction, sexes involve and fertilization and meiosis take place.



REPRODUCTION

Spore Formation

Budding

Fragmentation

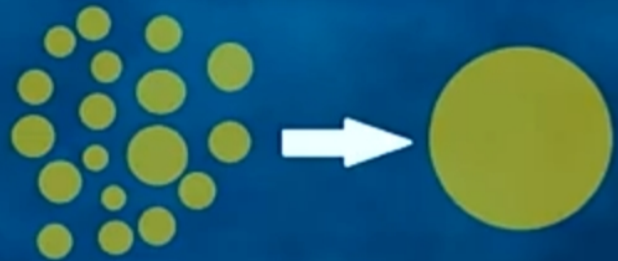
True Regeneration

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METABOLISM

Anabolism

It refers to building up of complex components.



Catabolism

It refers to reducing up or simplification of components.



CELLULAR ORGANISATION

Cell is the basic structural and functional unit of living organism.

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IBE**

7 mistakes

?

100
NEWS ID

BIOLOGY Class X

CONSCIOUSNESS

Definition

The most obvious and technically complicated feature of all living organism is this ability to sense their surrounding and environment and respond to their environmental stimuli which could be physical chemical or biological.



E. As the body loses its capacity to perform metabolism, the organism **dies**.



F. Any living being **responds** to thermal, chemical or biological changes in the surrounding. This is unique property of living beings.



7. There is immense diversity in living organisms

- F. Any living being **responds** to thermal, chemical or biological changes in the surrounding. This is unique property of living beings.



- ☐ There is immense diversity in living organisms.
- ☐ Since time immemorial, variety of organisms are living together on earth.
- ☐ In order to understand the interrelations between living and non-living as well as between two living beings or groups, systematic study of these is essential.
- ☐ This data is also important for various industries and agriculture.
- ☐ Intensive laboratory and field studies in order to identify and classify the organisms form strong basis for meaningful use of the collected data.
- ☐ If we need to study this diversity, certain aids called taxonomical aids can be used. These includes herbaria botanical gardens, museums, biodiversity parks, etc.