CLASS X/ BIOLOGY
REPRODUCTION

Date : 13/07/2020 **TEACHER :SASWATI BASAK**

Reproduction is the process by which organism produce new individuals to continue their race.

On the basis of different modes of reproduction it is classified into two types:

1.Asexual Reproduction
2.Sexual Reproduction

ASEXUAL REPRODUCTION

The production of offspring by a single parent without the formation of gamete is called Asexual Reproduction

MODES OF ASEXUAL REPRODUCTION

Different modes of asexual reproduction are:

1. Fission
2. Budding
3. Regeneration
4. Spore Formation
5. Fragmentation
6. Vegetative Propagation

1. FISSION

Organism like protozoa and bacteria split into identical halves during cells division to form new organism. This is called fission.

Fission is of two types:

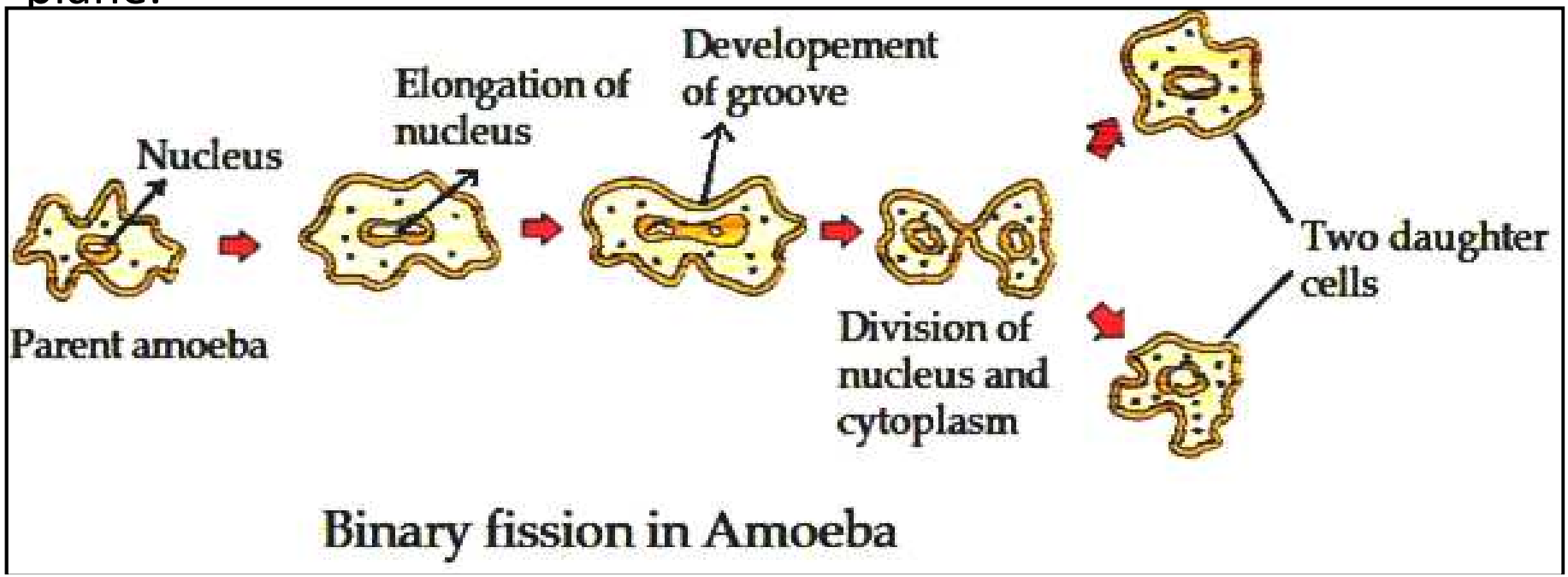
i) Binary Fission

ii) Multiple Fission

i) BINARY FISSION

In this process an organism divides into two equal sized individuals. The nucleus divides by the process of mitosis in two and its followed by division of cytoplasm, thus resulting in two identical individuals. Now division of nucleus are known karyokinesis and division of cell cytoplasm is known as cytokinesis.

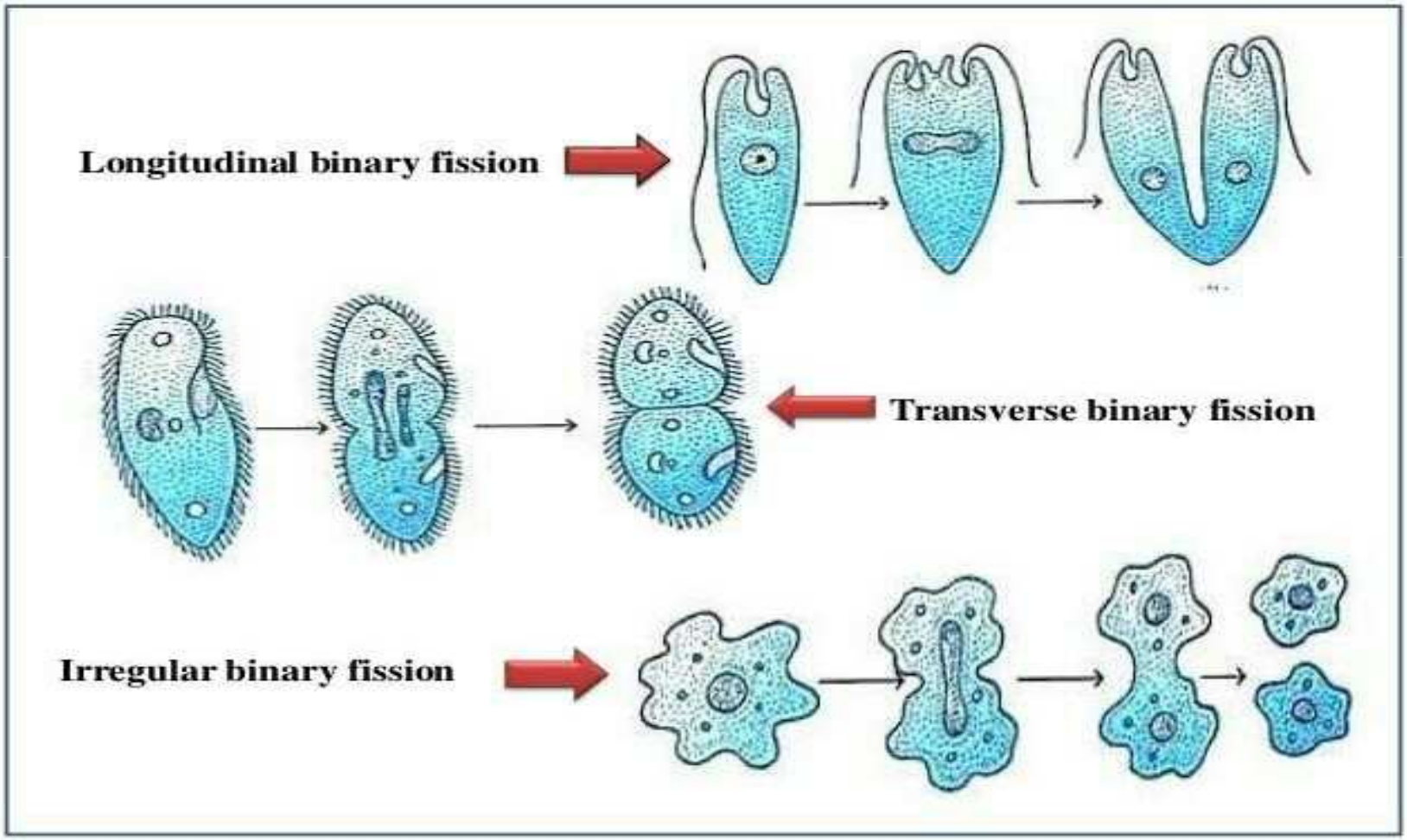
In case of Ameoba, Paramecium fission takes place in transverse plane and in case to Euglena fission takes place in longitudinal plane.



Binary fission in Amoeba

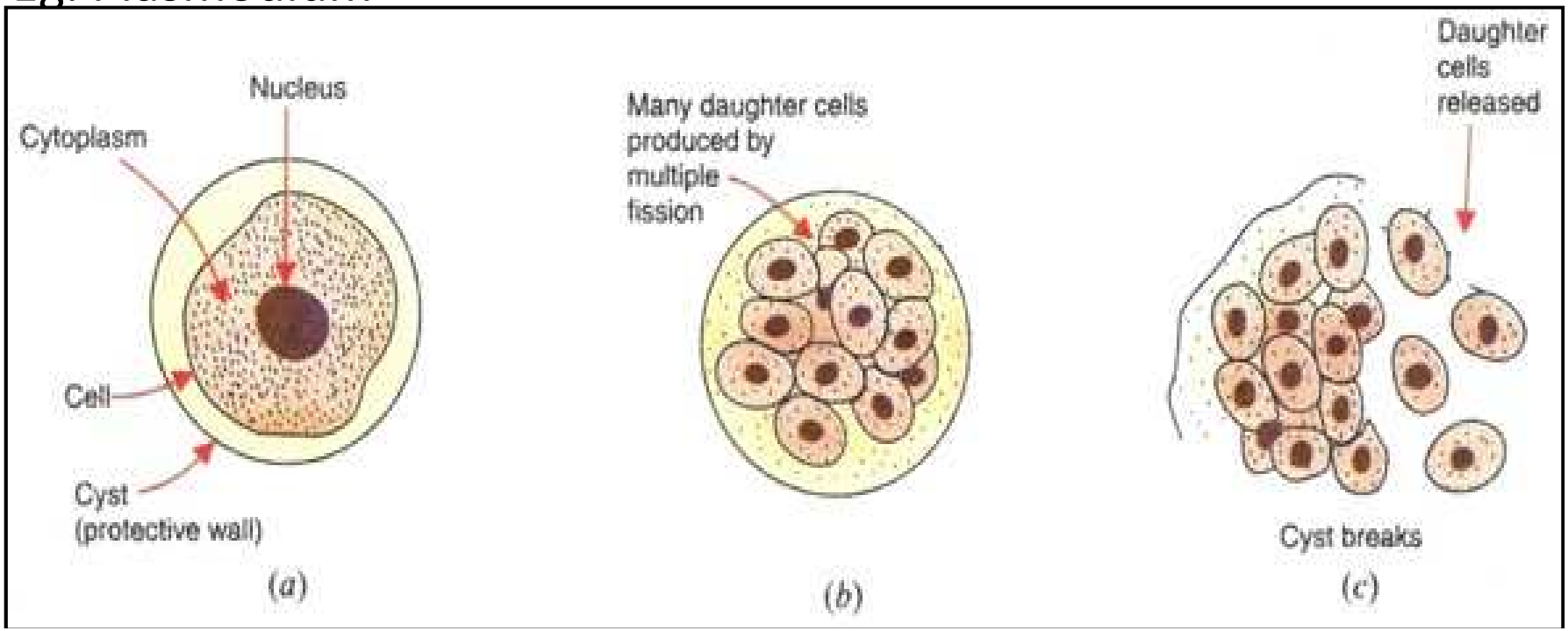
Binary fission in paramecium is **transverse** binary **fission** as the constriction occurs transversely**.**

Euglena divide longitudinally, beginning at the front end of the cell, with the duplication of flagellar processes, gullet and stigma.



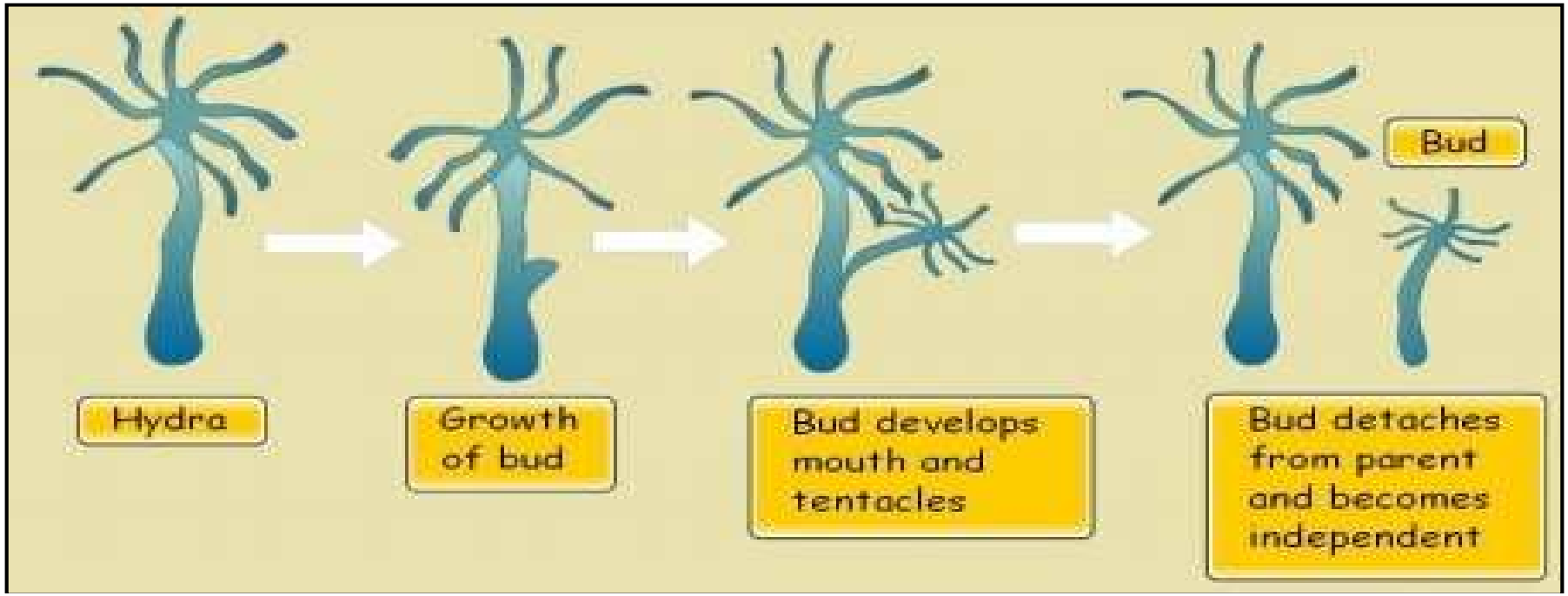
ii) Multiple Fission

Multiple fissions is the simultaneous division of the parent body in many daughter individuals. In this fission the nucleus of the organ divides repeatedly to form a number of equal sized daughter nuclei and each daughter nucleus breaks away together with a small portion of the cytoplasm. The splitting process is called schizogony and a cells that does it is called schizont. Eg. Plasmodium

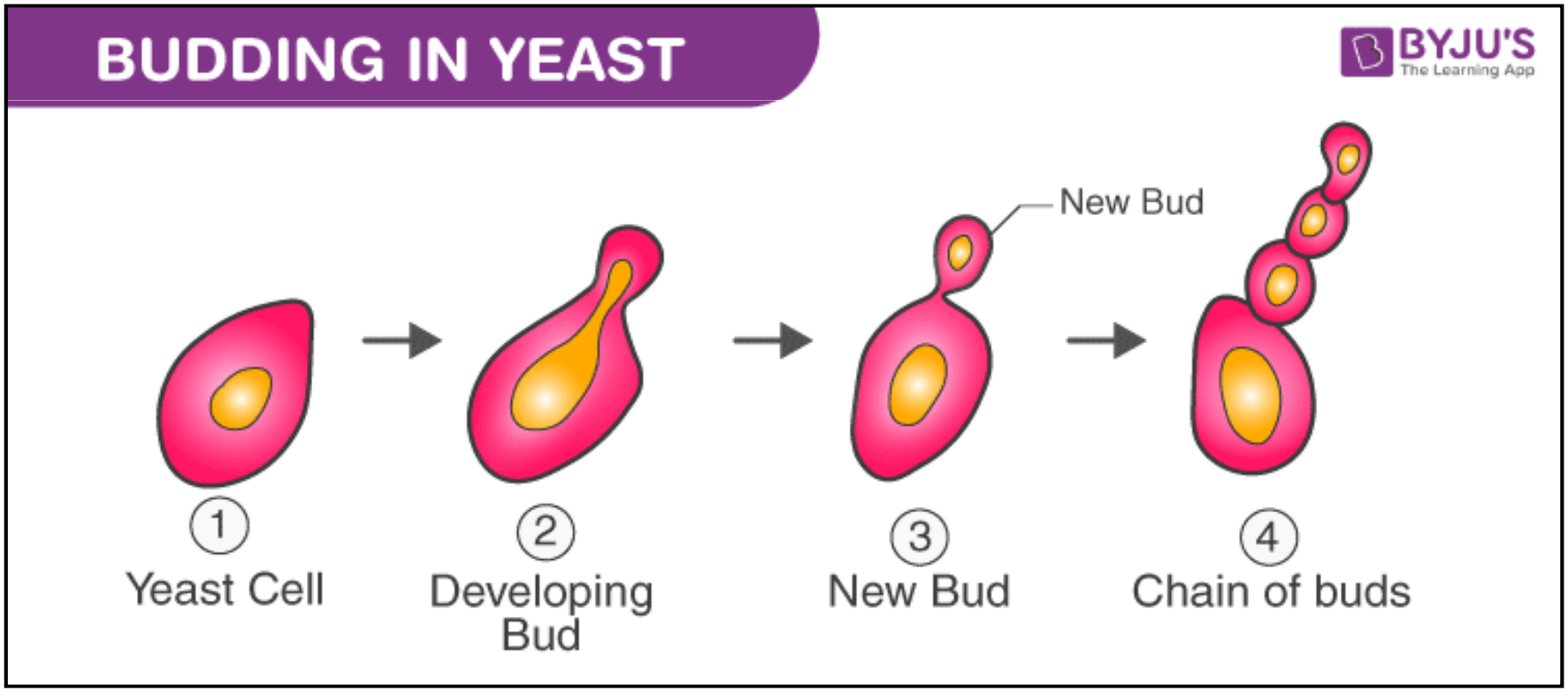


2. BUDDING

In Hydra: Body wall repeatedly divide and form a bulge or outgrowth. These cells later differentiate into appropriate structures. The bud increases in size and develops mouth. It is surrounded by tentacles at its free end. Then the bud grow fully to detaches itself for the parent body and gradually become an adult.



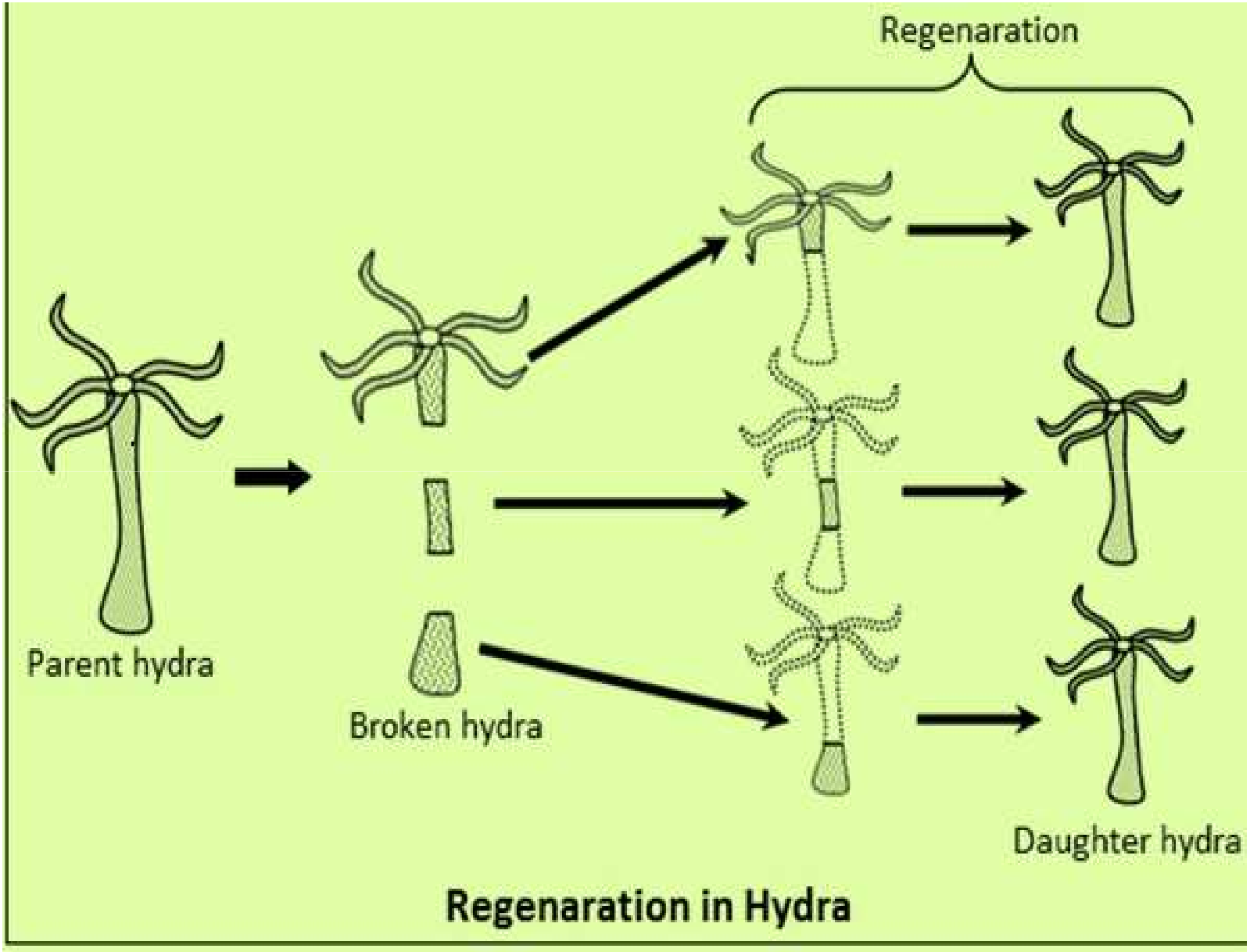
In Yeast: In case of yeast cells a small bud is formed on the parent cell. The nucleus of the parent cell splits into a daughter nucleus and migrates into the daughter cell. The bud then continues to grow and forms many buds, thus forming chain of yeast cells until it separates from the parent cell, forming a new cell.



3. REGENERATION

When the body of an organism is cut or broken into two or more pieces each body piece in reconstitute itself into a new and complete individuals. Regeneration is sense in Planaria and Hydra. When they are cut longitudinally each part develops into a new head and turn into a complete organism.

It is also the ability of an organism to replace its damaged or lost part.


Regenaration
Parent hydra
Broken hydra
Daughter hydra
Regenaration in Hydra

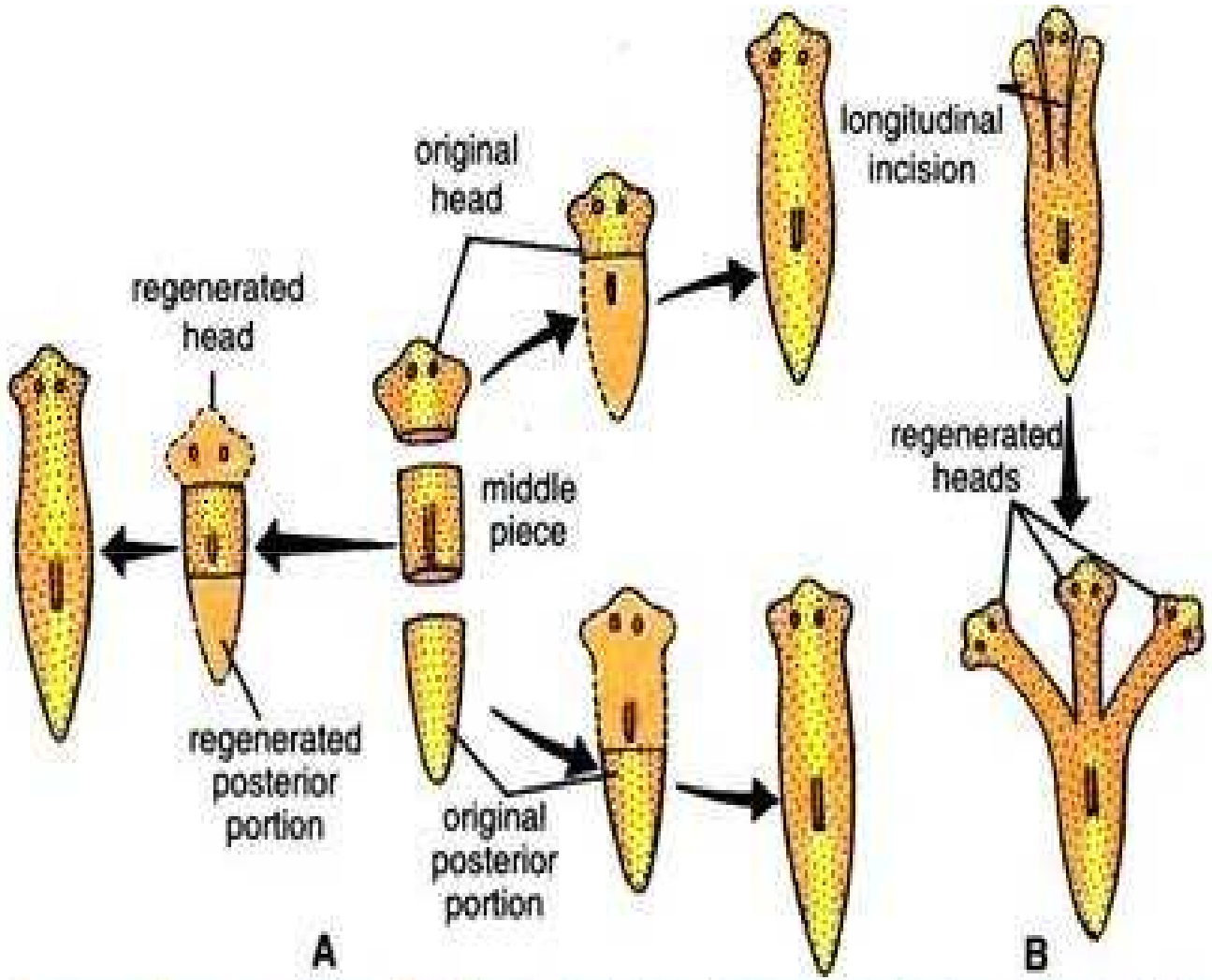


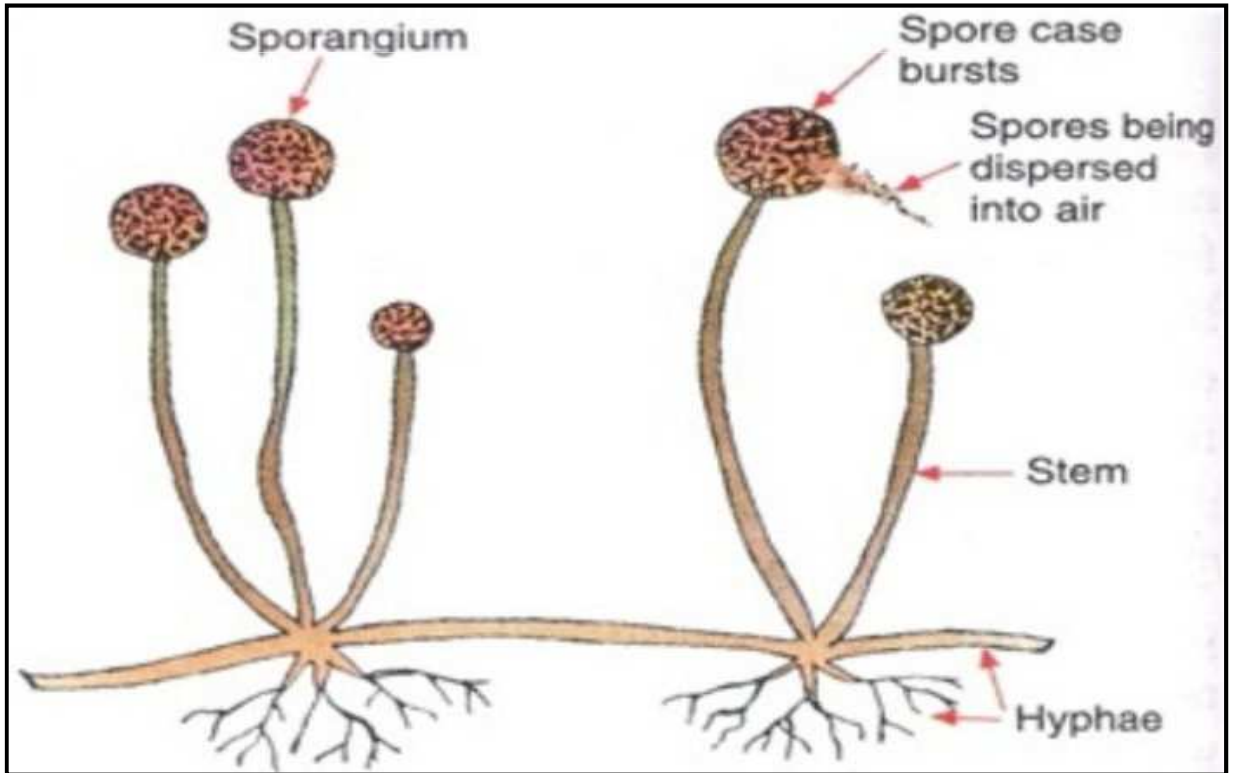
Fig. 39.17. *Dugesia*. Regeneration. A—Three individuals regenerate from an individual cut into three parts; B—Formation of a heteromorph with three heads.

Losing its tail

Regaining its lost tail

4. SPORE FORMATION

Spore are unicelluar bodies formed by cells division by parent organism. After detaching from the parent, if conditions are suitable, they germinate directly or indirectly into a new individual. It is found in fungi for eg. Mucor, Rhizopus, Penicillum



5. FRAGMENTATION

The body of an organism on maturing simple breaks up into smaller fragments. Each fragments grow into new individuals. Eg. Spirogyra