

# REPRODUCTION IN ORGANISMS

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# LIFE SPAN

ORGANISMS	LIFE SPAN
May fly	1 day
Butter fly	1-2 weeks
crow	15 years
crocodile	60 years
man	100years
parrot	140 years
tortoise	100-150 years
Wheat plant	6 months
Banyan tree	200 years

# TYPES OF REPRODUCTION

<b>ASEXUAL</b>	<b>SEXUAL</b>
A single parent is involved.	Two parents (a male and a female)
No formation or fusion of gametes	Formation and fusion of gametes
Involves mitotic division	Involves meiosis
Individuals are genetically identical i.e. clone	Individuals show variation i.e. offspring

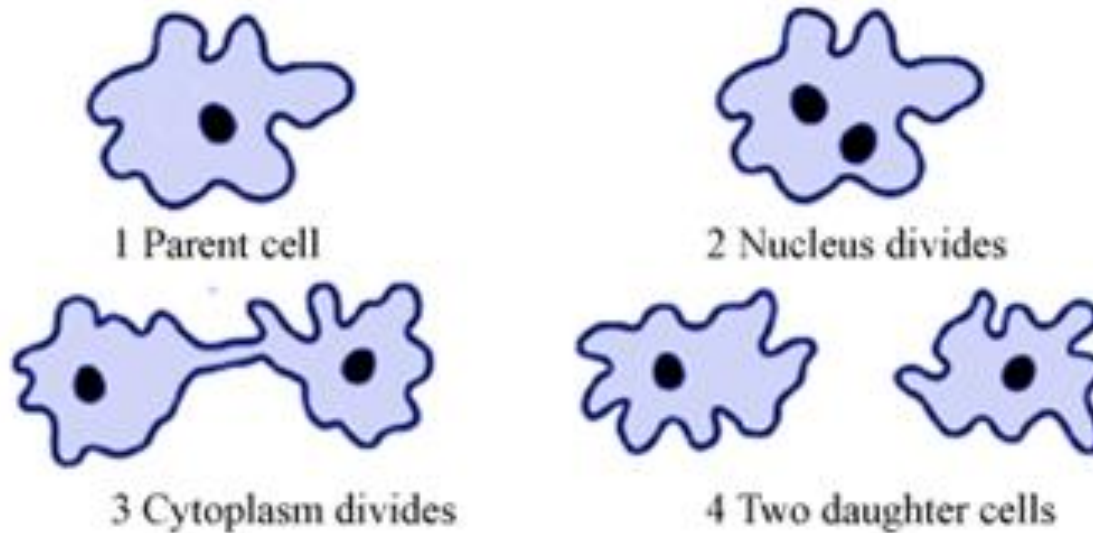
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# MODES OF ASEYUAL REPRODUCTION

- Fission- (a) binary (b) multiple
- Budding
- Spore formation
- Vegetative propagation

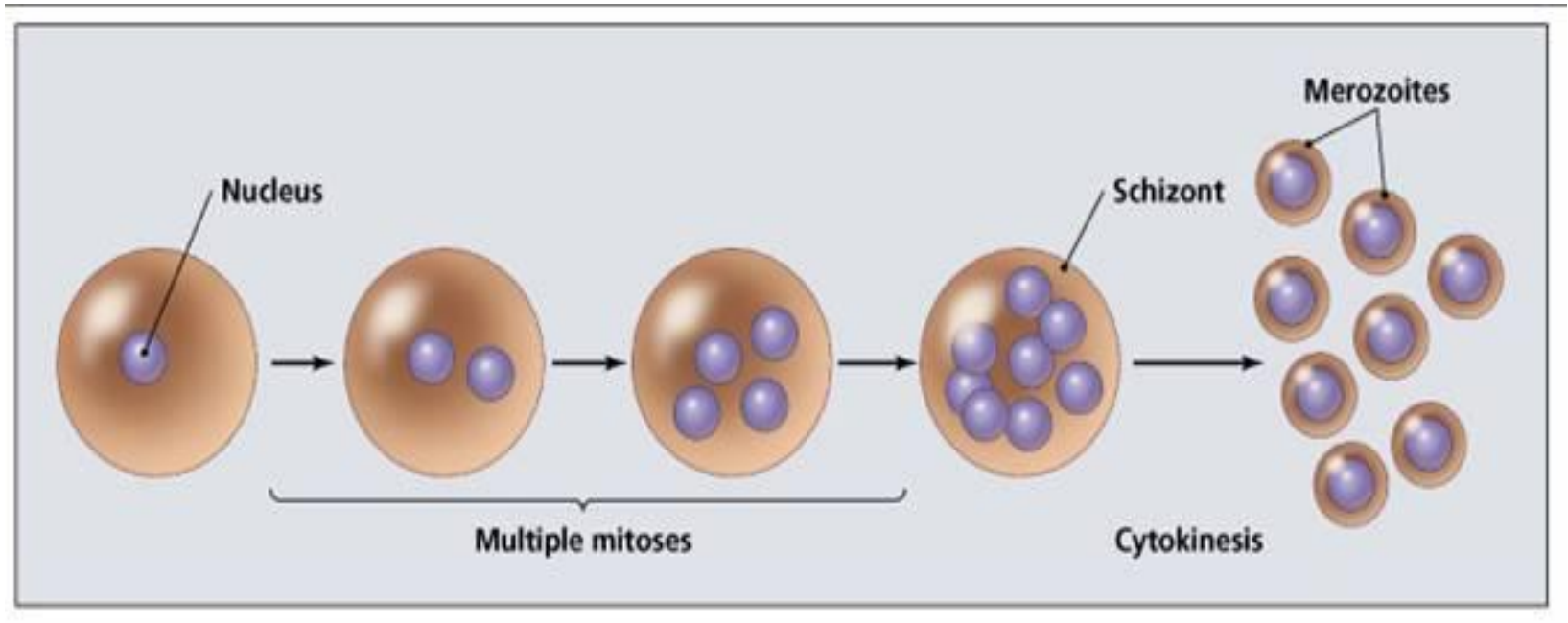
# BINARY FISSION

• Ex. Amoeba



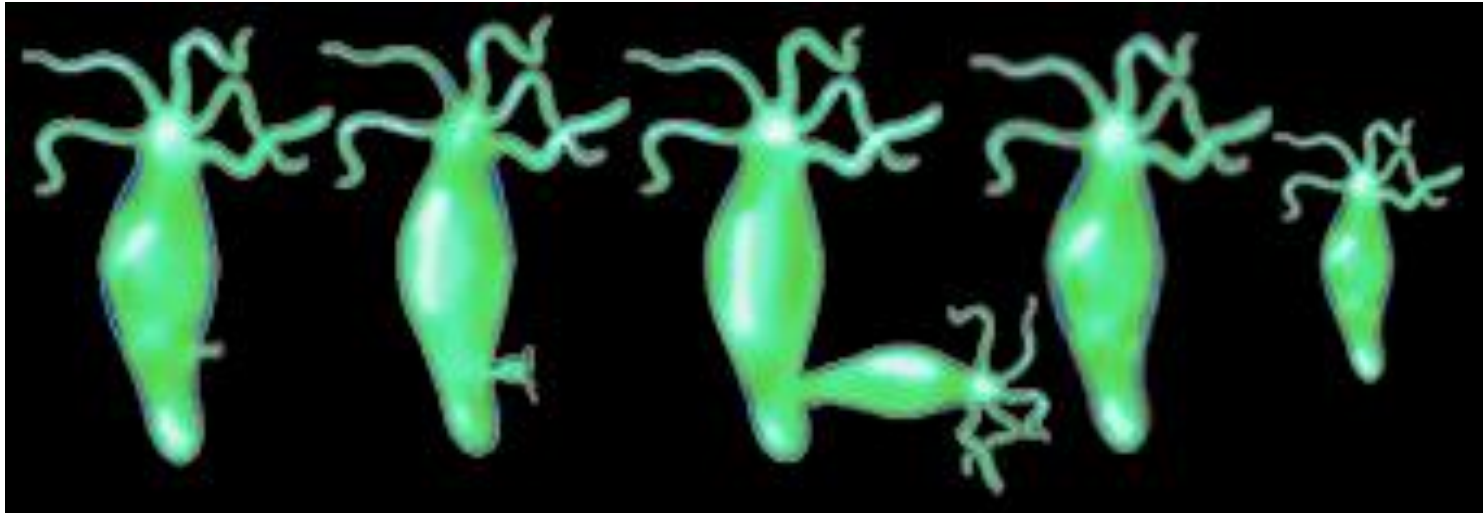
# MULTIPLE FISSION

• Ex. Entamoeba



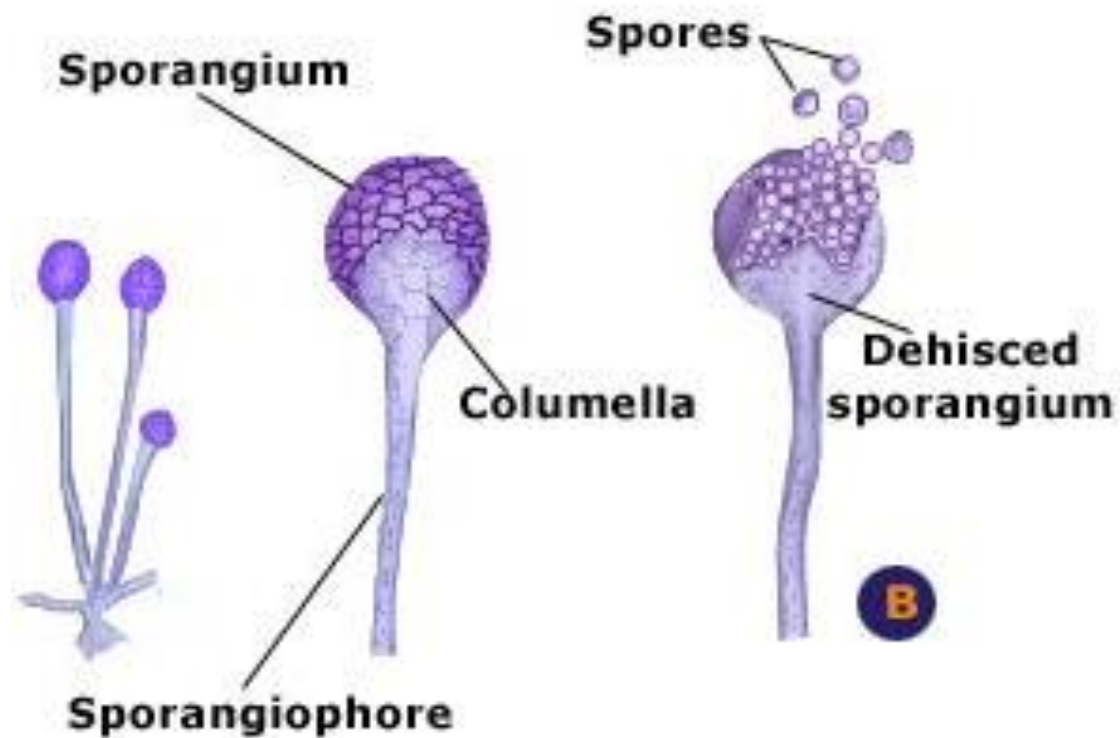
# BUDDING

- Ex. Hydra



# SPORE FORMATION

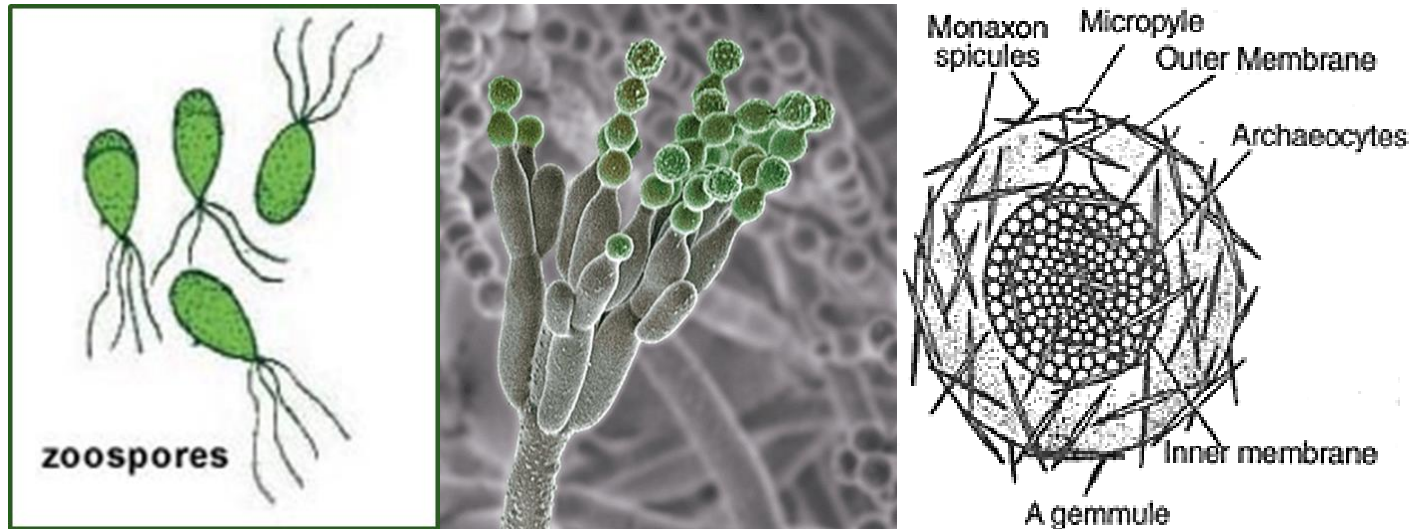
• Ex. Fungi





# ASEXUAL REPRODUCTIVE STRUCTURES

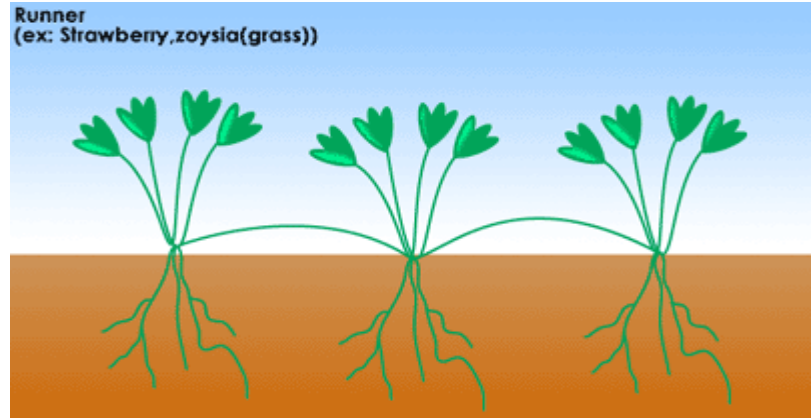
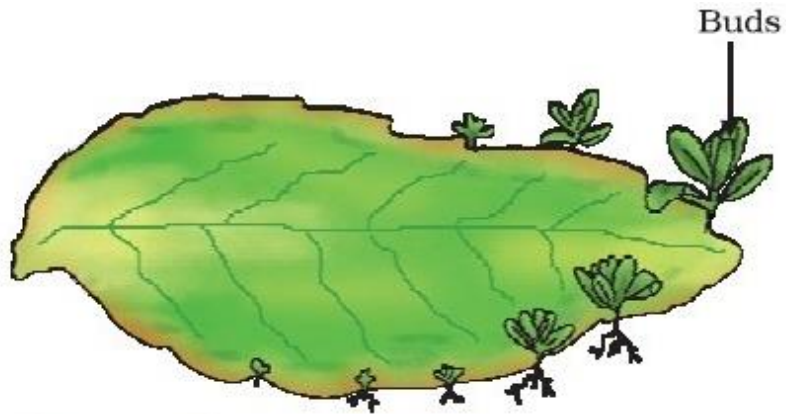
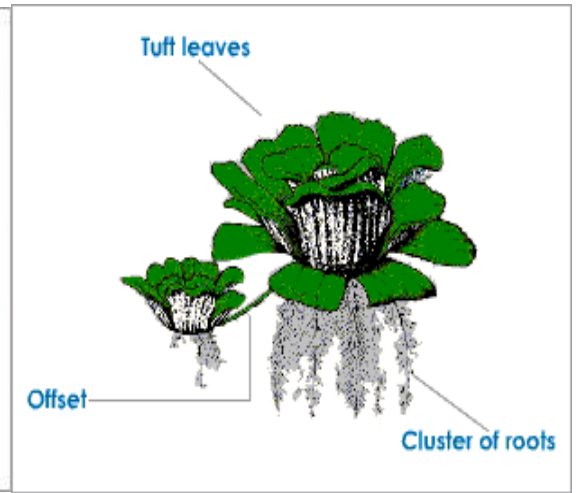
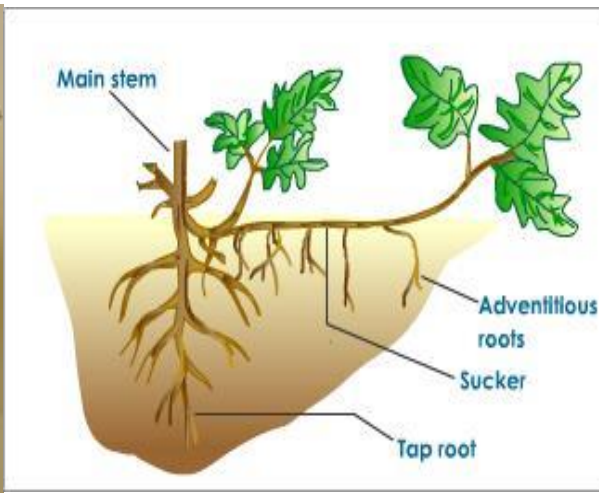
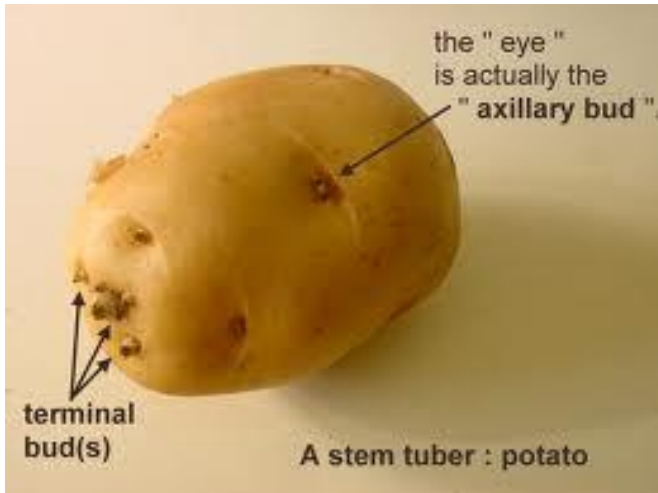
- Motile microscopic zoospores -(*chlamydomonas*)
- Conidia (*penicillium*)
- Buds (hydra)
- Gemmules- (sponges)



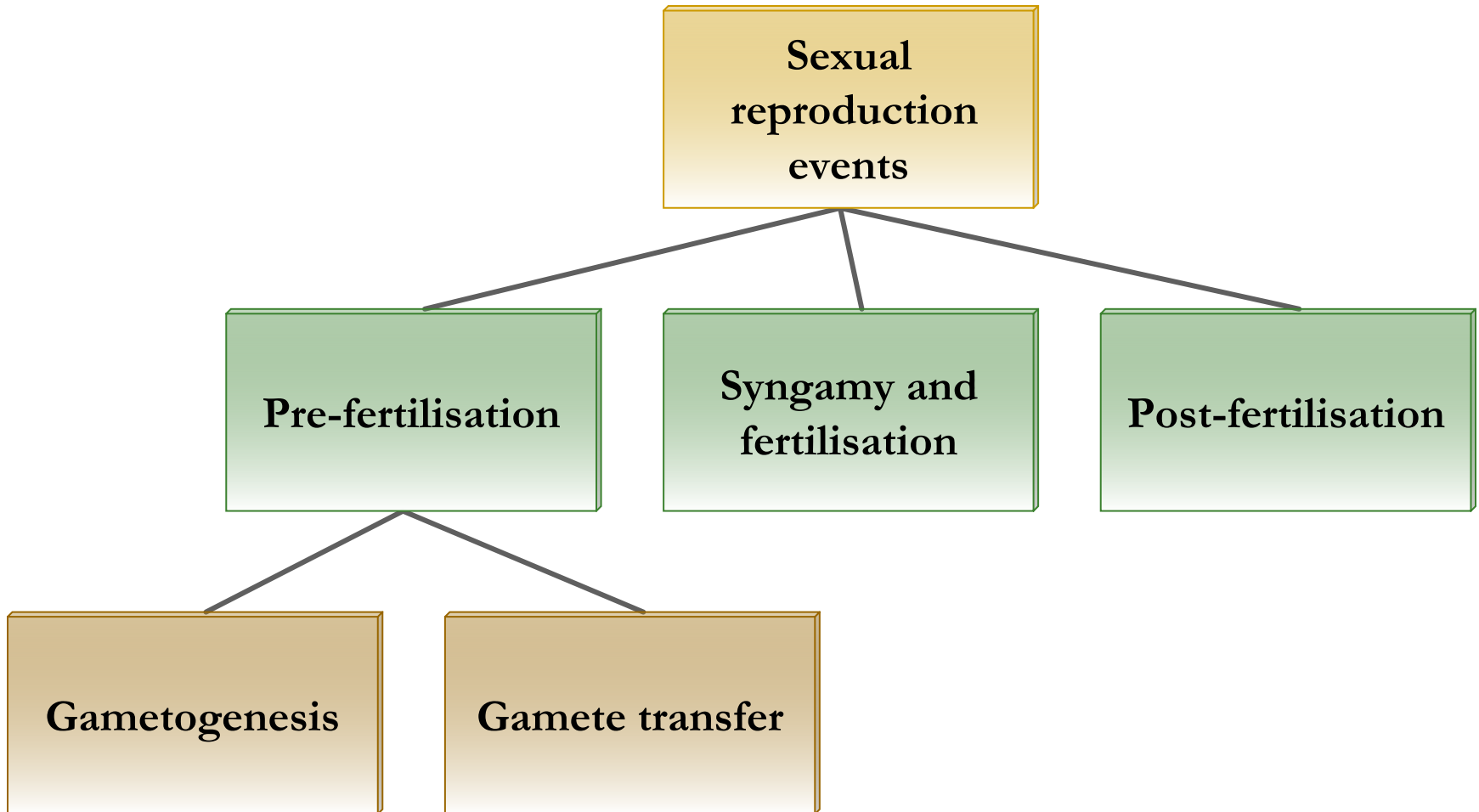
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# VEGETATIVE PROPAGULES

- Runner- *oxalis*
- Sucker- mint
- Tuber- potato
- Offset- *water hyacinth, pistia*
- Bulb- onion, garlic
- Rhizome- ginger
- Bulbil- agave
- Leaf buds- *Bryophyllum*



# SEXUAL REPRODUCTION



# PRE-FERTILISATION CHANGES

## (A) GAMETOGENESIS

- It is the process of formation of haploid male and female gametes.
- Gametes may be **homogametes (isogametes)** or **heterogametes**.
- In heterogametes the male gamete is called **antherozoid or sperm** and the female gamete is called the **ovum**.

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# PRE-FERTILISATION CHANGES

## (A) GAMETOGENESIS

- If the parent body is haploid gametes are formed by mitosis, if diploid gametes are formed by meiosis.
- An organism may be homothallic/monoecious or heterothallic/dioecious.

# PRE -FERTILIZATION CHANGES

## (B) GAMETE TRANSFER

- Fusion of male and female gamete is called fertilisation.
- So male and female gamete must be brought together.
- In some organisms both gametes are motile (algae) but in most cases male gamete is motile where as female is not.
- Algae, bryophytes and pteredophytes, water is the medium for gamete transfer

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# PRE -FERTILIZATION CHANGES

## (B) GAMETE TRANSFER

- Pollination is the method of gamete transfer in higher plants as pollen grains contain male gametes.
- The number of male gametes are thousand times the number of female gametes as there is loss of male gametes during transfer.
- In dioecious animals there is special mechanism for gamete transfer.



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# SYNGAMY AND FERTILISATION

- It results in the formation of diploid zygote.
- In some animals like rotifers, honey bees, some lizards and birds (turkey) female gametes develop in to organism without fertilisation, such a phenomenon is called parthenogenesis.

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# POST-FERTILISATION EVENTS

- The events after zygote formation is called post-fertilisation events.
- Zygote development (i) type of life cycle of organism and (ii) the environment it is exposed to.
- In algae and fungi it develops a thick wall around it to resist desiccations and damage and undergoes a period of rest.

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# POST-FERTILISATION EVENTS

- Organisms showing haplontic life cycle, zygote undergoes meiosis. While organisms showing diplontic life-cycle undergoes mitosis.
- The zygote develops into an embryo.
- Embryogenesis involves (i) cell division (ii) cell enlargement or growth (iii) cell differentiation.
- In oviparous animals zygote development occurs outside of female's body, they are egg laying e.g. reptiles, birds.

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# POST-FERTILISATION EVENTS

- In viviparous animals zygote development occurs inside of female's body. They give birth to young individuals. E.g. mammals
- In plants zygote is formed inside ovule, where it develops into embryo, then ovule becomes seed and ovary into fruit.
- Germination of seeds produce new plants.

# TYPES OF FERTILISATION

<b>EXTERNAL FERTILISATION</b>	<b>INTERNAL FERTILISATION</b>
Syngamy occurs outside of the body of organisms.	Syngamy occurs inside of the body of organisms.
Large number of gametes (male & female) are released into surrounding medium. E.g. bony fish, amphibians	Number of ova are less, but large number of male gametes are formed. E.g. birds, mammals, earthworm.

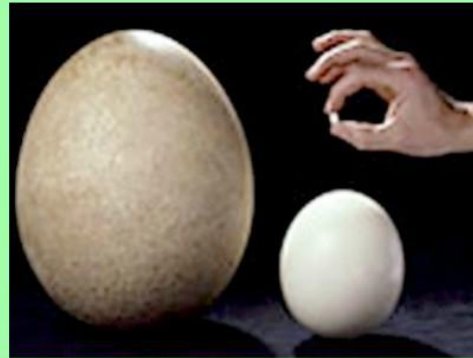
# TYPES OF ANIMALS

<b>OVIPAROUS</b>	<b>VIVIPAROUS</b>
Animals lay fertilise or unfertilised eggs.	Give birth to young individuals.
Eggs have calcareous shell to protect from the harsh environment.	No shell, they are protected inside the mother's body.

# Oviparous Animals



Ostrich



Hummingbird



Snakes



Birds

Fish



Chicken

