REPRODUCTION IN ORGANISMS..

LIFE SPAN → period from Birth to Natural death
→ no relation with size.
→ Mrityu nishchay hai!!
exception → Single Celled Organisms.

Elephant – 60-90 yrs
Rose – 5-7 yrs
Dog – 10-13 yrs
Butterfly – 1-2 weeks
Crow – 15 yrs
Banana tree – 25 yrs
Cow – 20 yrs
Parrot – 140 yrs
Crocodile – 60 yrs
Horse – 50 yrs
Fruitfly – 1 month
Riceplant – 4 month
Tortoise – 100-150 yrs
Banyan Tree – 200-300 yrs
Sequoia – 3000-4000 yrs

REPRODUCTION → Biological process in which organisms gives rise to young ones, similar to itself.
enables continuity of species..
generation after generation
Birth → growth ← Death..

Organisms divide on Basis of → Habitat, internal physiology several other factors.

ASEXUAL REPRODUCTION →
Single parent → Offspring, no gamete formation..
Clones = morphologically and genetically similar individual.
OO
Bole toh Same-Same.
Seen in → Single Celled Organisms, simple organisation plants and animals..

(1) **Cell Division** → Monera and protista
parent Cell → division by mitosis.

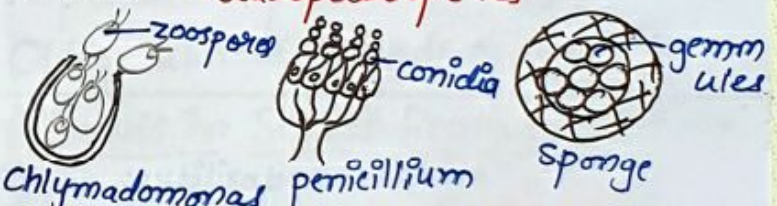
(2) **Binary Fission** → Cell divides into 2 halves and each rapidly grows into adult.. (Amoeba, paramecium)

(3) **Budding** → Division – Unequal and small buds produced, that remain attached initially to parent cell, and gets separate, and matured into new organism. (Yeast).

(4) **Sporulation** → Under unfavourable condition, Amoeba withdraws it's pseudopodia and secreate 3 layered hard covering / cyst around itself.
→ Encystation..
- When favourable conditions returns, encysted amoeba divides by multiple fission and produce many pseudopodiospores. (fungi, algae)
- Cyst wall burst out, and spores are liberated in surrounding medium to grow up into many amoeba..

NEET PYQ →
Zoospores → Zoosporangium.
Algae → Chlymadomonas.
Penicillium → Conidia
Hydra → Buds
Sponges → Gemmules
Amoeba → Pseudopodiospores

neet slayer



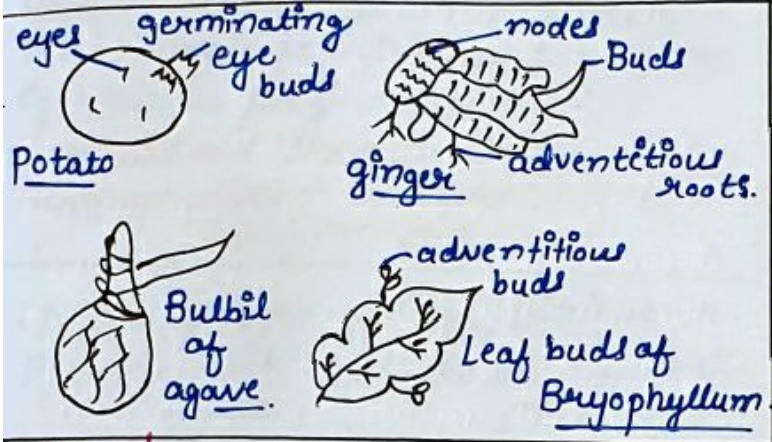
(5) **Vegetative propagation** → NEET PYQ

(a) **Stem** → Underground Stem.
Tuber (swollen end, food deposit) → potato.
Rhizome (perrenial) → Ginger.
Bulb (flat disk) → Onion
→ Subaerial Stem.
Water plants Offset → Water hyacinth
Sucker → Crysanthmum
teresstial plants Runner → Gladiolus, grass.

Aerial stem → Sugarcane.
Bulbil → Agave.

(b) Leaves → Bryophyllum.

(c) Roots → Very rarely have buds.



NEET PYQ

Terror of Bengal → Water Hyacinth → Most invasive weeds found growing, wherever there is standing water.

→ It drains O_2 from Water
↓
Death of fishes

→ Introduced in India because of beautiful leaves and flowers.

(6) Fragmentation → Hydra.
Body breaks into fragments and each fragment grow into adult, capable of producing offspring.

SEXUAL REPRODUCTION →

Fusion of male and female gametes.
Gametes fuse → Zygote → New organism.
Elaborate, Complex, slow process.
Brings diversity, evolution.
also called amphimixes, syngenesis, amphygony.

Phases in Life Cycle →

(1) Juvenile phase/Vegetative phase.
period of growth,
Non reproductive.

(2) Reproductive phase →
Organism is capable of reproducing.

(1) Plants → Monocarpic = Wheat, Rice, Maize.
Bamboo Species (50-100 yrs) - One time flower
Strobilanthus Kunthiana (NeelaKuraji) → 12 yrs.
Polycarpic = perennial = Hibiscus
Seasonal = Mango, Jackfruit.

(2) Animals → Continous Breeders
↳ Reproduce throughout reproductive phase.
↓
Seasonal Breeders
Reproduce only in favourable seasons.

Menstrual Cycle	Oestrous Cycle.
Periodic sloughing off inner lining of womb, along with blood.	Lining of womb sloughed off, not passed out.
Cycle of 28 days.	No bleeding, endometrium reabsorbed.
primates → Monkeys, apes, Humans.	Non primates → Rat, Sheep, Dogs, Cows..

Monoestrus → Deer, Bear, Wolf.
Polyoestrus → Mouse, Cow, pig.
Bioestrus → Dog.

(3) Senescence/Old age → End of reproductive phase.
Oldage ultimately leads to Death!!

Events in Sexual Reproduction →

(1) pre fertilisation events.
(2) Fertilisation events.
(3) post fertilisation events.

Neet Slayer

(1) Pre-fertilization Events →
(1) Gametogenesis.
(2) Gamete Transfer.

(1) Gametogenesis → formation of ♂, ♀ gamete
Gametes = Haploid Cells.

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Homogametes / Isogametes.
eKdum same to same look me.
eg - some algae

Heterogametes
morphologically distinct type.
eg - ovum, sperm.

Bisexual / Homothallic / Monoecious →
Male, female structure on same plant.
eg → several fungi and plants.
Cucurbits and Coconuts.
Hermaphodites → Earthworm, sponge, Tapeworm and Leech.

Unisexual / Heterothallic / Diocious →
Male, female structure on different plants.
male → staminate
female → pistillate
papaya and date palm.
Cockroach.
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Haploid — monera, fungi, algae, bryophytes.
equational division
mitosis → Haploid plant → gametes

Diploid — pteridophytes, gymnosperms, animals, humans.
reductional division
meiosis → 2n → n, n

Name	(2n)	(n)
Human Beings	46	23
Housefly	12	6
Rat	42	21
Dog	78	39
Cat	38	19
Fruit-fly	8	4
a fern	1260	630
apple	34	17
rice	24	12
maize	20	10
potato	48	24
Butterfly	380	190
onion	16	8

② Gamete Transfer →
Transfer of mature gametes for fertilisa."

① ♀, ♂ → motile = few fungi and algae.
② ♀ → stationary, ♂ → motile > majority of organisms.
③ ♀, ♂ → stationary → medium required, to move gametes
Water - algae, bryo., pterido.
pollengrain - seed plants.
Self pollination - peas
Cross pollination - many plants (carrier need)

② Fertilization :- Most Vital
Fusion of gametes → Syngamy → Diploid zygote.

→ Parthenogenesis →
female gamete undergo fert development, to form new organisms without fertilization.
Only in Rotifers, Honeybees, some lizards, Birds (Turkey).

Where does Syngamy occurs ?

*External Fertilization.
Fertilizat." takes place outside ♀ body (water)
Gametes produced in ↑↑ no to ↑↑se chance of fertilization.
♂, ♀ gametes → Maturation → Synchronised.
Disadvantage → Offsprings are extreamly vulnerable to predators threatning their survival upto adulthood.
eg → aquatic animals, algae, bony fishes, frog.

*Internal Fertilization.
Fertilizatin inside female body.
♀ gamete no. ↓↓, ♂ gamete no. ↑↑.
In seed plants, non motile gametes → female gamete through pollen tube.
eg - fungi, animals, reptiles, birds, mammals, plants, bryo., pterido., gymno., angio.sperms.

③ Post Fertilization Events →

① **Zygote** → Vital link b/w 2 successive generations, which ensures continuity from generation to generation.

- Every sexually reproducing organism begins life as a single celled zygote.
- Further development of zygote depends on type of life cycle of organism, and environment he's exposed to.
- Fungi and algae → zygote thick walls, resistant of dessication and damage.

In organisms with haplontic life cycle, zygote divides by meiosis.
Haploid spores → Haploid individuals.

② Embryogenesis → development of embryo from zygote.

Cell division (mitosis) → ↑↑se no. of cells in developing embryo.

Cell differentiation → help group of cells to undergo certain modifications to form Specialised tissues and organs to form organism.

In flowering plants, zygote is formed inside Ovule.

Zygote → Embryo

Ovule → Seed.

Ovary → Fruit → Seed disperse and germinate to form new plants.

♡, ↗, subscribe

Endosperm provide nutrition at time of embryo development.

Oviparous
Egg laying organisms
Birds, lizards..

Viviparous
Embryo development take place under mother's womb with help of placenta.
Mammals, monkeys, Humans..

Ovoviviparous
Develop egg inside body, instead of laying.
Shark

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