

**MIND MAP**
**Asexual Reproduction**
**In Plants**

- Spore formation → eg. Bacteria, fungi (*Rhizopus*)
- Budding → eg. Fungi (yeast)
- Fragmentation → eg. Algae, fungi
- Vegetative propagation
- (a) Natural method
  - By roots → e.g. Sweet potato
  - By stems → e.g. Ginger, potato
  - By leaves → e.g. *Bryophyllum*
- (b) Artificial method
  - Cutting → e.g. Rose
  - Layering → eg. Strawberry, lemon
  - Grafting → Mango, rose.
  - Micropropagation → e.g. orchids, dahlia

**In Animals**

- Fission
- (a) Binary fission → *Amoeba*
- (b) Multiple fission → *Leishmania*
- Budding → e.g. *Hydra*
- Regeneration → *Planaria*, *Hydra*

**Sexual Reproduction**
**In Plants**

- Flower is the reproductive organ.
- It has four whorls – Calyx, Corolla, Androecium, Gynoecium.
- Calyx and corolla are accessory parts.
- Androecium - Male reproductive organ producing pollen grains.
- Gynoecium - Female reproductive organ having ovule (egg).
- Pollination – Transfer of pollens from anther to stigma for fertilization.
- Fertilization – Fusion of male and female gametes.
- Double fertilization (Triple fusion and syngamy) – unique events in the embryo sac of ovules.

- Birth control prevents uncontrolled pregnancies.
- (a) Barrier methods
- (b) Chemical methods
- (c) Intrauterine contraceptive device
- (d) Surgical method
- Sexually transmitted diseases (STD) are caused by bacteria, protozoa and viruses.
- AIDS is an incurable viral disease.

**Sexual reproduction in Animals (Human)**

- Human being is Heterosexual.
- Male reproductive system includes:
  - (a) Primary sex organs → Testes
  - (b) Secondary sex organs → Genital ducts and glands.
- Female reproductive system includes:
  - (a) Primary sex organs → ovaries.
  - (b) Secondary sex organs → fallopian tubes, uterus, vagina.
- Male sex hormone is testosterone and female sex hormones are progesterone and estrogen.
- Puberty is attained at the age of 13 – 14 years in males and 10 – 12 years in females.
- The zygote formed after fertilization develops into embryo which gets implanted in uterus.
- Placenta (a disc-like special tissue) develops between uterine wall and embryo.
- Gestation period in humans is 280 days