

REPRODUCTION

NOTES

Reproduction -giving birth to their young ones, or production of new generation of individuals of the same species that are physically independent of their parents.

Q1- Why reproduction is vital process?

ANS. It help in continuity of species on earth.

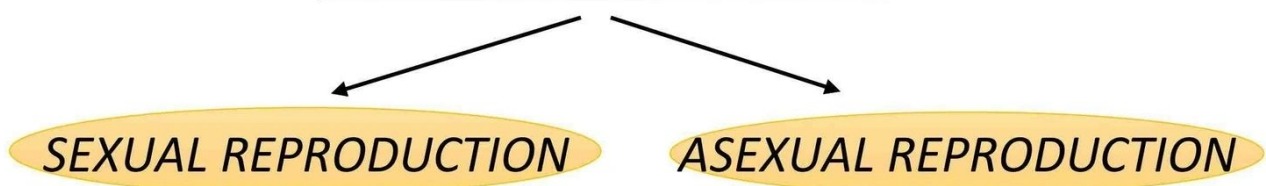
Q2-Why do organism reproduce?

ANS. Reproducing organism create new copies which look exactly similar to their parents this process are created by a very important process called DNA replication during cell division.

Q3: -Why DNA copying is essential?

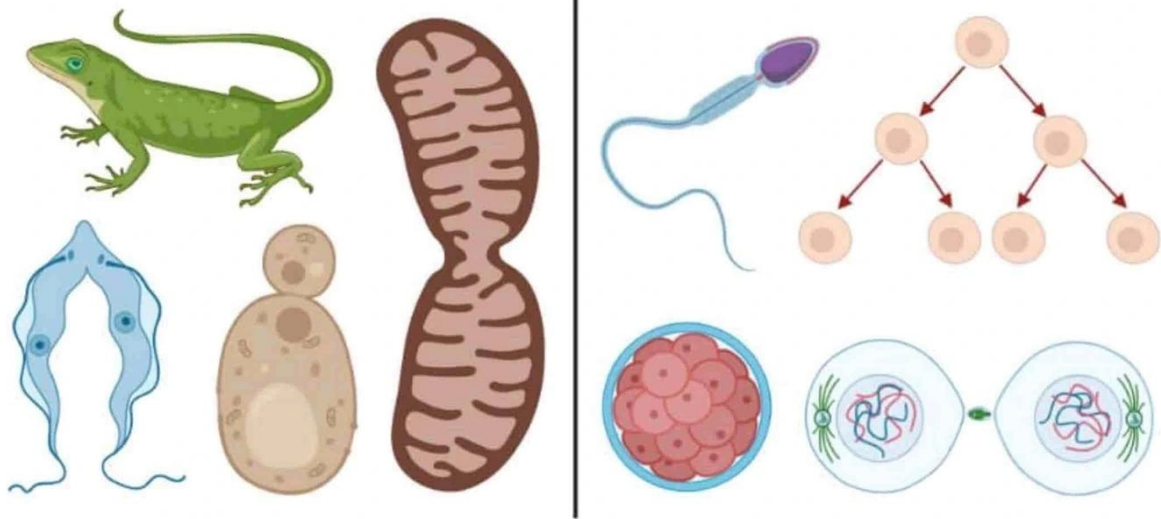
It is blue print it is essential phenomena of reproduction through which the organism pass on their body feature to their offspring.

TYPE OF REPRODUCTION



Male female participate in this reproduction .	
Variation take place male gamete sperm female	

Differences Between Asexual and Sexual Reproduction



ASEXUAL REPRODUCTION

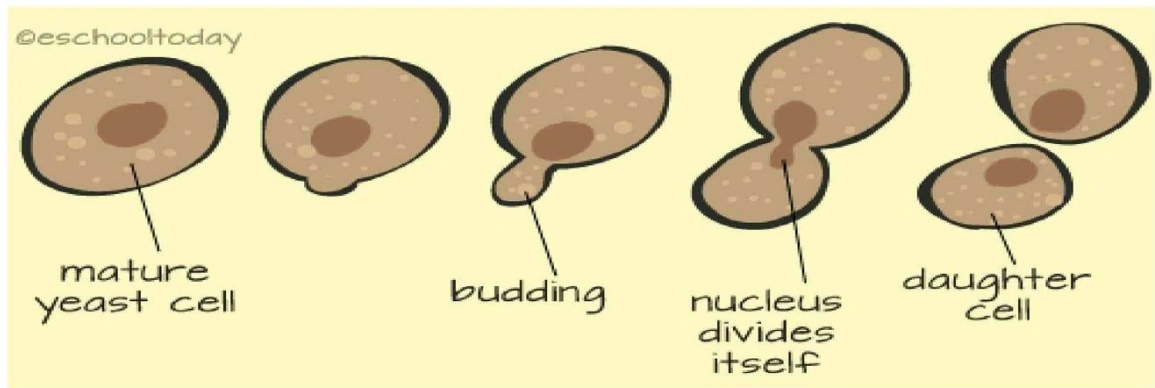
1. Fission
2. budding
3. spore formation
4. regeneration
5. fragmentation
6. Vegetative propagation.

1 FISSION - splitting

Binary fission	Multiple fission
During binary fission the DNA replicate here parent body divide into two equal part each part grow into new organism. E.g. Amoeba, paramecium.	Parent cell divide into several small equal sized daughter in this division parents divide several times into many daughter nuclei and the an closed into membrane when favourable condition comes it burst nuclei comes out and grow into independently.

In case of leishmania it grow longitudinally and it cause kala azar.

BUDDING – a small auto growth or bulging appear on parents body due to result of repeated mitotic division in cells E.g. bud it enlarge mature and separate from parent body and grow into a new organism . E.g. hydra and yeast.



SPORE FORMATION :- spore produced in sporangia these are non motile, flagellated and motile are known as zoospore.

A spore is a single or several called reproductive structure that detaches from the parents and give rise directly or indirectly to new individuals spore mature inside the sporangium they are liberated by rupturing of sporangium walls and dispersed to grow on new substratum E.g. Rhizopus

REGENERATION :- In planaria , it is defined as the ability of an organism to regenerate its lost part of the body which have been removed as by injury or autotomy (self amputation of body parts E.g. lizard.)

5. **FRAGMENTATION** - In spirogyra each fragment grow into new organism.

6.VEGETATIVE PROPGATION IN PLANTS:-When new plant grow from the old part (stem leaf root of plant)

Vegetative propagation

NATURAL

1.modified tuberous root can be propagate vegetative when planted in soil (sweet potato)

2.bud present on the root can grow Into leafly shoot (guava)

3.under ground modified stem and rhizome (ginger garlic) (onion banana).

4.some plant develop adventitious bud on their leaves which develop into new plant (BRYOPHLLY)

ARTILFICIAL

ARITIFICAL METHOD

1.cuttting

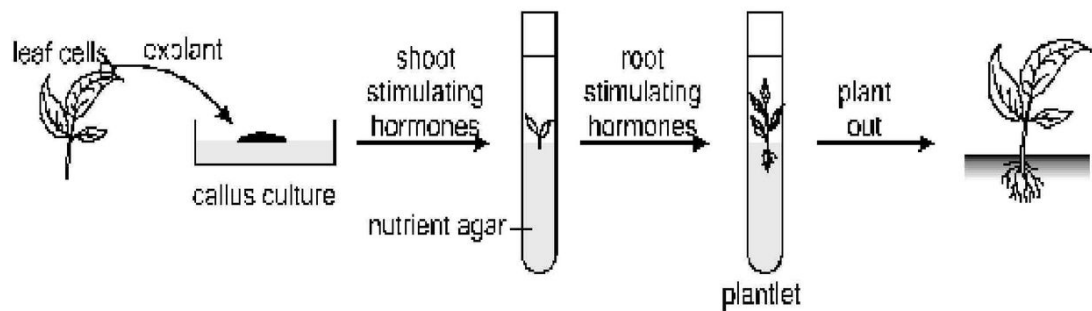
2.layering

3.grafting (In imp)

- Cutting -small piece of any plant organ (root stem leaf) used for propagation is called phalsa, rose sugar.

- In this method about 20-30 cm long piece of stem planted in natural position in wet soil. It gives off roots from the lower end shoot bud from the aerial part node, new plant develop similar to parents plant.
- **Laying** -in layering the roots are artificially induced on the stem branches before they are detached from the parents plant for propagation it is used in jasmine , strawberry raspberry.
- **Grafting** -grafting is a method in which parts of two plants joined in such a way that they grow as one plant rooted plant is known as stock the young plant grafted on stock and scion tied in such a way that the cambium of two come in contact with each other the joint is covered with a layer of waxer clay to prevent evaporation or entry of pathogen.

Micro propagation or tissue culture



Plantlets transfer to the pots or nursey bed this technique is employed for quick multiplication of commercially important plants . E.g. orchids dahlia.

Hw. Advantage of grafting

Advantage of tissue culture

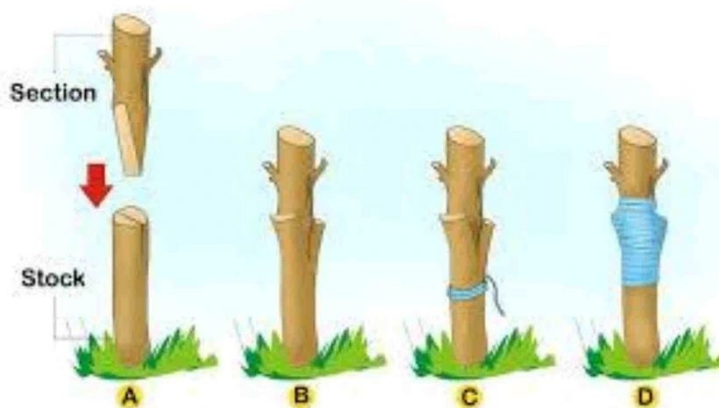
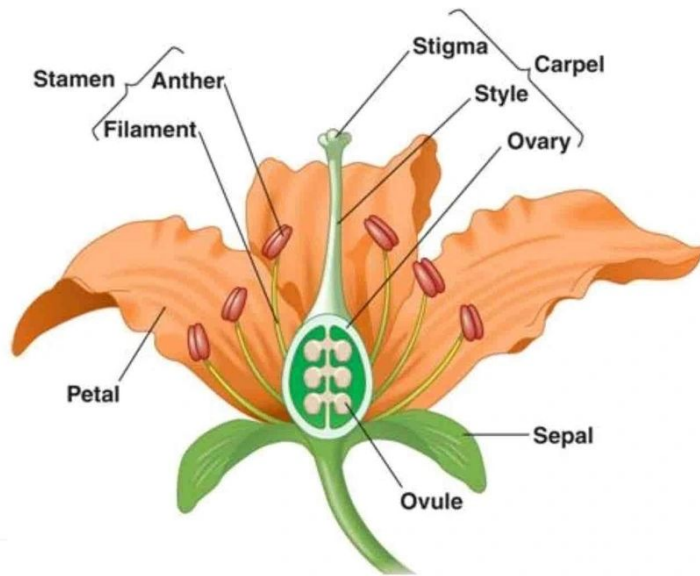


Diagram of flower



Sexual reproduction

Two parents participate in this reproduction male and female.

Male sex cell - sperm ii) **female sex cell** –(gamete)

Fertilisation- fusion of two gamete to form a single zygote our life start from single cell zygote is diploid ($n+n=2n$).

In majority of animals including human being are unisexual but in some case as earth worm leech snail are hermaphrodite.

In plant unisexual – water melon papaya, cucurbits, maize

Bisexual -hibiscus, brinjal , lily sunflower tulip , mango.

Fertilisation

External

The gamete are shed outside the body and fertilisation take place out side the female body E.g. frog.	Fertilisation take place inside the female body is called internal fertilisation .E.g. human, cat, dog.
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Internal

Advantage of sexual reproduction over asexual reproduction 1)fusing of two gamete (male and female) come from two different and sexually distinct , the offspring exhibit diversity character 2)meiosis during gametogenesis provide opportunities for new combination of gene 3) it help in the origin of new species.

Sexual reproduction in plants

Flower is most attractive part of plant help in reproduction .

A typically angiosperm consist of

1)calyx

2)corolla

3)androecium

4)gynoecium

Calyx – it is outermost whorl of flower ,leaves called sepal , help in protection.

Corolla-collection of petals, brightly coloured help to attract the insects.

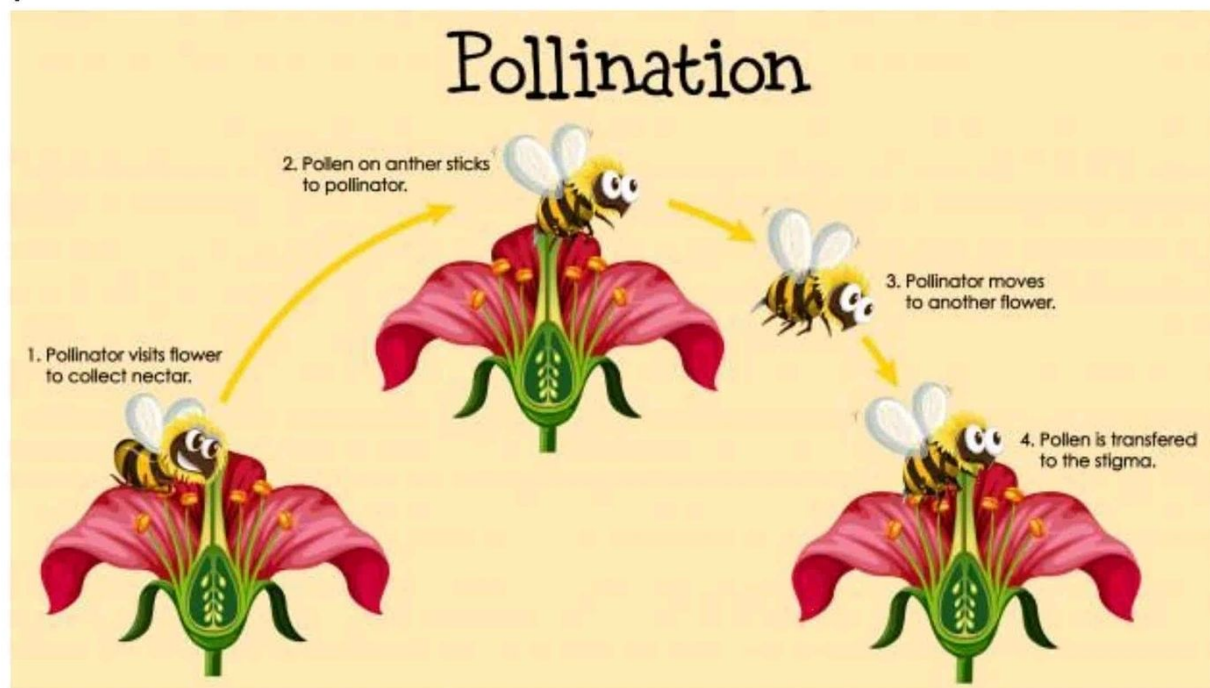
Androecium -collection of stamen I.e. male reproductive organ of flower.

Gynoecium – collection of carpels each carpel has a swollen ovary a long style and terminal stigma.

Male sex cell – pollen grain.

Female sex cell – ova

Pollination – transfer of pollen grain from anther to stamen to the receptive stigma of carpel is called pollination.



Pollination

Self pollination

cross pollination

Transfer of pollen grain from anther to stigma of the same flower i.e. known as self pollination.	Transfer of pollen grain from one flower to another flower is called cross pollination.
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Fertilisation – fusion of both gamete to form diploid zygote i.e. syngamy. the diploid zygote divide and convert into embryo.

Other male gamete which fuse with two polar nuclei to form triploid ($3n$) this knowns as triple fusion.

Including syngamy and triple fusion it is known as double fertilisation.

After fertilisation =zygote – embryo

Ovule -seed

Ovary-fruit

Human reproductive system

Primary sex organ produce – gamete so is known as gonad.

Male gamete – sperm

Female gamete- ova

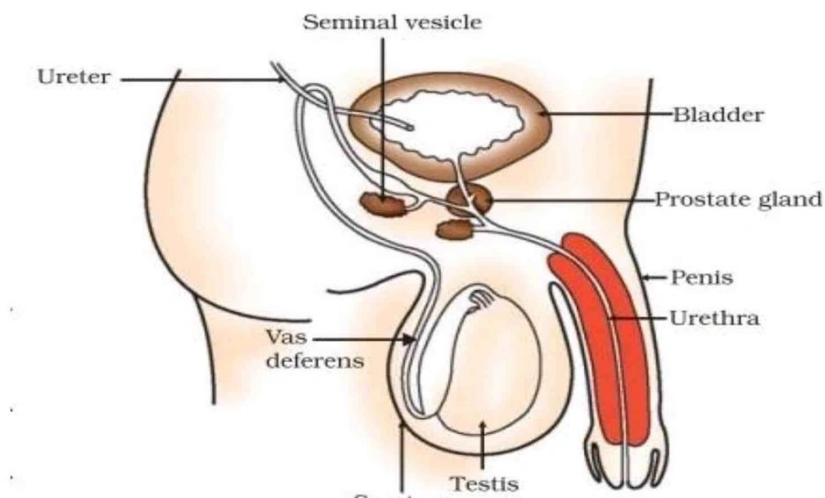
Hormone- male-testosterone

Female – estragon progesterone

Male reproduction system testis

Scrotum 3) vas deferens 4) urethra 5) penis

Diagram of male reproductive system –



Testis- human male possesses two testes primary reproductive organ which produce sperm and male hormone i.e. testosterone.

Scrotum- pouch of skin, it acts as thermo regulator and provide an optimal temperature for the formation of sperm.

Sperm formed develop at temperature 1-3.c

Lower than the normal body temperature. life of sperm is reduced when temperature is high.

Vas deferens – it is a straight tube which carry sperm to the seminal vesicle.

Three glands of man – seminal vesicle sperm stored temporarily in the seminal vesicle here a fluid and sucrose carbohydrates mix with sperm.

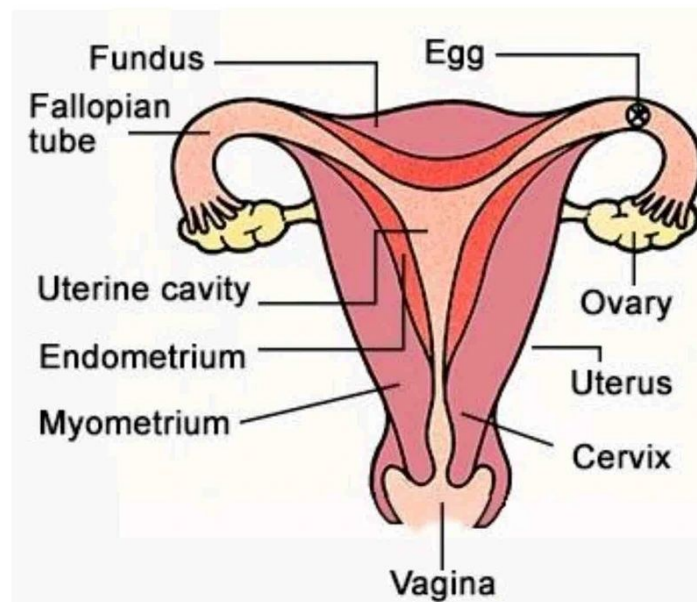
2)**prostate gland** – which produce alkaline fluid that countered auctic fluid of vagina

3)bulbo urethra- make the sperm lubricated because lubricating fluid is present here

4)**Urethra** – it carries urine as well as sperm.

5) **penis**- long thick muscular organ which release sperm into vagina.

Female Reproductive system



1)Ovaries

2) fallopian tube

3) Uterus- embryo develop inside it

4)Vagina- birth canal

1)**Ovaries**- a pair of ovary present in human female ovary perform dual function .

a) Production of female gametes