

REPRODUCTION

Reproduction is a process by which living organisms produce new individuals of their own type.

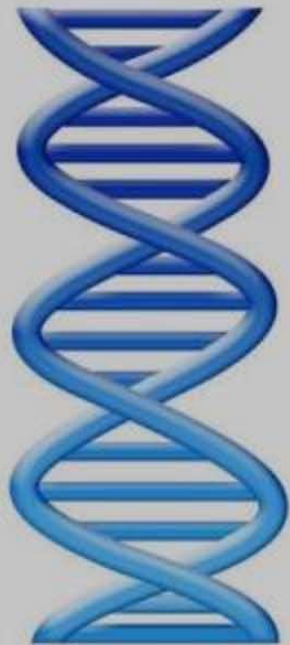
HOW DO ORGANISM REPRODUCE?

ASEXUAL REPRODUCTION

- Single parent is involved ✓
- No Gamete formation ✓
- No Fertilisation
- Offsprings formed are genetically similar

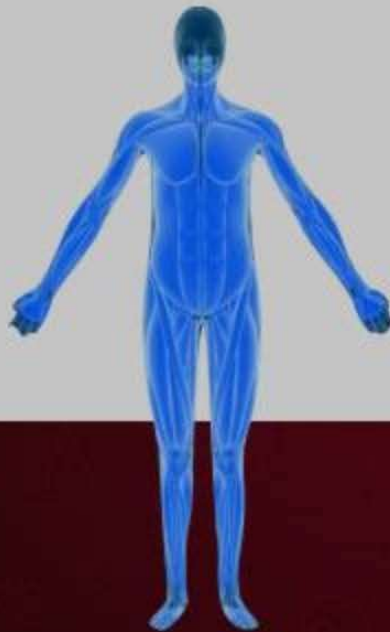
SEXUAL REPRODUCTION IN

- Two parents are involved
- Gamete formation occurs ✓
- Fertilisation occurs ✓
- Offsprings formed are genetically dissimilar



DNA

"The Blueprint of Life"



Reproduction involves Formation of new cells ✓

↓
Formation of new DNA copy

Errors during DNA copying

↳ *Changes.*

Variation in DNA sequence and information

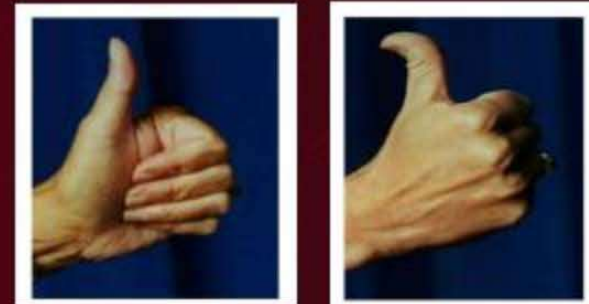
↓
New characters

Variation and its advantages

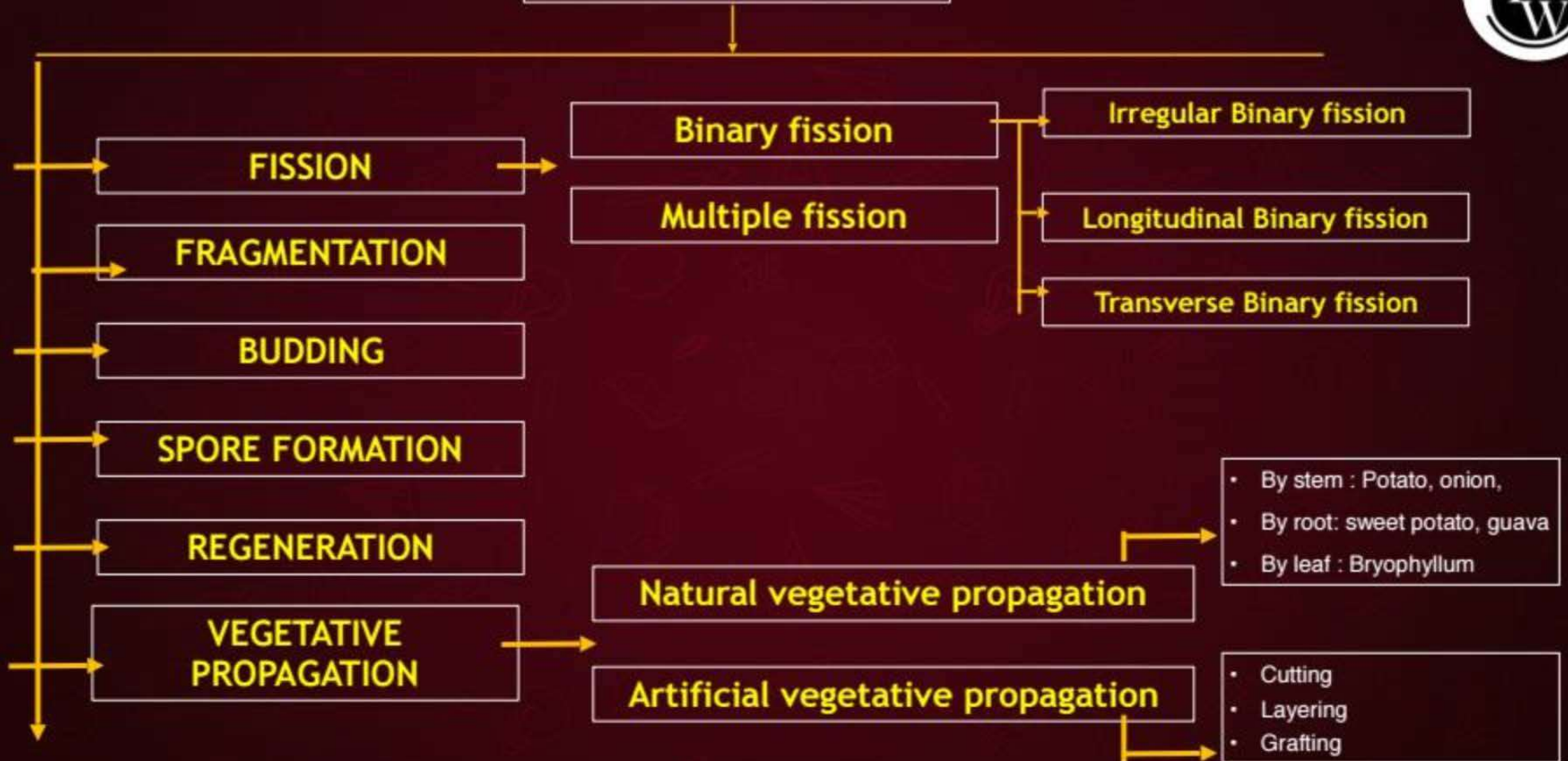
- Variations are the differences present between the individuals of the same species

Importance/significance of Variations

- Variation help organisms to adapt in the changing environment. ✓
- Variation provides stability to a species and thereby helps in evolution ✓
- Variation in DNA results in varieties of a species and formation of new species. ✓

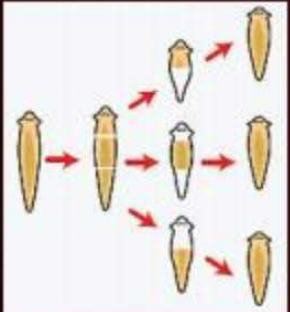


ASEXUAL REPRODUCTION



ASEXUAL REPRODUCTION

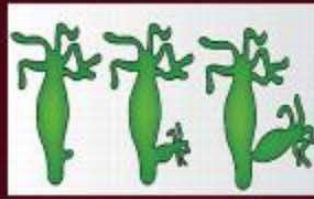
REGENERATION



SPORE FORMATION

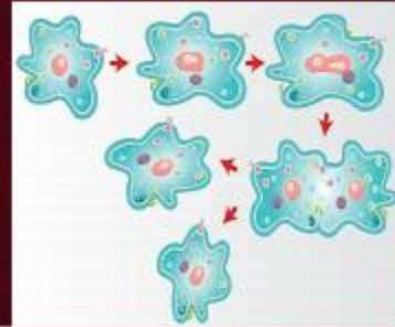


BUDDING



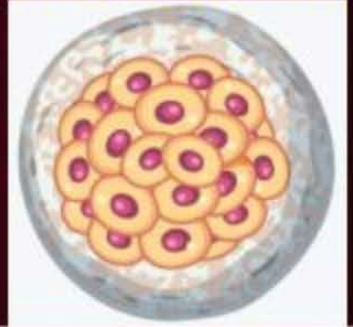
FRAGMENTATION

BINARY FISSION



FISSION

MULTIPLE FISSION



Fission

Binary fission

- Two daughter cells are formed
- Three types -
 - ✓ Irregular binary fission (Amoeba)
 - ✓ Longitudinal binary fission (Leishmania)
 - ✓ Transverse binary fission (paramecium)

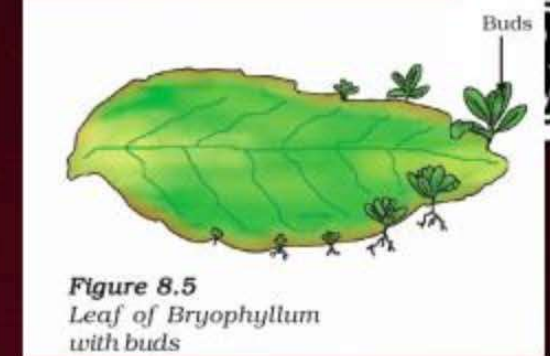
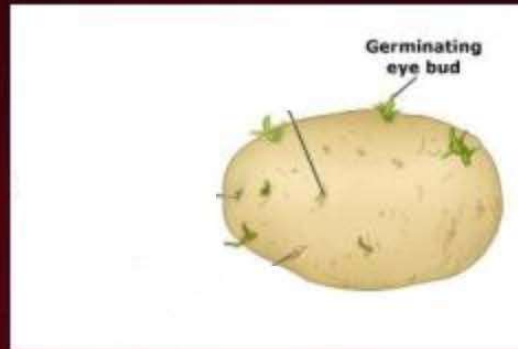
Multiple fission

- Many daughter cells are formed (plasmodium) ✓

Vegetative propagation

A type of asexual reproduction in which plants reproduce with the help of its vegetative parts :

- ✓ 1. stem (Potato, onion, lemon)
- ✓ 2. root (Sweet potato, guava)
- ✓ 3. leaves (Bryophyllum)



SEXUAL REPRODUCTION IN ORGANISMS

Gamete formation
(Gametogenesis)
(Meiosis)

Gamete transfer

FERTILISATION

Formation of zygote

Development to zygote into
embryo ✓

Growth and Development of
embryo in to whole new
organism

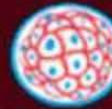
Males



Females



zygote



Embryo



Organism



Parts of a Flower

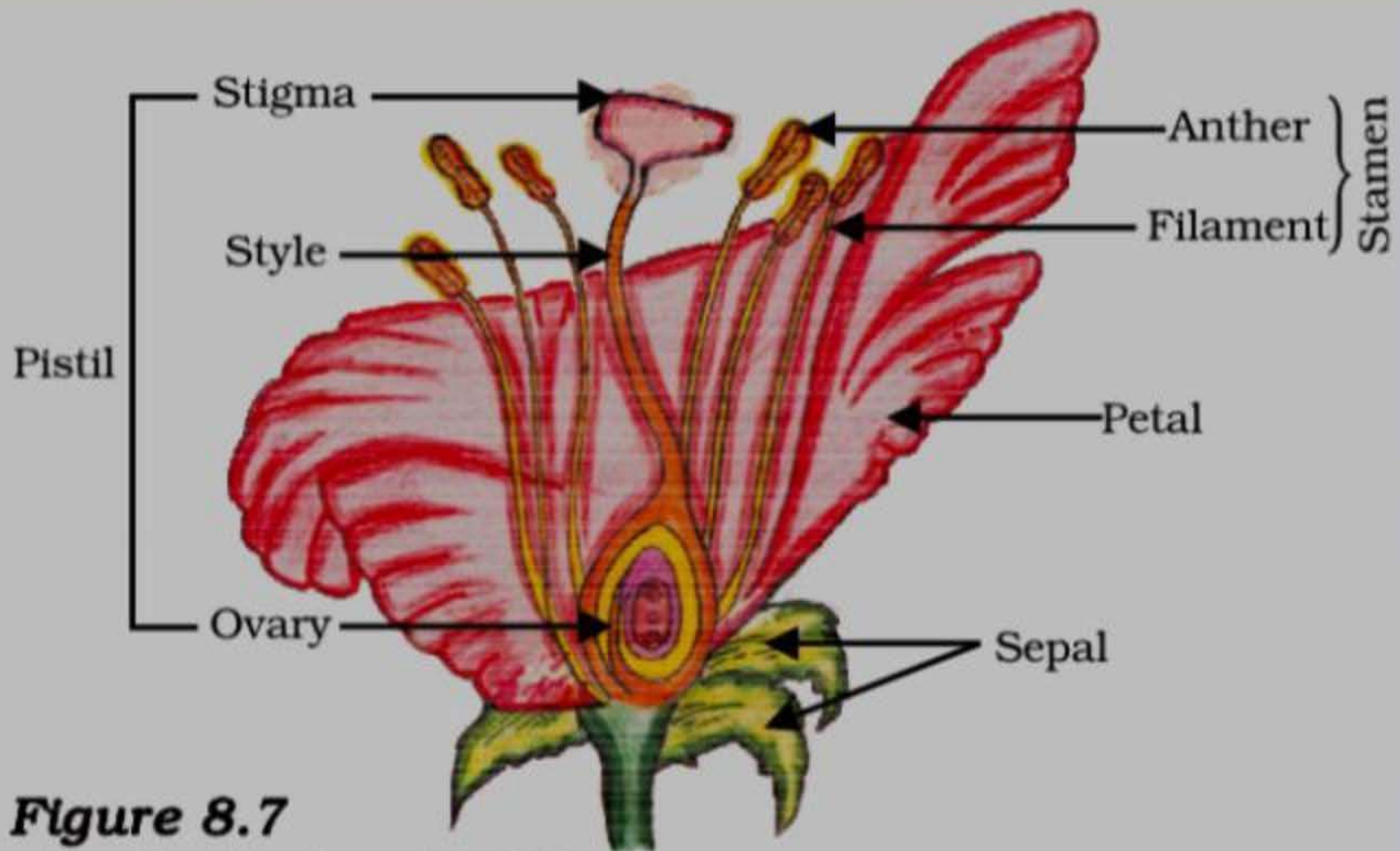


Figure 8.7

Longitudinal section of



Parts of the flower	Functions
Sepals (Calyx)	Usually green and provide protection to flowers during the bud stage.
Petals (Corolla)	Brightly coloured and have a strong fragrance to attract pollinators.
Anther	Produces pollen grains which consists of male gametes.
Filament	It forms the stalk that bears anther
Stigma	Receives pollen grains during pollination due to their sticky nature.
Style	Elongated structure, connects stigma and ovary, pollen tube travels through the style to reach the ovule.
Ovary	Basal swollen part of pistil, converts into fruit after fertilisation
Ovule	Present inside ovary, Consist of female gametes, site of fertilisation

Types of flower

Bisexual flower

- Both stamen and pistil are present in a same flower.

- Hibiscus(china rose)
- Mustard
- pea
- Tomato
- Brinjal
- Sunflower

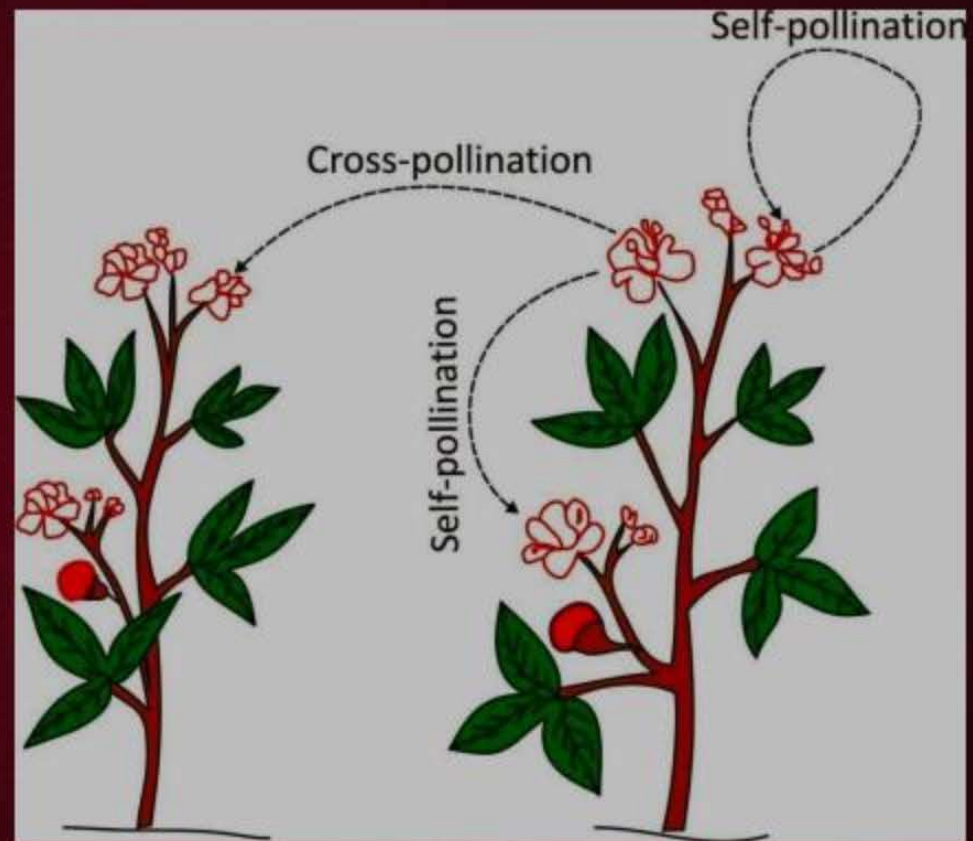
Unisexual flower

- Either stamen or pistil is present.

- Papaya
- Watermelon
- Coconut
- Cucumber
- Maize

Pollination

- Pollination can be defined as the transfer of pollen grains from anther to stigma of a flower.



SEXUAL REPRODUCTION IN PLANTS



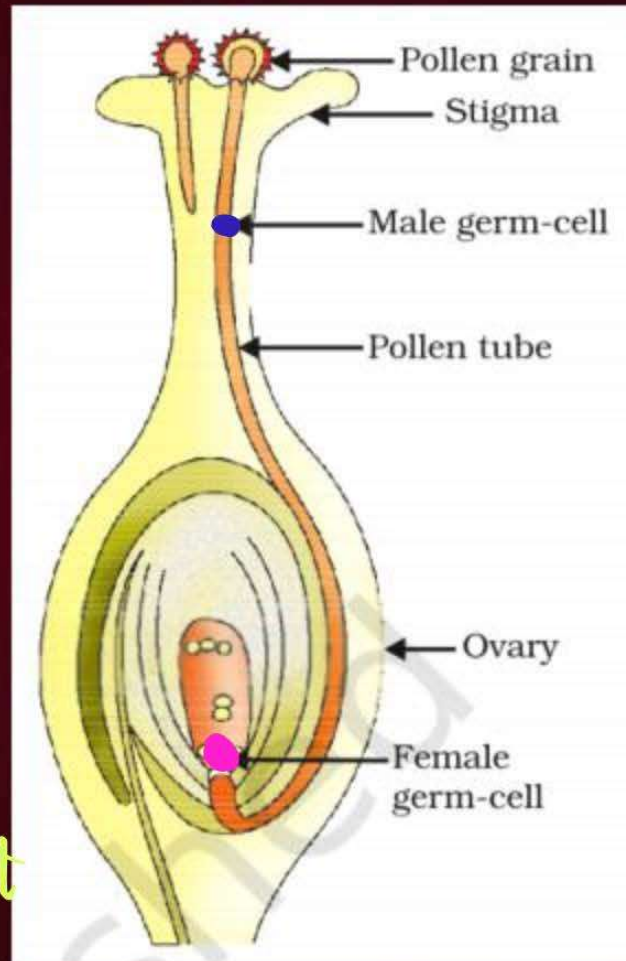
Gamete formation

Pollination

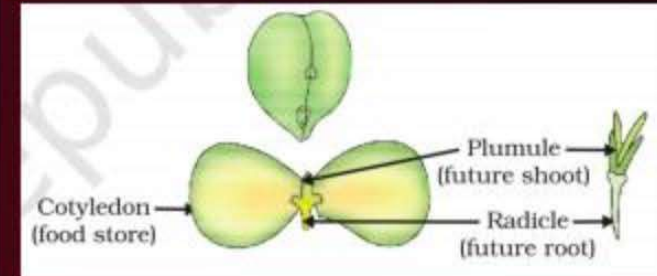
Pollen germination and pollen tube formation

FERTILISATION
(Fusion of male and female gamete in ovule)

Post fertilisation :



Parts of seed



Types of seed

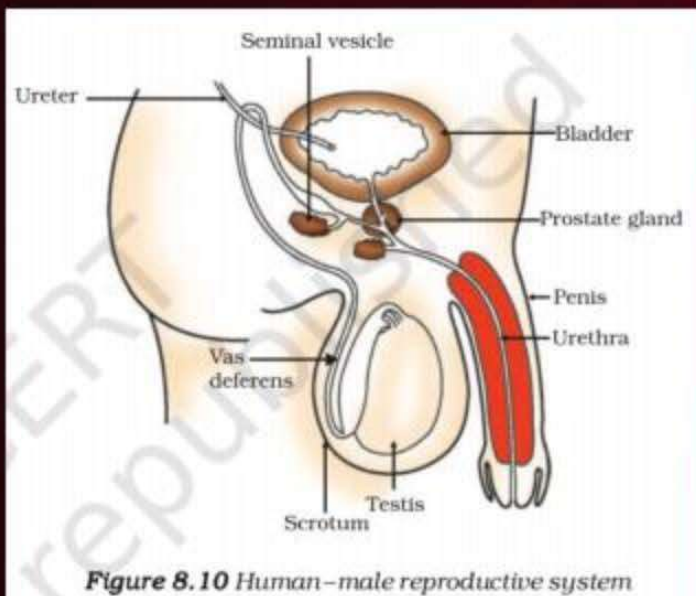


Monocot seed



Dicot seed

Male reproductive system



Structure	Function
Scrotum	Maintain the low temperature of the testes (2–2.5° C lower than the normal internal body temperature)
Testes	<ul style="list-style-type: none"> Produce sperm cells Produce the hormone testosterone
Vas deferens	Carries sperm towards urethra
Seminal vesicle	Secretes fructose into the semen, which provides energy for the sperm
Prostate gland	Secretes an alkaline buffer into the semen to protect the sperm from the acidic environment of the vagina
Urethra	Common passage for both semen (sperm) and urine
Penis	Deposits sperm into the vagina during insemination



Female reproductive system

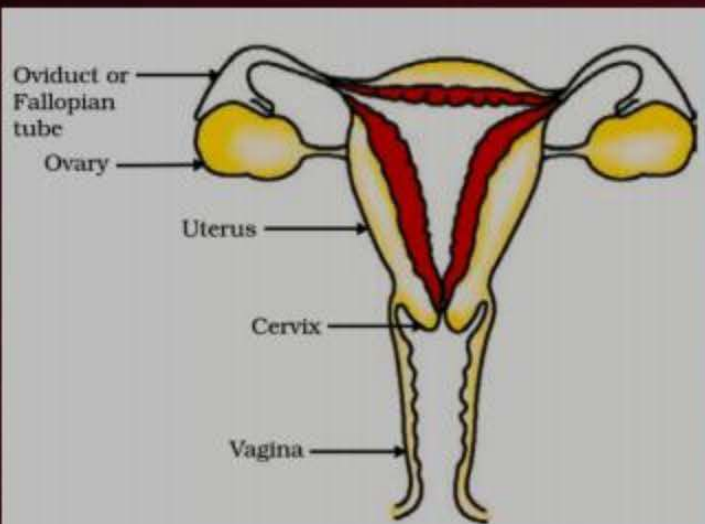


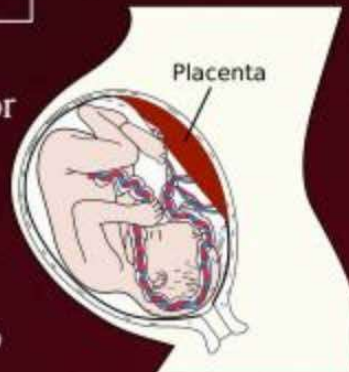
Figure 8.11 Human -female reproductive system

Structure	Function
Ovaries	<ul style="list-style-type: none"> Produce the hormones estrogen and progesterone Site of ovum (egg cell) development and ovulation
Fallopian tubes (oviducts)	<ul style="list-style-type: none"> Carry the ovum from the ovary to the uterus Site of fertilization
Uterus (womb)	<ul style="list-style-type: none"> Pear-shaped organ in which the embryo and foetus develop Involved in menstruation
Cervix	<ul style="list-style-type: none"> Separates the vagina from the uterus Dilates during birth to allow the fetus to leave the uterus
Vagina	<ul style="list-style-type: none"> Provides a passageway for sperm and menstrual flow Functions as the birth canal

Placenta

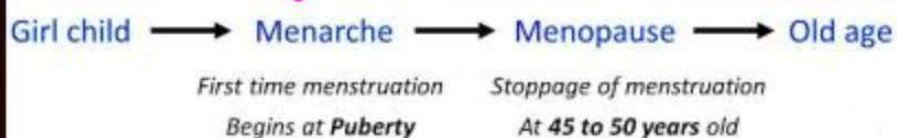
Villi on placenta (embryo side) provides a large surface area for

- glucose and oxygen to pass from the mother to the developing embryo
- wastes to pass from the embryo to the mother through the placenta.

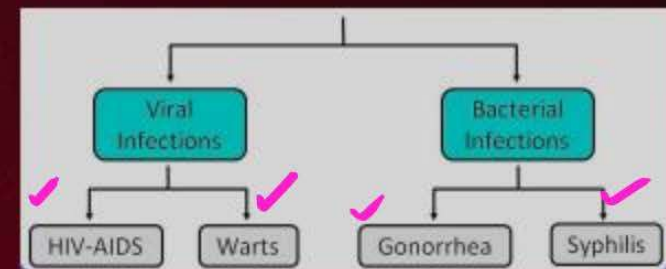


Menstruation

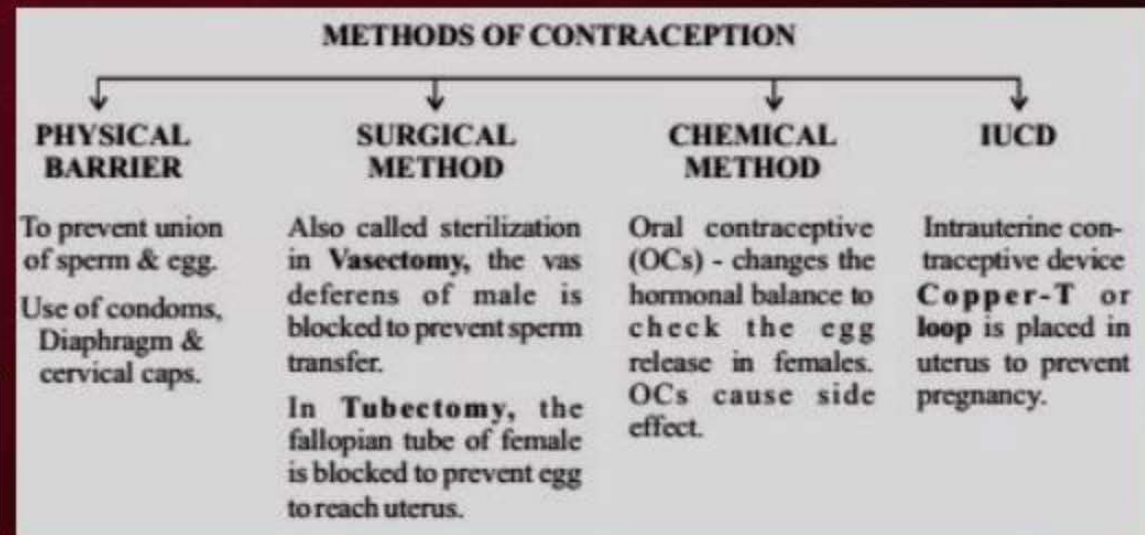
Menstruation is the process of shedding the uterine lining leading to vaginal bleeding on a regular monthly basis,

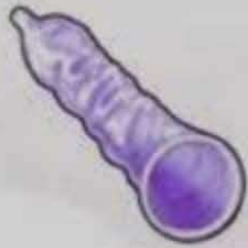


Sexually transmitted Diseases

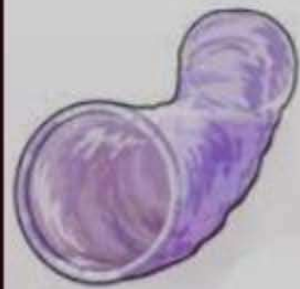


Contraceptive Methods

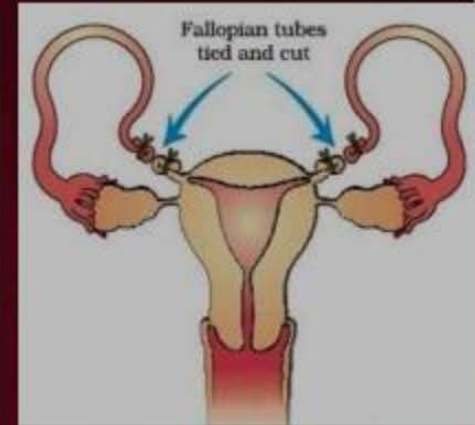
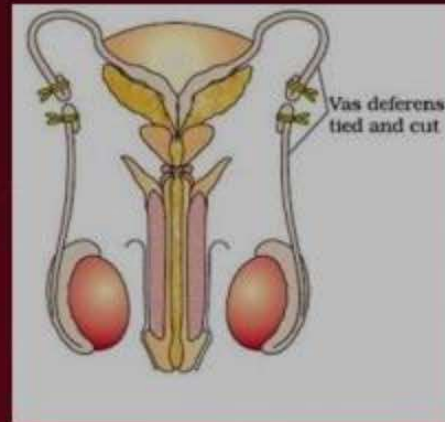
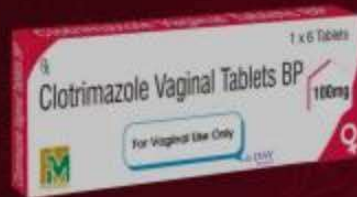




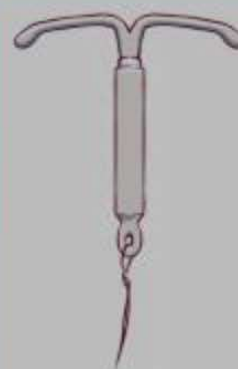
Male Condom



Female Condom



Copper IUD



Hormonal IUD

