

## Reproduction in Animals

### (1) Mode of reproduction

- • There are 2 modes by which animals reproduce:- Sexual and asexual reproduction.

### (2) Sexual reproduction

- • Like plants, the reproductive parts in animal also produce gametes that fuse to form a zygote. It is the zygote which develops into a new plant individual. This type of reproduction beginning from the fusion of male and female gametes is called sexual reproduction.

### (3) Diversity of animal reproduce <sup>(सिंचना)</sup> anatomy

- • Many animal reproductive structures are very similar even across different lineages. Reproductive structure produce gametes (sperm and eggs) and facilitate the meeting of gametes to produce zygote (fertilized egg).
- In animals ranging from insects to humans, male produce sperm in

Testes and the sperm are stored in epididymis until ejaculation.

- Sperm are small, mobile 'low cost' cell that are produced in high numbers.
- Females produce one ovum or several ova (eggs) that mature in the ovary.
- Eggs are large cells that require a substantial investment of time, energy and nutrients to form, are non-mobile and rare relative to sperm numbers.
- Mature eggs are released from the ovary into the uterine tube where they are either fertilized or released in an aqueous environment.

#### (4.) Male reproductive organs.

→ The male reproductive organs include a pair of testes (singular, 'testis'), two sperm ducts and penis. The testes produce the male gametes called sperm.

- Million of sperm are produced by testes.
- Sperm are very small in size, each

has a head, a middle piece and a tail.

- Each Sperm is a single cell with all the usual cell components.

### (5) Female reproductive organs.

→ • The female reproductive organs are a pair of ovaries, oviducts (fallopian tube) and uterus.

- Ovary produces female gametes called ova (egg).

• In human beings, a single matured egg is released into oviduct by one of the ovaries <sup>every</sup> month.

- Uterus is the part where development of an egg is also single cell.

## (6) Fertilization.

→ • The first step in the process of reproduction is the fusion of sperm and ovum.

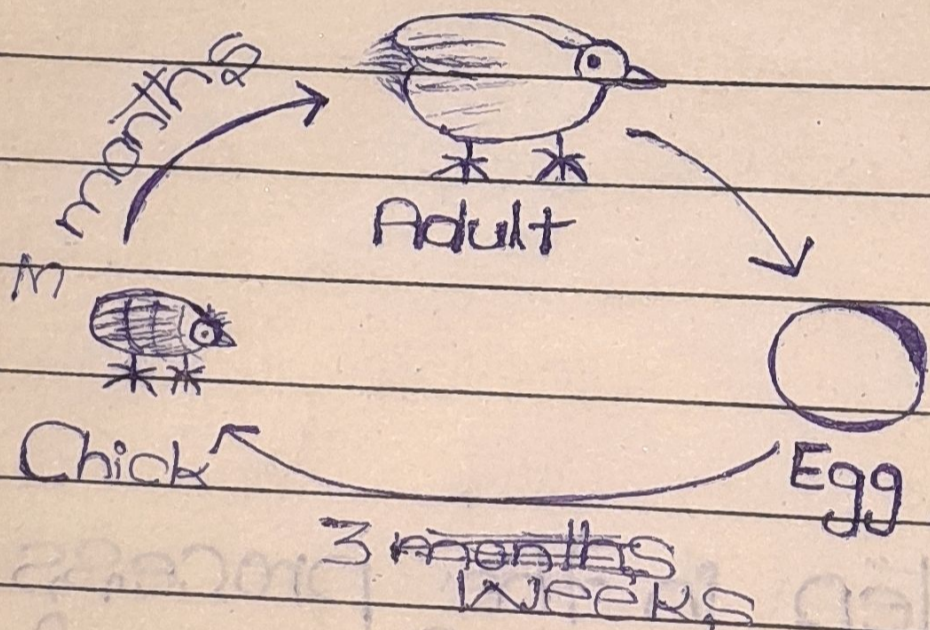
• When sperms come in contact with an egg. One of the sperm may fuse with

• Such fusion of the egg and sperm is called fertilization. During fertilization, the nuclei of sperm and the egg fuse to form a single nucleus.

• The results in the formation of a fertilized egg or zygote.

## Young ones to adults

1. Direct development:- when the young ones of an animal resemble the adult, the direct development takes place.  
Ex:- Hen, Man, Monkey, etc.



Life cycle of Hen

2. Indirect development:- when the young ones of an animal do not resemble the adult, then indirect development takes place. Ex:- Frog, Butterfly, Silk moth, etc.

\* Metamorphosis (अधिवर्तन) :- In case of indirect development, transformation of young ones into adult through drastic change is called metamorphosis. Larva to butterfly undergoes metamorphosis to become a butterfly. A tadpole undergoes metamorphosis to become a frog.

\* Asexual reproduction :- The process of reproduction in which new individuals are produced from single parent. Ex:- Micro-organisms.

1.) Budding :- This reproduction method is seen in those multi-cellular animals which are highly simple in structure. A small bud or bulge develops on the body. After developing the bud, it gets attached from parent's body to begin life as a new individual.

## { Our Great Glands }

1. Endocrine glands :- An endocrine system is a group of ductless glands that regulate the body processes and function of many system by secreting chemical substances called hormones.

→ They release the secretions directly into the bloodstream.

→ The origin and site of action are usually distant hormones.

## Hormones

2. Hormones:- Hormones are chemical messengers is secreted by the endocrine glands.

→ They control body function ~~page~~ physiology and behaviour.

## Pituitary glands

3. Pituitary glands:- The pituitary glands are ~~secreted~~ <sup>situated</sup> in the brain and is called master endocrine gland.

→ It produces hormones that instruct the other glands to secrete their hormones.

→ The pituitary glands secretes growth hormones which controls the overall growth of a person.

→ Secretion of growth hormones is maximum in adolescence period.

## Testes

- Testosterone is primary sex hormone.
- It is responsible for the development of male reproductive organs, production of male gametes ex:- sperms and development of secondary sexual characteristics too.
- Testes start secreting testosterone only after puberty.

## Ovaries

- Oestrogen is the primary female sex hormone.
- It is responsible for the development of the female reproductive organs, production of female gametes. Ex- Ova and development of secondary sexual characteristics and menstrual cycle.
- The corpus luteum is a hormone secreting temporary endocrine structure in the female reproductive system. It secretes progesterone that causes changes in the uterus that makes it more suitable for implantation.
- Ovaries secrete this hormone after puberty.

## Thyroid gland

- It is butterfly-shaped gland situated in the throat.
- It secretes a hormone called thyroxin.
- This hormone is important as it maintains the balance of all metabolic activities.
- The deficiency of hormone can cause swelling of thyroid gland, leading to goitre.

## (Pancreas)

- The pancreas secretes a hormone called insulin, which regulates the blood sugar level in the body.
- Deficiency of insulin leads to diabetes.

## (Adrenal glands)

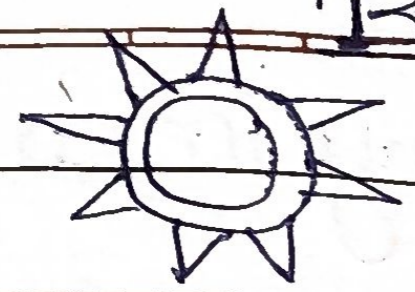
- The adrenal glands are situated right above the kidneys.
- They change their shape throughout the life and shrink as a person grows ~~de~~ older.

## ★ Menstrual Cycle :-

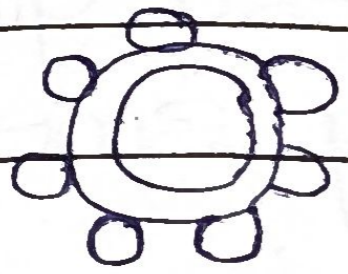
- It is a reproductive cycle of female.
- It begins at puberty and the onset of the menstrual cycle is called 'menarche'.
- The process includes cyclic changes in the ovaries and the uterus both simultaneously. (द्वय ही समय पर)
- In the ovaries, an ovum develops and matures and then released.
- In the uterus, a thick, <sup>spongy</sup> inner lining develops <sup>(आश्रित)</sup> anticipating pregnancy.
- If the eggs fertilized, pregnancy occurs.
- If the fertilization not occur, the released egg and thickening of the uterus along with blood vessels and shed off.
- This cause bleeding in women anywhere between 45 to 52 ~~age~~ years.
- Stopping of menstrual cycle is called 'menopause'.
- The year between menarche and menopause marks the reproductive age of a woman where she is able to bear child.

# Blood Group

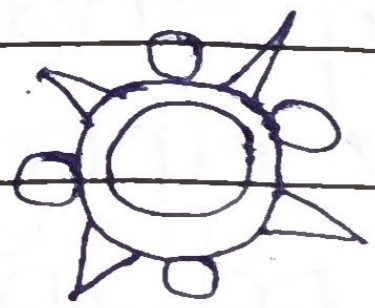
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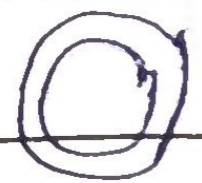
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## Personal Hygiene

- Personal hygiene is very important, especially during teenage years.
- Increased activity of sweat glands sometimes make the body smelly.
- It also leads to acne.
- All parts of the body should be washed and cleaned everyday.
- ~~It~~ If cleanliness is not maintained there is a chance of catching bacterial and fungal infections.

## (Physical Exercise)

- Exercise ensures a healthy body & mind.
- Walking, playing and practising yoga are some of the many ways we can carry out physical exercise.

\* Say not to drugs:-

- Drugs are addictive and harm the body in long time.
- Sometimes harm done by drugs becomes irreversible.
- All teenagers should say "No" to drugs.

→ HIV Can pass to a normal person from an infected person by sharing the syringes used for injecting drugs.

Hepatitis is the huge group of Jaundice.

HIV:- Human Immunodeficiency Virus.

MS → Master of Surgery.

MD → Master of Degree.

→ It can also be transmitted to an infant from their <sup>infected</sup> mother through her milk.

→ The virus can also be transmitted through sexual contact with a person infected with HIV.

→ People who are addicted to drugs have more chance of having HIV infection.

Note:- There are 2 types of HIV:-

① HIV-1      ② HIV-2

HIV-1 → It is poisonous and spread easily from one person to another.

HIV-2 → It is less poisonous.