Revision Notes for Class 8 Science

Chapter 6 – Reproduction in Animals

Reproduction in animals is the process by which animals create new individuals of the same species. This can happen in two main ways: sexual reproduction, where a male and female animal produce offspring by combining their genetic material, and asexual reproduction, where a single animal creates offspring without the need for another animal. Reproduction ensures that a species can continue to exist and grow over time.

Modes of Reproduction:

The different ways animals reproduce, known as "modes of reproduction." There are two main types:

1. Sexual reproduction and

2. Asexual reproduction

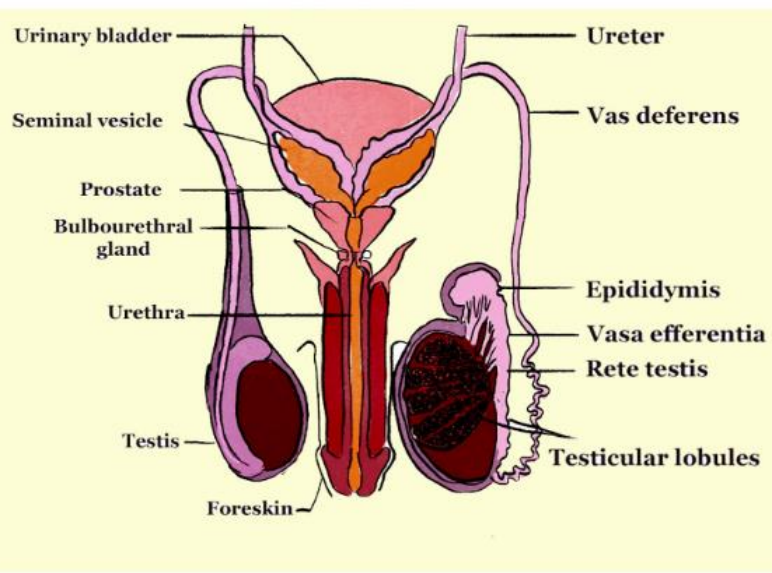
Sexual Reproduction: This is when two animals, a male and a female, come together to produce offspring. They each contribute genetic material (sperm and egg) that combines to create a new animal. This method results in offspring that are genetically different from their parents. Examples include humans, birds, and fish.

Male Reproductive Organ: The male reproductive system includes:

- **Testes:** A pair of organs that produce male gametes called sperm.
- **Sperm Ducts:** Two tubes that transport sperm from the testes.
- **Penis:** The external organ that delivers sperm into the female reproductive system.

Sperm Production:

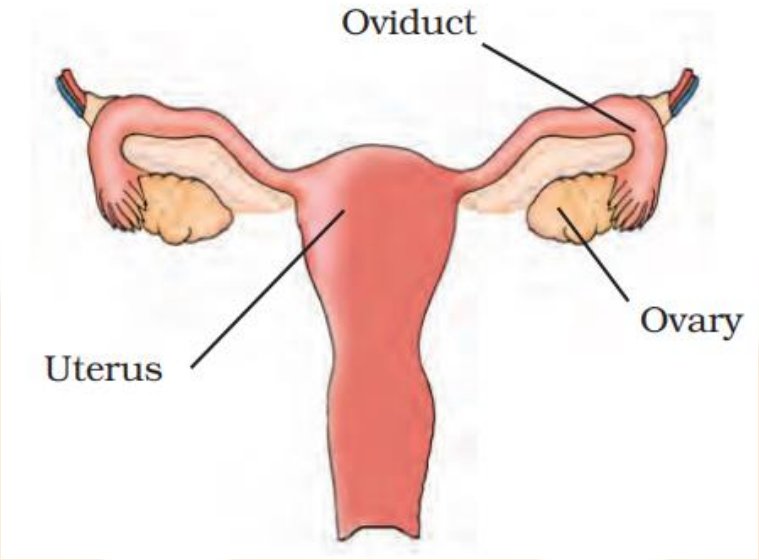
- The testes generate millions of sperm.
- Each sperm is very small but consists of three parts: a head, a middle piece, and a tail.
- Despite its small size, a sperm is a single cell with all the usual cell components.



Male Reproductive System

Female Reproductive System:

- **Ovaries:** A pair of organs that produce female gametes called ova (eggs).
- **Oviducts (Fallopian Tubes):** Tubes through which the mature egg travels from the ovary to the uterus.
- **Uterus:** The organ where the baby develops during pregnancy.
- **Egg Release:** In humans, one mature egg is released from an ovary into the oviduct each month.
- **Single Cell:** An egg, like a sperm, is also a single cell.

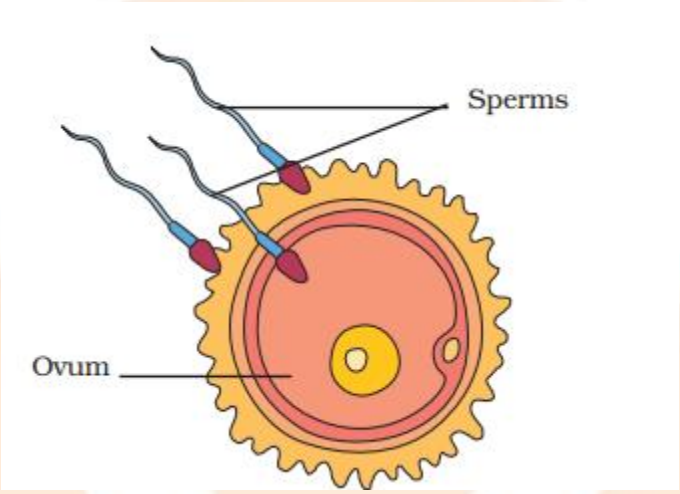


Female Reproductive Organs in Humans

Fertilisation:

- The reproduction process begins with the fusion of a sperm cell and an ovum (egg cell).
- When sperm comes into contact with an egg, one sperm may combine with the egg.
- This fusion is called fertilisation.
- During fertilisation, the nuclei of the sperm and egg merge to form a single nucleus.
- This results in the formation of a fertilised egg, or zygote.
- Fertilisation involves the meeting of an egg cell from the mother and a sperm cell from the father.
- The new individual inherits traits from both parents.
- For example, you might notice characteristics in your siblings that resemble those of your parents.

- When fertilisation occurs inside the female body, it is known as internal fertilisation.
- Internal fertilisation happens in many animals, including humans, cows, dogs, and hens.



Fertilisation

Development of Embryo

- Fertilisation results in the formation of a zygote, which begins to develop into an embryo.
- The zygote divides repeatedly, forming a ball of cells.
- These cells group together to develop into different tissues and organs, creating the embryo.
- The embryo embeds itself into the wall of the uterus for further development.
- Inside the uterus, the embryo gradually forms body parts such as hands, legs, head, eyes, and ears.
- When the embryo has developed all identifiable body parts, it is called a foetus.
- Upon the completion of the foetus's development, the mother gives birth to a baby.

- In hens, internal fertilisation occurs, but hens do not give birth to live chicks like humans and cows.
- After fertilisation, the zygote divides and travels down the oviduct, forming protective layers around it.
- The hard shell of a hen's egg is one of these protective layers.
- Once the hard shell forms, the hen lays the egg. The embryo develops into a chick over about 3 weeks.
- The hen sits on the eggs to provide warmth, allowing the chick to develop inside the eggshell.
- Once fully developed, the chick breaks out of the eggshell.
- In animals with external fertilisation, the embryo develops outside the female body within its egg.

Viviparous and Oviparous Animals

Viviparous Animals

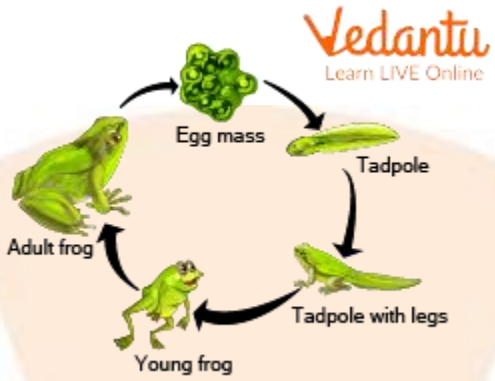
- **Give Birth to Live Young:** Viviparous animals give birth to live offspring rather than laying eggs.
- **Internal Development:** The embryo develops inside the mother’s body.
- **Examples:** Humans, cows, and dogs are viviparous animals.
- **Nourishment:** The developing embryo receives nutrients from the mother through the placenta.

Oviparous Animals

- **Lay Eggs:** Oviparous animals lay eggs, which develop and hatch outside the mother's body.
- **External Development:** The embryo develops inside the egg, which has a protective shell.
- **Examples:** Birds, reptiles, and amphibians are oviparous animals.
- **Nourishment:** The embryo gets its nutrients from the yolk inside the egg.

Young Ones to Adults

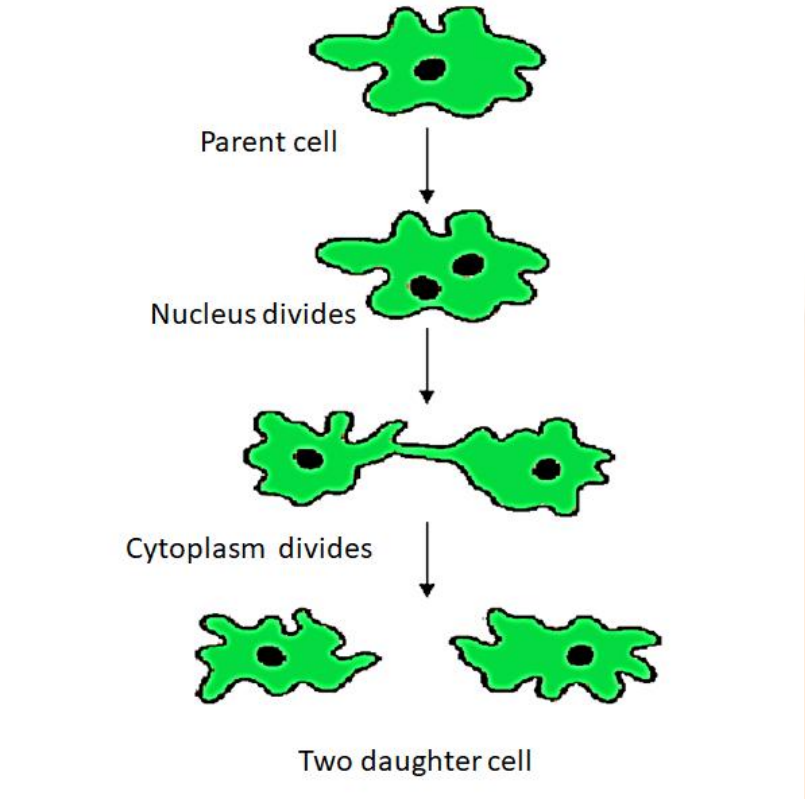
- New individuals born or hatched from eggs continue to grow until they reach adulthood.
- In some animals, the young ones look very different from the adults.
- For example, look at the chart given is a life cycle of a frog where tadpoles change into adult frogs that can jump and swim.
- This drastic change from larva to adult is called metamorphosis.
- Humans also experience changes as we grow, but unlike animals undergoing metamorphosis, we have body parts similar to those of adults from birth.



Life Cycle of a Frog

2. Asexual Reproduction: In this method, a single animal can reproduce without needing a mate. The offspring are genetically identical to the parent. This means the new animal is a clone of the original one. Examples include some insects and simple organisms like bacteria and hydra.

- In a hydra, you might see one or more bulges. These bulges are developing into new hydras and are called buds.
- Similar to how yeast forms buds, hydras also create new individuals from these buds.
- This process, where only one parent is involved, is known as asexual reproduction.
- Since new hydras develop from buds, this type of asexual reproduction is specifically called budding.
- The method of reproduction where a single parent organism splits into two identical daughter organisms is called Binary Fission.



Binary Fission in Amoeba