

CBSE Class 12 Biology Notes Chapter 1: The natural process of combining chromosomes to create new offspring is called reproduction. This is a process carried out by pre-existing living entities to maintain the stability of life.

CBSE Class 12 Biology Notes Chapter 1 covers the process of plant and animal birth, which ensures the development of new species. Because all organisms must go through senescence and finally pass away at a specific age.

CBSE Class 12 Biology Notes Chapter 1

In a biological process called **reproduction**, offspring are created that are exactly like their parents. The continuation of the species, generation after generation, depends on this event. Reproduction is commonly observed in all living organisms, ranging from single-celled organisms like amoeba to multicellular entities of the highest order, like humans. Depending on whether one or both parents participate, there are two methods of reproduction.

Necessity of Reproduction

The process of reproduction is essential to the survival of a species and, as a result, maintains the correct balance between the many biotic components in the ecosystem. A life that is thriving today would end in the absence of reproduction.

Because of the changes that result from the act of reproduction through the mixing of species (as shown in sexual reproduction), reproduction also aids in evolution.

Types of Reproduction

Asexual Reproduction

A new child is created by the involvement or participation of only single parents in this technique of reproduction. In this method, a single parent divides itself to replicate its kids, resulting in created offspring that are not only identical but also exact replicas of their parent.

The different types of asexual reproduction are as follows.

- Budding
- Fragmentation
- Binary fission
- Vegetative propagation

Vegetative Propagation

Through this kind of process, new plants can be produced without the need for the creation of seeds or spores, or other sexual structures.

Plants are propagated using a variety of vegetative elements, including the rhizome, sucker, tuber, bulb, etc. This just needs one parent and does not involve the fusing of the male and female gametes. These are categorised as artificial and natural.

Significance of Vegetative Reproduction

- When it comes to reproducing plants, vegetative reproduction is the best option for maintaining parental traits.
- It works best for plants with low levels of sexual efficiency, tiny seeds, extended dormancy periods, low seed viability, etc. This strategy also makes it easy to multiply them.
- Getting plants free of diseases can be accomplished through vegetative propagation.
- The necessary traits can be combined from two types by grafting.

Examples of asexually reproducing organisms:

Asexual reproduction is typical in:

- Creatures with only one cell, including bacteria, hydras, amoeba, yeast cells, etc. While yeast cells and amoeba multiply by budding, hydras and bacteria reproduce via binary fission.
- Some plant species reproduce by vegetative propagation, such as potatoes, ginger, sugarcane, agave, bryophyllum, etc.
- A few animal species use fragmentation in their reproduction, such as black worms and starfish.

Advantages of Asexual Reproduction:

- Since it is done by one person, locating a partner is not necessary.
- When compared to sexual reproduction, the procedure is quicker.
- Comparatively, less effort is expended.
- The fact that there is just one person involved makes the entire procedure less difficult.
- Can occur in a variety of settings.

Sexual Reproduction

When two parents of the opposite sex participate in this technique of reproduction, a new offspring is created. All multicellular species, such as birds, reptiles, dogs, cats, cattle, elephants, etc., reproduce in this way. A series of events make up the entire process of sexual reproduction, which includes:

- Pre-fertilization
- Fertilization
- Post-fertilization

Fertilization

Syngamy is the fusion of both gametes, or male and female. A diploid zygote is produced in this. We call this process "fertilisation."

The majority of fish, amphibians, and algae engage in syngamy outside of their bodies. We refer to this kind of fusing of gametes as external fertilisation. This is observed in frogs and bony fish, as they generate a great deal of offspring. exceedingly susceptible to predators, endangering their ability to survive.

In plants (such as mosses, fungi, and pteridophytes), as well as in reptiles, birds, and mammals, syngamy takes place within the body of the organism. The procedure is hence known as internal fertilisation. When the mobile male gametes arrive at the egg, they fuse with it inside the female's body.

Pollen tubes carry the immobile male gametes from seed plants to the female gametes.

Advantages of Sexual Reproduction:

- A new child is produced when two parents participate, resulting in the mixing of genes.
- Offspring that are genetically similar are generated.
- Evolutionary advances can be attributed to the increased odds of survival that come with species variation.