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Subject: Science

Chapter: Reproduction

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>> Introduction

> Reproduction is the biological process by which an organism reproduces a new individuals of the same kind.

> DNA - a group of molecules that is responsible for carrying and

> transmitting the hereditary materials or the genetic instructions from

> parents to offsprings.

> Chromatin - a genetic material or a macromolecule comprising DNA, RNA,

> and associated proteins, which constitute chromosomes in the nucleus of

> a eukaryotic cell.

> Chromosomes - a DNA molecule that consists of a part or all of the genetic

> material of an organism

> Genes - the fundamental unit of heredity.

>

>> Variation

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

> or different species.

> All sexually reproducing organisms show variations.

> Some Variations Are Useful. Ex- Human Beings

> Some Variations Are Non- Useful. Ex.- Moth

>

>> Importance Of Variations

> Variation help organisms to adapt in the changing environment.

> Variation provides stability to a species and thereby helps in evolution.

>> Types Of Reproduction

> Asexual Reproduction

> 1. Fission-

> Binary- Eugena, Paramesium, Amoeba

> Multiple- Plasmodium

> 2. Budding- Hydra

> 3. Fragmentation - Spirogyra

> 4. Regeneration- Planaria

> 5. Vegetative Propagation-

> Natural- Leave(Bhroyphullum), Stem(Potato), Root(Sweet Potato).

> Artificial- Cutting(root- raspberry, stem- rose)

> Grafting, Layering

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> Sexual Reproduction- Plant, Human Being

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>> Fission

> Unicellular organisms such as protozoans (Amoeba, Paramecium, Euglena,

> Plasmodium) reproduce by this mode of asexual reproduction.

> In fission, parent body divides into two or more daughter cells and each one

> then grows into an adult organism.

>> Budding

> Formation of a daughter individual from a small projection, the bud, arising on

> the parent body is called budding.

> For Example: Unicellular (Yeast, Bacteria) multicellular

> (Flatworms, Jellyfish, Sea anemone, Hydra)

>> Regeneration

> A number of animals have power to grow the lost

> organs of their body. This ability of organisms to

> replace their lost parts by growth is known as

> regeneration, e.g., in starfish, spiders, etc.

> Small fragments or pieces of their bodies can

> grow into complete individuals.

> For example, in Hydra and Planaria.

>> Spore Formation

> Different types of asexual spores are produced in these organisms.

> In many fungi, at the time of spore formation, a swollen structure known as

> sporangium develops at the top of fungal hypha.

> These spores are very small, light and variously coloured in different fungi.

> The spores germinate to give rise to new fungus after falling on a suitable

> substratum.

>> Sexual Reproduction

> Involves two different sexes, Male & Female.

> Each parent produces special sex cells or germ cells (gametes)

> Fusion of male and female gametes forms Zygote.

> Zygote then divides repeatedly to form multicellular organisms (by cell differentiation).

>

> Significance:

> Promotes diversity of characteristics.

> Creates a new combination of variations, which is necessary for evolution.