

Chapter 2

Lesson 1 Reproduction

All living things must reproduce. Reproduction involves the transfer of genetic material from parent to offspring.

There are 2 types of reproduction. Sexual and asexual reproduction.

Sexual Reproduction

Sexual reproduction is the production of a new organism from 2 parents.

A male and a female cell join together to make one unit called fertilization.

The fertilized cell contains genetic material from both parents. When it grows, the new organism will have characteristics from both parents.

These characteristics are called traits.

Asexual Reproduction

Asexual reproduction is the production of a new organism from a single parent.

The offspring will be identical to the parent because genetic information is not mixed.

There are organisms from all 6 kingdoms that reproduce asexually. Even the animal kingdom like

jellyfish, corals, worms, and others reproduce asexually.

How do Organisms Reproduce Asexually?

There are several types of asexual reproduction. All reproduce by making copies of parent genetic material.

- Splitting – Splitting occurs when a cell replicates its genetic material and then separates into two cells.

- Budding – Budding occurs when a small part of the parent's body grows into a tiny and complete version of the parent. Sometimes the bud breaks off and continues to grow. Coral reproduce through budding.

- Vegetative Propagation – Vegetative propagation happens when a plant produces new plants from leaves, roots, or stems. Runners are plant

stems that lie on or under the ground and sprout up as new plants.

Strawberries and centipede grass grow this way.

Some species of fish, insects, frogs, and lizards reproduce even though the male cell does not fertilize the female cell.

How do Plants and Animals Reproduce?

Plants:

Flowers are the reproductive structures of many plants. After the flower is fertilized, the egg develops into an embryo and is packaged inside a seed. The seed contains food for the embryo to live on until it is big enough to make its own food. As the seed develops, fruit grows to protect the seed.

Some plants have seeds but no flowers or fruit. They use cones for reproduction and are called conifers.

Once seeds are formed, they must be dispersed. Nature has several ways to disperse seeds.

Some are carried away by wind or water. Some are dispersed with the help of animals when they eat fruit and the seeds pass through the animal's digestive system.

Animals:

Like plants, animals that reproduce sexually develop into embryos. Some develop inside eggs.

Different types of eggs are needed for different environments. Fish and frogs lay eggs in water to prevent them from drying out. Reptiles and birds have tough shells filled with watery liquid to keep it from drying out. Eggs provide nutrients for the baby in its yolk.

The embryos of most mammals develop inside the mother and get nutrients from the mother's body.

How do Fungi Reproduce?

Yeast reproduce asexually by budding. Eventually the bud breaks off and lives as a new organism.

Multicellular fungi can also reproduce asexually when mycelium breaks off from the fungus.

Fruiting bodies are the fungal structures that produce spores which grow into new fungi. Mushrooms reproduce with fruiting bodies.

Sporangia are the structures that produce spores for some fungi like mold.

Once fully developed, the spores are released. Most fungi can produce trillions of spores but only a few will land in a favorable environment and grow.

Most fungi can also reproduce sexually.

How do Sexual and Asexual Reproduction Compare?

Asexual reproduction is convenient because it does not depend on another organism.

Sexual reproduction promotes variety in a species. The offspring are not identical to either parent. The best qualities can be passed on to each generation.