

# Plants and Animals in Different

## 1. Introduction to Habitats

All living organisms require food, shelter, oxygen, and water from their surroundings to survive.

A habitat is the natural environment where organisms live and thrive, providing essential resources.

### Examples of habitats:

**Oceans:** Home to sea turtles.

**Deserts:** Camels are adapted to extreme conditions.

**Mountains – Rhododendrons grow in cold regions.**

Biodiversity is shaped by habitats, supporting a variety of species.

Conservation of habitats is essential for sustaining biodiversity.

## 2. Classification of Habitats

**Terrestrial Habitats:** Land-based environments (forests, grasslands, deserts, mountains).

**Aquatic Habitats:** Water-based environments (oceans, rivers, lakes, ponds).

### Terrestrial Habitats

Organisms interact with land, air, and climate.

Adaptations help organisms cope with temperature fluctuations, water availability, and soil types.

#### Examples:

**Grasslands:** Lions and elephants have strong limbs and sharp senses.

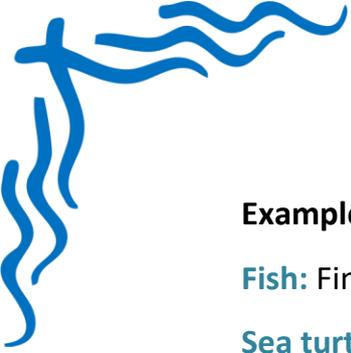
**Mountains:** Pine trees and mountain goats survive in cold, high-altitude regions.

**Deserts:** Cactus stores water, camels have adaptations to survive heat.

### Aquatic Habitats

Organisms have adaptations to live and move in water.

Aquatic habitats include both marine (oceans, seas) and freshwater (rivers, lakes, ponds) environments.



**Examples:**

**Fish:** Fins for swimming, gills for breathing underwater.

**Sea turtles:** Live in the ocean but lay eggs on land.

**Algae & seaweeds:** Provide food and oxygen for marine life.

**Coral reefs:** High biodiversity, often called the "rainforests of the sea".

### 3. Habitat and Biodiversity

Habitats provide food, shelter, and climate conditions for organisms.

Ecosystems are formed as species share habitats and depend on each other.

**Examples:**

**Forests:** Trees provide shelter for birds, insects pollinate plants.

**Ponds:** Fish feed on smaller organisms, water plants provide oxygen.

### Threats to Habitats & Conservation

**Major threats:** Deforestation, pollution, urbanization.

**Conservation strategies:**

- Establishing wildlife reserves.
- Protecting coral reefs.
- Reducing pollution to maintain ecosystems.

### 4. Adaptations in Plants and Animals

Adaptation is the ability of organisms to adjust and survive in their habitat.

Adaptations can be physical, behavioral, or migratory.

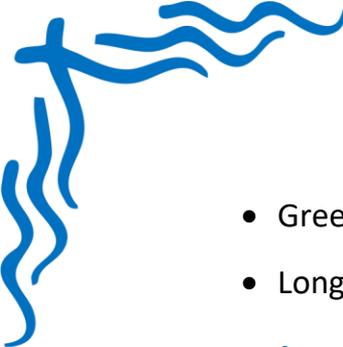
#### Types of Adaptations

- Changes in Body:** Camels store fat in humps for energy.
- Changes in Behavior:** Polar bears hibernate to conserve energy.
- Changes in Location:** Birds migrate to warmer regions in winter.

### 5. Adaptations in Deserts

**Cactus:**

- Spines instead of leaves to minimize water loss.

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- Green, spongy stems store water and perform photosynthesis.
  - Long roots absorb water from deep underground.

### Camel:

- Brown body for camouflage.
- Long eyelashes and closable nostrils protect from sandstorms.
- Hump stores fat for energy.
- Long legs keep body elevated above hot sand.
- Minimal sweating and water conservation.
- Thick lips for eating thorny plants.
- Wide padded feet for walking on soft sand.
- Cold-region camels (Ladakh) have shorter legs, two humps, and thick fur.

## 6. Adaptations in Mountains

### Mountain Plants:

- Conical shape helps snow slide off easily.
- Thick bark provides insulation.
- Needle-shaped leaves with waxy coating reduce water loss.
- Cones instead of flowers protect seeds from freezing.
- Evergreen nature enables year-round photosynthesis.
- Rhododendrons adapt to different wind conditions (shorter in Nilgiri, taller in Sikkim).

### Mountain Animals

**Thick fur and fat layers:** Yaks and snow leopards retain body heat.

**Specialized feet and hooves:** Mountain goats have rubbery hooves for grip.

**Feeding adaptations:** Yaks dig through snow for food.

**Camouflage:** Snow leopards blend into the snowy environment.

**Mountain Goat:** Strong hooves, thick fur, ability to leap long distances.

**Yak:** Dense fur, strong body, ability to dig through snow.

**Snow Leopard:** Thick patterned fur, long tail for balance.



## 7. Adaptations in Freshwater Habitats

### Freshwater Plants:

**Small roots:** Minimal need for water absorption.

**Long, hollow stems:** Lightweight and flexible in water currents.

### Leaf Adaptations

Submerged plants (Hydrilla) have ribbon-like leaves.

Floating plants (Water lily) have broad, wax-coated leaves.

Air spaces in stems – Help plants float.

#### Examples:

**Hydrilla:** Fully submerged, narrow leaves.

**Water Lily:** Floating, broad leaves.

**Lotus:** Waxy leaves and stems for floating.

### Freshwater Animals

**Fish:** Streamlined body, fins, gills, protective scales.

**Frogs:** Webbed feet for swimming, lungs for breathing, sticky tongue for catching prey.

**Insects:** Water beetles and newts adapted for swimming.

## 8. Adaptations in Marine (Ocean & Sea) Habitats

### Marine Plants

**Phytoplankton:** Float near surface, base of marine food chain.

**Seaweeds:** Perform photosynthesis in saline water.

**Holdfasts:** Anchor seaweeds to prevent them from being swept away.

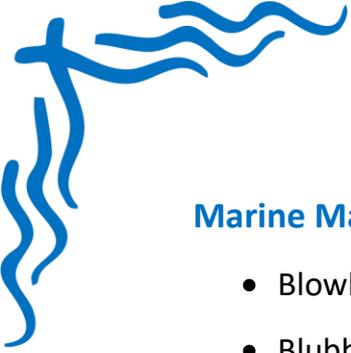
**Flexible fronds:** Move with water currents.

**Air sacs:** Help plants float and reach sunlight.

**Salt tolerance:** Special mechanisms to excrete excess salt.

### Marine Animals

**Fish:** Streamlined body, fins, gills.



### **Marine Mammals (Dolphins, Whales):**

- Blowholes for breathing.
- Blubber for insulation.
- Streamlined body for swimming.

**Mollusks:** Protective shells.

**Sea Anemones:** Use tentacles to capture prey.

**Deep-Sea Adaptations:** Bioluminescence for communication and hunting.

### **Examples:**

**Dolphins & Whales:** Use blowholes, echolocation for navigation.

**Fish:** Adapted with gills and fins.

**Crabs & Starfish:** Adapt to varying salinity and depth.