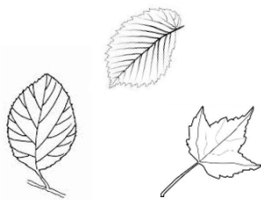


Deciduous Forest

The temperate or deciduous forest is characterized by trees that lose their leaves during part of the year. This biome has four changing seasons: winter, spring, summer, and fall. These seasons are the result of Earth's tilted axis which allows parts of the Earth to receive varying amounts of sunlight at different times of the year. The climate in these forests is fairly wet. Deciduous forests are the second-rainiest biome next to the rainforest. Precipitation in the deciduous forest falls as rain or snow depending on the season.

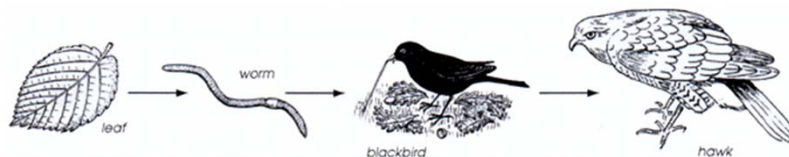


Trees and plants in the deciduous forest have special adaptations. As the seasons change, so do the leaves on the trees. The trees lose their leaves in late fall and winter. In spring and summer, the leaves grow back and are used for **photosynthesis** - the process by which plants make their own food using sunlight, water and carbon dioxide.



The broad shape of these leaves help the plants capture needed sunlight.

As the days get shorter in the fall, and the temperatures get cooler, the chlorophyll (green pigment in leaves) breaks down and the leaves turn red, yellow and orange. In winter, the leaves are dropped to protect the plant from freezing temperatures and the deciduous trees and plants go into **dormancy** (a period of inactivity).



The leaves that fall to the forest floor during the winter form a layer. This thick layer of leaves decays and enriches the soil with nutrients. **Decomposers** including fungi (such as mushrooms) and bacteria feed on the dead leaves as do earthworms and some insects. Small birds and mammals then feed on these organisms. The dead leaves (along with other producers) provide the basis for simple food chains and the complex food web found in the deciduous forest ecosystem.

Animals in deciduous forests have to adapt to changing seasons. They must be able to cope with cold winters and hot summers. Some animals **hibernate** or **migrate** during the winter to escape the cold. Others grow thick fur and/or layers of fat to help make it through the winter months. Without the protection of leaves, animals have a more difficult time hiding from **predators** in the winter. To help in hiding, some animals such as rabbits and weasels, have fur that changes color twice a year. For most of the year, their fur is brown for blending in with the forest trees, but in winter, their coats turn white to blend in with the snow.

black bear



The black bear is one animal that is well adapted to the deciduous forest. The bear has a heavy coat made up of many layers of fur to keep him warm in the winter. He also has strong jaws and long claws for climbing trees and for attacking prey. These **inherited traits** are essential adaptations because black bears often live in hollowed out trees and are **omnivores** feeding on both plant materials and on other animals. One **instinctive behavior** of the black bear is **hibernation**. This allows the bear to have a period of inactivity similar to sleeping where he doesn't have to find food in the snowy, frozen winter conditions.

Structure and Function



An owl's talons are long and sharp for snatching up prey. The woodpecker has two toes facing forward and two backward toes for climbing up and down and sideways on trees.

Many birds make the deciduous forest their home for part of the year. In spring and summer, when temperatures are mild, the birds find an abundance of food in the forests. However, when the temperatures begin to turn colder in the fall, they **migrate** to warmer areas where food is more easily found. In the spring, the birds return to nest.

Deciduous forests are very important to people. They provide areas for enjoyment as well as many **renewable resources** including food, timber and oxygen, produced from the plants, for us to breathe. Humans, however, also cause some major threats to the biome including:

- Acid rain caused by industries and vehicles damages the plants.
- Clear cutting of forest trees for lumber and for farm land results in erosion and loss of soil.
- The introduction of non-native plant and animals can upset the balance of the ecosystem when **invasive** species compete for food and space and threaten the **native** species.

Recycling paper can help save trees and conserve our forests!