LAYERS OF THE FOREST

by Michelle Heckel and Christina Vasquez, Queensborough Community College

Forests are made up of many layers. A typical forest consists of five different layers. Different types of trees grow to form these different layers. These layers enable many different types of plants and animals to live in a small area.

The first, primary layer of the forest is called the canopy. The canopy is made up of the tops of trees. These tree tops form a roof that blocks a good deal lot of light from entering the forest. Many animals, such as birds, frogs, lizards, and snakes, are found in this layer.

The next layer is the understory. This layer is made of trees that are growing to reach the canopy. The trees are smaller about 65 feet tall and have thin trunks. Some of the animals found in this layer are birds, butterflies, frogs, and snakes, as well as squirrels, raccoons, and opossums.

The third layer is the shrub layer. This layer is made up of young trees, mature shrubs, and bushes. It grows between the smaller trees of the understory and the forest floor. Shrubs can range from about knee-high to 10 feet, which means these shrubs can grow into the understory.

The layer that lies directly above the forest floor is the herbaceous layer. This layer of tree seedlings, ferns, grasses, and weeds acts as a cover to the forest floor and doesn’t receive much sunlight. The plants found in this layer bloom in early spring, before the trees begin to grow their leaves. Some of the animals that are found in this layer are rabbits, squirrels, mice, and raccoons.

The last layer is the forest floor, which contains all of the dead matter. The dead matter releases nutrients into the soil that will be used by the plants in the forest. It is also very dark in this layer due to lack of sunlight. The animals that are found in this layer include sow bugs, spiders, and earthworms.

While walking through a forest, try to identify the different layers by LOOKING AT the various plants and animals.

WHAT IS A LEAF?

The leaf is the food-producing part of a plant. It is usually a green and flattened structure attached to a stem. There are as many kinds of leaves as there are trees and plants. The stuff that makes leaves green is called chlorophyll. It captures light energy from sunlight and turns it into the chemical energy sugar in a process called photosynthesis. Using this process, plants get food and energy to live. During the shorter days of winter, leaves are exposed to less sunlight and water. This means that photosynthesis slows down and leaves produce less food and carbon dioxide. The bright green chlorophyll in the leaf also disappears which causes the leaves to change colors in the fall.

by Jung Hoon Kim
LIFESTYLES OF MAMMALS

The forest is home to many different mammals and soil animals. Thousands of little creatures live in the soil, trees, and bushes. Some mammals that you find in the forest include squirrels, chipmunks, and white-tailed deer. Some soil animals that you find in the forest include ants, centipedes, cicadas, earthworms, and snails.

SQUIRRELS live in nests in trees until warm weather arrives. They eat seeds, nuts, mushrooms, leaves, insects, worms, eggs, and small birds.

WHITE-TAILED DEER live in big open areas such as farmlands and forests. They eat various green plants, corn, nuts, buds, and small shrubs.

CHIPMUNKS live in trees, but go underground, where they store their food, in the winter. Some of the food they eat includes grains, nuts, worms, and insects.

SNAILS live in ponds, trees, and plants. They feed off algae, which are leafless plants. Some even eat other snails in order to survive.

CENTIPEDES live under stones and the bark of the trees. They eat insects, spiders, and even lizards, if the centipedes are large enough.

DID YOU KNOW?

- A SQUIRREL’S BRAIN IS ABOUT THE SIZE OF A WALNUT
- YOU CAN SEE CENTIPEDES BUT THEY CAN’T SEE YOU BECAUSE THEY ARE BLIND
- ANTS CAN CARRY UP TO 50 TIMES THEIR BODY WEIGHT
- LONG-TAILED WEASELS HAVE SHARP TEETH, WHICH THEY USE TO KILL THEIR PREY
- EARTHWORMS HAVE FIVE HEARTS

NEW YORK CITY AUDUBON RUNS PROGRAMS FOR ADULTS AND CHILDREN. LOOK IT UP AT: WWW.NYCAUDUBON.ORG.

Illustrations by Mahvish Azeem, Queensborough Community College


**ANTS** live in colonies and many types live underground. They collect food and store it for the winter. They eat other insects, sweets, and sometimes their own eggs.

**CICADAS** live underground for most of their lives. They bite the roots of plants with their *stylets* (needle-like mouthparts) to draw out liquid from the plants. They store some of this energy to use when they come out of the ground.

**EARTHWORMS** are the heroes of the underground, because they provide air and water to soil critters. They mix organic matter and break up clumps of soil, which creates spaces for air and water. The earthworms we have in New York City today are not native. They were brought here by European settlers. The native earthworms were wiped out about 20,000 years ago by glaciers which are huge sheets of ice that move over land.

**How Trees Help New York City**

*by Jeffney Adrien*

Trees are one of the most important living things in our environment. They enrich and improve our community and make life better in New York City by providing important benefits like protecting water. Urban trees capture rainfall on their leaves and branches and hold water in the dirt with their roots. They also help improve the quality of air by removing dust and they lower pollution by cleaning tons of dangerous chemicals like carbon from the air. This helps people breathe better. Trees beautify neighborhoods with different colors and flowers. And last, they provide food and shelter for many species of birds, insects, and other wildlife.

**Test Your Knowledge!**

Are these statements true or false?

1. Chipmunks store their food underground in the winter.
   - True  [ ] False  [ ]

2. Ants hate sweets.
   - True  [ ] False  [ ]

3. White-tailed deer is considered a soil animal.
   - True  [ ] False  [ ]

4. Cicadas do not store energy.
   - True  [ ] False  [ ]

**Look It Up:** Learn more about soil animals: [www.soilhealth.com/animals/](http://www.soilhealth.com/animals/)
In September 1609, Henry Hudson and his crew sailed up the Hudson River. They were the first Europeans to get a close look at the island known to natives as Mannahatta (island of many hills). In the 17th century, Manhattan's climate, dense forests, and abundant supply of fresh water provided all the resources people needed to live. Throughout the years, as more people continued to settle in Manhattan, the forests were replaced with buildings. This is how Manhattan developed into its current state. To learn more visit: www.themannahattaproject.org.