4-H Virtual Forest User's Guide
Trees: The Renewable Resource

Concept

This module will illustrate the concept of trees as a renewable resource. Students will also explore good forest stewardship practices that should be used during management to insure that trees remain a renewable and sustainable resource. There are two learning objectives: 1) trees are a renewable natural resource, and 2) good forest stewardship practices.

This module supports the following Science Standards of Learning:

Force, Motion, and Energy

6.2 d) renewable energy sources (wood, wind, hydro, geothermal, tidal, and solar)

Resources

3.10 d) conservation and resource renewal
3.11 d) renewable and nonrenewable energy resources
4.8 d) forests, soil, and land
6.9 a) management of renewable resources (water, air, soil, plant life, animal life)

Module Description

Frame 1. An introductory frame that contains the title "Trees: The Renewable Resource" and credits.

Frame 2. The module opens with an introductory frame containing images of a forester and three trees. Text reads as follows:

> "A natural resource is something obtained from nature that is useful to man. Trees, minerals, coal, fish, and oil are all natural resources. Some of these resources are special because they are also renewable.
>
> Renewable resources can be replaced after they are used.
>
> With good management, we can maintain an abundant supply of renewable natural resources, like trees and fish. Once we have used up non-renewable resources like coal, minerals, and oil, they are gone forever."

Throughout the module, the user advances to the next frame by using the "Next" button.

Frame 3. Entitled "Forest Regeneration," Frame 3 illustrates why trees are renewable. In this frame we see a tree stump and three types of forest regeneration: stump sprouts, a natural seedling, and a planted seedling. Text reads as follows:

> "Trees are a renewable resource because they grow back after they are harvested. This is also called regeneration. Hardwood trees grow back mainly from stump sprouts and from seed present in the soil, but they may be planted on rare occasions. Pine trees are usually planted, but also grow well from seed. 4-H members plant seedlings! Ask your teacher or 4-H volunteer leader about the 4-H Pine Seedling Project."
>
> "Click here to see what the trees would look like next year!"

Clicking the symbol with the mouse causes the sprouts and seedlings to grow. The growth is in proportion to how trees from these different sources and species would grow in nature. Hardwood stump sprouts grow fastest because they benefit from nutrients contained in the root system of the parent tree. Extensive root systems can extract water and nutrients from the soil just as a big tree would do. Hardwood and pine seedlings grow at a slower rate, because they must establish their own root systems.

Frame 4. Entitled "Forest Stewardship", this frame introduces the concept of forest stewardship. Forest stewardship involves managing forests for products, benefits, and values for present and future generations.

Frame 5. The final frame illustrates a working forest landscape and eight forest stewardship concepts. A forwarder carries a load of logs down a trail and across a bridge over a stream, while a deer watches from the trees. The stream flows diagonally across the frame, flanked by a forest buffer. A diversity of tree species, a forester, a corral containing a cow, and a farmhouse are among the other features occupying the frame. Red icons allow the user to click on eight different features to learn more about good forest stewardship. Each resulting pop-up contains a few sentences that describe activities forest landowners can perform to make sure trees remain a renewable, sustainable resource.

> Fence Livestock. Cattle are a renewable resource, and farmers often let their cows run loose in the woods to benefit from the cool shade. However, cattle are not good for hardwood forests. Cows will eat seedlings, compact the soil, and possibly damage tree roots with their hooves, so it is important to fence them out of the woods if you are interested in growing hardwood trees. Also, many woodland plants are poisonous to cattle.

Our Responsibility. Humans have relied upon forests for thousands of years to fuel fires for warmth, build our homes, and create useful products. With good forest stewardship, we will be able to rely on forests for thousands more.

Timber Harvesting. Trees do not live forever. Harvesting is a forest management practice that removes mature, unhealthy or poorly formed trees and results in a healthy, productive forest. It is important to avoid harmful practices like high-grading, where all the best trees are harvested and the poor quality trees are left behind.

Water Quality. Maintaining forest buffers along streams helps to keep the water cool. The buffer also keeps sediment from harvesting operations or chemicals and sediment from suburban or agricultural areas from reaching the water through surface runoff.

Wildlife Habitat. Forests provide habitat for wildlife. Different ages of forest provide different types of habitat that will be used by different wildlife species. Providing a variety of ages and timber types will encourage the maximum number of wildlife species to live in our forests.

Forest Products. Products such as notebook paper, baseball cards, lumber for building homes, pencils, books, furniture and many, many others are made from trees.

Recreation. We use trails in the woods for wildlife watching, walking, hiking, hunting, and bicycling. Many of these trails were created during forest harvesting operations. Ditches and grass seed are used to keep water from eroding these trails after work is completed.

Professional Assistance. A trained forester will help landowners manage their forests and accomplish their goals.