

LEVEL: Grades 1-3

SUBJECTS: Science, Language Arts, Environmental Science, Art, Health, Speech.

PROCESS: Through dramatization and role-playing, students will become increasingly aware of the value of fire in a healthy pine forest.

OBJECTIVES: The student will:

1. Describe the value of fire in a healthy pine forest.
2. Identify one biological need of a healthy pine forest.
3. Dramatize the succession of a pine forest.

TIMEFRAME: 1 hour.

SKILLS: Analyzing, applying, demonstrating, describing, determining cause and effect, empathizing, evaluating, inferring, listening, predicting, problem solving, role playing, synthesizing, visualizing.

MATERIALS: Shoeboxes and soda pop flats, art supplies, construction paper, materials for making dioramas.

VOCABULARY: Biological, forest floor, litter, nutrients, pine tree.



A HAPPY FOREST

OVERVIEW: Many pine forests depend upon fire to keep them healthy. Without fire, litter, or dead branches lying on the forest floor, builds up to a point that the forest becomes a "standing matchbox," ready to burn. It costs relatively little to keep a forest clean and free of this build-up, especially when controlled burns are used. If a large uncontrolled burn occurs, it may threaten houses, cities, and lives, and the cost to bring in fire fighters is very high. These costs include payment not only for people to fight the fire, but their food and housing, as well as the cost of airplanes and chemicals to fight the fire from the sky.

The best plan is to manage for fire before burns begin. To do this, people must understand the value of fire and how it is part of the health of a pine forest. A healthy forest plays many roles in its natural life cycle.

PROCEDURE:

PRE-ACTIVITY:

1. Review what a plant needs to grow. Include sun (light and heat), water (rain and snow), soil, nutrients (in the soil), and space in which to grow.

2. Review the parts of a tree--roots, stem/trunk, leaves, flowers, branches, and seeds. Discuss how a seed is a plant that hasn't grown and a tree is a plant like flowers in a garden. Instead of having a green stem, a tree has a woody stem or trunk. Ask students to stand up, hold their hands up in the air, and then shake the part on their body that could be the roots (they could stomp on the floor), trunk (shake their bodies), leaves (shake their hands), and branches (wave their arms).

3. While standing, ask students to imitate what the following would look like or sound like: sun (arms over their heads in a

half circle), rain, thunder, lightening (give someone a flashlight), fire, wind, and a deer walking. Explain they are playing roles or acting as parts of a forest.

4. Let the classroom become a forest setting. Move chairs and tables to the sides of the room, leaving approximately half of the chairs scattered around the center of the room. These chairs are litter on the forest floor.

ACTIVITY:

1. Tell students: "I will be the storyteller for the old pine forest. It has a story to tell about how it can be kept healthy and happy. The forest is very much like all of you--it likes to be healthy and happy. You will all begin as trees in this forest. Sometimes I will call your tree name (tree Julia, tree Sam, and so on) and you will then become something else, which could be the sun, the rain, the thunder, a deer, lightening, or even the wind. You will need to listen to the story so you know what to do next. When I talk about a proud tree with spreading branches what will you proud trees do? (Stand tall and hold out their arms.) Now, I'm going to begin the story of your forest but you all need to find a place to stand in the forest (move to the center of the room around the chairs)."

Storyteller: Once upon a time there was a forest with 25 (or however many students you have) trees. They were proud, tall trees with their branches out (students wave their arms). Around the roots and trunks of these trees were a lot of dead trees and branches that covered up the forest floor (the chairs). There were even dead branches stuck in the living branches of all the trees. There was a lot of crowding in the forest, and too many trees were getting sick because of it. The sun came up each day in the east (tree-child's name/sun) and moved across the forest trying to warm up the forest and reach the forest floor.

Storyteller: Trees, is the sun warming up the tops of your leaves?

Forest answers: [Yes]

Storyteller: But, forest, is the sun warming up the ground that holds the seeds for lots of new trees?

Forest answers: [No]

Storyteller: The sunlight can't get to the soil because of all the litter on the forest floor and all the dead branches in the trees. There is no place for the light to go so the sun goes away. (Sun goes away and returns to the role of a tree.)

Storyteller: One day a hungry deer comes into the forest (tree-child's name/deer) looking for food. Deer like to eat nice green leaves on your plants, but the deer is sad. It keeps looking and looking, but can it find any food?

Forest answers: [No]

Storyteller: There are no new plants growing from seeds on the forest floor. There is no sunlight warming the forest floor helping new seeds grow, and it is too crowded on the forest floor for seeds to find a place to call their own. So, what do you think the deer does?

Forest answers: [It goes away] (The deer goes away and returns to playing a tree.)

Storyteller: There is no food for the deer; the food hasn't been able to grow and leaves that are in the forest are in the tops of your trees, shaking in the wind. (Tree-child's name/wind and the leaves should be shaking.) The green leaves are out of reach of the hungry deer. The forest is sad to see the deer leave so hungry.

Storyteller: The deer goes away and so do almost all of the other animals. They can't live in a forest that doesn't have food for them to eat. They just walk out of the forest and don't come back. The forest is unhappy to be alone and not have animals to watch all day.

One day, though, a nice rain (tree-child's name/rain) falls on the forest. The rain hopes to help and tries to reach the ground to water the new seeds just waiting to grow. Can the rain reach the ground and the seeds with all of this litter on the forest floor?

Forest answers: [No]

Storyteller: So very old and wise trees in

the forest, why can't the rain reach the floor?

Forest answers: [Leaves stopped the rain from entering the forest; there was too much litter on the ground are both acceptable answers.]

Storyteller: A healthy forest is a place where lots of plants are growing. It's not crowded with many large, old dead trees and it is full of healthy, well-fed animals. Are you trees in this fine, old forest healthy?

Forest answers: [No]

Storyteller: Well, one of the old, wise trees says it is time for a storm with lightening to burn away some of the clutter. This surprises and scares the other trees. They don't understand that they need this, and they are afraid of the damage a fire can do. But the old tree says this is natural, so it calls a large eagle to its top branches. It asks the eagle to go and find a friendly storm cloud with lightening and invite it to come visit the forest. The eagle flies away, and flies, and flies until the trees can no longer see it, even as a dot in the sky.

Storyteller: Soon a storm cloud comes over and sees what has happened, and it feels sad. The cloud is wise and friendly and knows it has to help! It calls on its friend the wind, and soon the wind begins to blow (tree-child's name/wind. Students shake leaves like blowing in wind.) Thunder crashes and fills the air with booms and crashes (tree-child's name/thunder), and then lightening flashes (tree-child's name/lightening with flashlight) and lights up the sky. This goes on and on until finally lightening strikes a dead tree, and it catches on fire (tree-child's name/fire). The fire spreads to the other dead trees and then to the litter. Before long, all the dead trees have burned away. Before the storm cloud leaves, it drops some rain (tree-child's name/rain) to put out the fire and cool off the other trees. The trees in the forest sigh (class sighs) relief that the storm and fire are over and say goodbye to the storm cloud. The storm cloud leaves behind a gentle rain cloud to watch over the forest to be sure the fire doesn't start up again.

Forest answers: [Sighs] (Lightening,

thunder, rain, wind, fire become seeds and curl up on the floor. They wave goodbye to the storm cloud.)

Storyteller: Soon the rain finishes falling. Then the sun (tree-child's name/sun) returns after hearing how the cloud has helped the forest. It decides to help the forest, too-- the sun can't be outdone by the storm cloud and the wind. It goes back and forth over the forest, warming up the seeds in the wet ground. After many days what do you think happens?

Forest answers: [New trees began to grow.] (Seeds begin to stretch and sit up.)

Storyteller: After a few weeks the deer and other animals hear from the rain and the sun that the forest is getting better and very green again, so they decide to return (tree-child's name/deer). The forest is enjoying watching the animals and listening to their stories. Is the forest a healthy forest again?

Forest answers: [Yes]

Storyteller: And the forest lived happily ever after. The end.

2. Ask students to evaluate what the forest needed to grow and stay healthy. Discuss what made it possible for the new seeds to grow.
3. Ask students to predict what would have happened if the storm had not come when it did. (A fire starting in a forest with many tall dead trees could get out of control, become too hot, and destroy the entire forest instead of the dry, already dead litter.)
4. Discuss why it is so important that people do not set forests on fire by accident or on purpose. Only in very special cases with lots of planning and safety equipment do foresters do small controlled burns.
5. Have half the class make dioramas on soda pop flats or in shoeboxes showing the unhealthy forest, and the other half of the class make dioramas of the healthy forest after the fire.

ASSESSMENT:

Ask students to:

1. Identify the components of a healthy forest.
2. Describe or draw signs of an unhealthy forest. What one missing part of the forest would tell a stranger walking through it that it was not a healthy forest?
3. Identify the stages of life in the forest. (Just like us, a forest goes through many changes or stages of life. We are babies, first graders, teenagers, grownups, and eventually we die.)
4. Explain why the fire was so important to this forest.

EXTENSIONS:

1. Practice and perform this play for other classes at your school. Have your students ask the audience the assessment questions.
2. Have a forest fire poster contest at your school.
3. Invite your local forester in (almost every large city has one) to explain the value of fire as well as forest fire prevention. If you don't have a forester, call your land-grant university (agriculture university) or extension agent about locating a forester to invite to the class. The forester can also talk about forestry as a career.
4. Visit a local forest and determine how healthy it is. Apply the experiences from the dramatization and observe activities and presence of animals, forest litter, new plant growth, and general health of the forest. Remove some of the litter and look closely at the soil for signs of seeds and growth from seeds.

