Plant Personification

Grade: K-2
Time: 1 class period

Lesson #P2:

How do trees function as part of a forest system?

Overview:
Students use movement to enact the life of a tree.

Essential Questions:
How do trees grow?
How do animals use trees?

Contents:

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Overview:
Students use movement to enact the life of a tree.

Essential Questions:
How do trees grow?
How do animals use trees?

Assessment
Can students:
Explain things that happen during the life cycle of a tree?

Vocabulary

- seed
- sprout
- root
- rootlet
- vibrate
- Fungi
- woodpecker

AAAS Benchmarks for Science Literacy
By the end of 2nd Grade students should know that:
Animals eat plants or other animals for food and may also use plants (or even other animals) for shelter and nesting.

Teacher Information and Procedure

Prior knowledge for students: none

Materials needed: none

What to do in advance: no advance preparation needed

What to do during the lesson:

Gear up:
Ask students if trees are alive. How do they know? (They grow.) How are trees born? (From a seed.) Do they die? (Yes, but they can live a long time.)

Explore:
Ask students to imitate your movements as you enact the life of a tree.

- Curl up in a tight ball---you're a seed.
- Uncurl and kneel---you've sprouted.
- Stick up one arm (fist clenched)--you've grown a branch.
- Stick up the other arm---you've grown another branch.
- Wiggle your fingers---you grow lots of leaves.
- Stand up (feet together)---you grow tall.
- Spread feet apart---you spread out lots of roots.
- Wiggle your toes---you grow lots of little roots (rootlets).
- Start scratching all over---insects and fungi attack you.
- Make a loud noise (kchhhhh!)---you get hit by lightning and lose a limb.
- Smile and sigh (ahhhhh!)---you become a home for wildlife in your old age.
- Make a hammering noise (knock, knock, knock) and vibrate--- woodpeckers peck into your dead wood.
- Make a creaking sound and fall down---you blow down in a storm.
- Stick up one arm---a new seed sprouts from your rotting wood.

Generalize:
Ask students: Can a tree really smile, move its branches, and wiggle? What were some of the things that happened to the tree? Do all of those things happen to all trees? What do trees need to grow? What would happen if trees did not have water? Sunlight? Soil? How do animals use the tree?

Try the dramatization one or two more times but change the events slightly. At different points, ask students: "What happens next?"

Assess:
Have students tell, write, or draw the story of a tree.

Extensions, adaptations, and more resources:

- Take a walk outside and look for examples of different events in a tree's life cycle. Look for ways that animals are using trees.
- Make a class "Tree Life Cycle" by having students draw pictures of different stages of a tree's life and then arranging them in a circle on the wall.

Background

One of the best ways to learn about trees is to look at their life history. Trees, like all living things, have a life cycle that includes birth, growth, injury and disease, aging, and death. As trees go from birth to death, their physical form changes, as well as their role in the forest ecosystem.

You can learn about past changes in environmental conditions by looking at the growth rings in a cross section of a tree. Even more can be learned about the tree's life cycle by observing the tree from birth as it grows and develops throughout its life.

Most trees begin as seeds. Generally, trees are put into flowering and nonflowering categories. The angiosperms are flowering plants, including wildflowers, shrubs, and many trees. Insects pollinate angiosperms, bats, birds, and the wind. Plants that have flowers also protect their seeds inside a fruit. Maple, oak, and all other broad-leaved trees are angiosperms. Gymnosperms (from Latin "gymno-," meaning "naked") have seeds that are not enclosed in fruit or flowers. Rather, most gymnosperms produce their seeds in cones and are pollinated by the wind. The most common types of gymnosperms are the cone-bearers, or conifers, like redwoods, firs, pines, and other trees with needle-like leaves.

If a seed lands in an area with favorable soil, climate, and nutrient conditions, it will germinate (some remain dormant for long periods before sprouting). Usually, many more seeds will be produced than can possibly survive. Most seeds will be destroyed by fungi or other decomposers, or eaten by birds or mammals, leaving only a few sprouts to survive and become mature members of the forest community.

As part of the under story, young saplings must compete with other trees and plants for sunlight, nutrients, water, and space. In dense forests, many young trees must wait for years for older trees to fall and leave openings in the canopy for them to grow into.

The length of time it takes a tree to reach maturity depends on the species of tree. Trees have many different roles in the forest community depending on their age and size. Their leaves, bark, seeds, flowers, fruit, and roots provide food for many kinds of animals. Trees also provide roosts, shade and shelter to many living things. For example, holes in older trees and around their roots provide shelters for nests and dens.

Like all living things, trees are subject to disease and injury. Physical damage may not kill the tree, but may provide holes and openings in which animals and insects can live and feed. Eventually, trees weakened by injury and disease will die, fall down, and be decomposed. When they die, trees return their nutrients and other elements back into the soil to recycle through the forest ecosystem.

SPEAKING "SCIENCE"

seed…n

sprout…n

root…n

rootlet…n

vibrate…v

fungi…n

woodpecker…n