Comparing Conifer Hardiness

Science | Literacy

Grade Level
4-6

Length of Lesson
30 minutes for initial set up; 10-15 minutes for observations during 1-2 week period

Objective
By the end of this lesson, students will have a better understanding of the toughness of coniferous trees.

Materials Needed
- Real pine branches*
- Plastic cups
- Masking tape
- Markers
- Variety of liquids for testing

Standards
Common Core
CCSS.ELA-Literacy.RI.4.3; RI.4.4; RI.4.6; RI.4.7; RI.5.3; RST.6-8.3; RST.6-8.7; RST.6-8.9

NGSS
3-ESS2-2; 4-LS1-1; 5-LS1-1; MS-LS1-4, MS-LS1-6-7

*Use any type of coniferous tree that is available to you.

Lesson Summary
This lesson is designed to give students a better look at the hardiness of coniferous trees! Coniferous trees have adapted to winter weather and do not lose their leaves during the winter season. What type of liquid will help the pine branches stay alive the longest after being picked?

Suggested Sequence of Events:
1. Set Up: Cut enough pine branches for each group to have four or five, 1-2 inch branches. Liquids for testing can be anything. Here are some of our suggested options: water, sugar water, salt water, vinegar, cooking oil, or coffee. You can have every group use the same liquids or let them choose which they would like to test. Make sure each group has an additional cup for their control, which should remain empty of any liquids and only have a pine branch inside.
2. Read "Pick a Pine Tree" by Patricia Toht to snag student interest.
3. Read through the AITC Tree Ag Mag to learn more about trees! Interactive online versions can be found on our website.
4. Complete the activity following the procedures:
    - Split students into small groups of two to three.
    - Give each group enough cups to complete the experiment. Have them cut a piece of masking tape for each cup and use the marker to label their group name and what liquid will go into each cup.
        - Make sure to label one cup "control."
    - Have students carefully pour a half inch of each liquid into the correctly labeled cups.
    - While they are pouring their liquids, hand out their pine branches. Once the liquids are poured, have them place one branch in each cup.
    - Have students record their observations of each branch and then place the cups out of the way to sit. They can also write their hypothesis on how long it will take before the branches begin to die in each liquid. Then, every few days, have students record their observations of each branch.
4. Whole class discussion and reflection of activity.

TEACHER RESOURCES

Extension Ideas:

- Turn this into a scientific inquiry experiment and have students test different types of coniferous trees in their chosen liquids or give each group a different type of coniferous tree to test. Take it a step further and test types of deciduous tree leaves to compare and contrast their hardiness.
- Compare and contrast coniferous trees and deciduous trees.
    - Read "The Tree Book for Kids and Their Grown Ups" by Gina Ingoglia to pair with these comparisons.
- Look at a map and have students mark the geographic locations of where evergreen trees grow.
- Discuss why it's important to study the effects of materials on plants. How can that relate to your students? To agriculture?
- Take a field trip to an evergreen tree farm and learn about what it takes to raise trees.
- Invite a tree farmer into your classroom to talk to the kids about tree farming. Have students prepare questions ahead of time.
- Learn about how beneficial conifers are to their environment. What bugs and animals rely on these trees?
- Research which coniferous trees are the oldest in the world! How have they been able to survive this long?
    - Giant sequoia, coastal redwood, and bristlecone pine are the oldest, in that order. Amazingly, all three grow in the United States! — *Source: NAITC*
    - Talk about how conifers have adapted to survive all seasons. Why is this beneficial? Have students pick an adaptation to write about.
    - Read "Tall, Tall Tree" by Anthony D. Fredericks to learn more about the coastal redwoods in California.
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!