



Air Cleaning Department

Lesson 1 - Why We Need Trees!

Essential Questions:

What cleans my air?

What do trees need to survive?

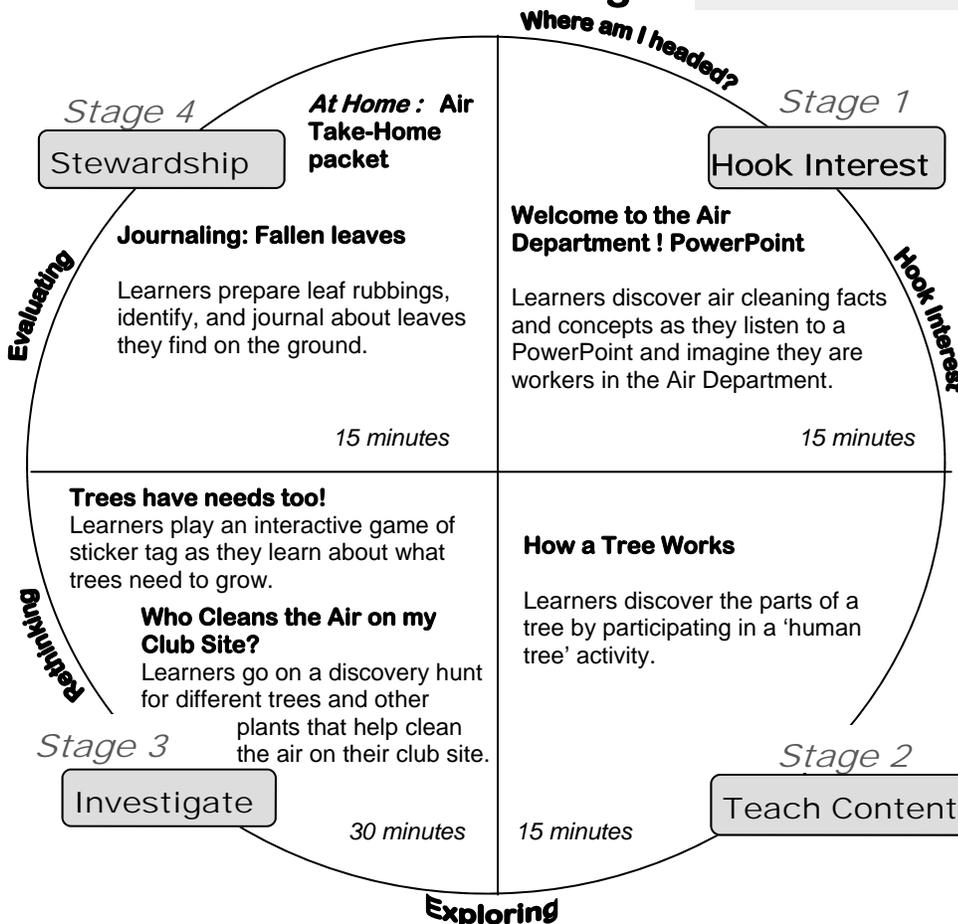
At a Glance:

An interactive presentation (PowerPoint & dramatization) hooks learner interest and concern for the Air Cleaning Department. The parts of a tree are explored by making a human tree. Learners play a game of tag to understand what trees need to survive. Next they discover trees and other plants on their club site to learn who cleans their air through a discovery hunt. Finally, learners identify trees by preparing leaf rubbings and journaling about a tree on their club site.

Concepts:

- Trees provide many things for humans and other organisms.
- Plants act as air filters, cleaning the air of harmful chemicals and particulates. This is a byproduct of photosynthesis.
- Trees are made up of complex parts that work together to help a tree function. Trees need water, nutrients, and sun to grow.
- Man-made pollutants, caused by energy demands of modern industrial society (automobiles, power plants), currently equal or exceed the amount of natural pollutants entering the atmosphere from all other sources.
- The Air Department can rid the air of many pollutants but an increase in pollutants and deforestation make it difficult for this Department to accomplish its work.

Planet Caring



Objectives

Learners ...

- 1) display curiosity about the major concepts related to the Air Cleaning Department.
- 2) describe the parts of a tree.
- 3) explain how each part functions or works.
- 4) state three things trees need to grow and survive.
- 5) describe how annual tree rings relate to various environmental conditions.
- 6) relate competition and human development to tree survival.
- 7) name four reasons why we need trees.
- 8) identify four different types/forms of trees.
- 9) explore creative aspects of journaling.
- 10) discover 3 different types of leaves.
- 11) identify trees according to fallen leaves.

Planet Knowing

PROCEDURES IN BRIEF: Lesson 1—Why We Need Trees!

Stage 1. Welcome to the Air Cleaning Department! *PowerPoint or Dramatization*

Procedure:

1. Explain that the Air Cleaning Department is one of many eco-service departments that make up every ecosystem on earth. Many organisms live and work in this department. Show learners the Air Cleaning eco-service worker cards. Briefly introduce the 'worker' on each card. Ask children if they have seen any of them at our club site. What job do these plants do?
2. Present the PowerPoint presentation. It introduces the major concepts of the Air Cleaning Department as follows:
 - Trees provide many things for humans and other organisms.
 - Plants act as air filters, cleaning the air of harmful chemicals and particulates. This is a byproduct of photosynthesis.
 - Man-made pollutants, caused by the energy demands of modern industrial society (automobiles, power plants), currently equal or exceed the amount of natural pollutants entering the atmosphere from all other sources
 - The Air Department can rid the air of many pollutants but an increase in pollutants and deforestation make it difficult for this Department to accomplish its work.
3. (AT SLIDE 9) Guided imagery: Everyone stand up and hold your arms out like the limbs of a tree. Close your eyes and imagine yourself as a tree. Take a deep breath in, then out. Take a moment to thank trees and other plants for their gifts to us (such as oxygen, food, wood, etc).

Supplies

- PowerPoint on CD
- LDC projector
- Monitor
- **Eco-service Worker Cards**

Stage 2. How a Tree Works

Procedure: *In depth activity, see manual for full write-up*

1. Learners learn about the parts of a tree by acting them out and building a "human tree". Before building the "human tree" discuss the parts of a tree.
2. Pass out tree "cookies" for learners to examine the interior of a tree.
3. The activity is written for 30 students—adapt for your group size. Building the "human tree".
 - a. **heartwood(1)** holds his/her arms up to show muscles; chant "I support, I support."
 - b. **taproot(1)** sits down at the foot of the heartwood student; makes slurping noises.
 - c. **lateral roots(2)** lies down on their backs spreading out from the taproot with their feet toward the heartwood; make slurping sounds.
 - d. **sapwood/xylem(2)** kids join hands to make a ring around the heartwood; face in toward the heartwood; pretend they are drawing water up from the roots by lowering their hands, still joined then raising them above their heads, and saying "whoosh, whoosh".
 - e. **cambium(4)** kids join hands around the sapwood; chant, "We make new cells, we make new cells."
 - f. **phloem(8)** kids join hands around the cambium; pretend they are transporting food down from the leaves by first holding their hands above their heads, then lowering them, then raising them again; chant "Food to the tree, food to the tree."
 - g. **outer bark(12)** form a circle around the entire tree, facing outward and holding hands. They should growl and pose like football players to defend the tree.

Supplies

- slips of paper with the names of tree parts
- cross section of a tree diagram
- tree "cookies"

Stage 3. Trees Have Needs Too!

Procedure:

Part 1: Have learners draw a tree cookie after explaining facts about the growth rings of a tree cross-section and discussing what affects tree growth.

Part 2: What a Tree Needs

1. Explain to the learners that they are going to be trees and will be trying to obtain all their tree needs: water, nutrients, and sun. These needs will be represented by colored stickers: blue for water, green for nutrients, and yellow for sun.
2. Place 2 or 3 stickers on each learners back.
3. The object of the game is for each learner (or tree) to have one of each color sticker, representing the tree-needs, on the front of their shirts at the end of the round. Learners are to run around and try to take the stickers off other learners' backs. When a sticker is taken, they are to place it on the front of their shirt and it cannot be taken off. If all three needs are obtained, the learner may stand 'majestic' with their arms spread overhead like a tree. If they still have a sticker on their back, it may not be taken at this point. End the game when most learners have obtained their needs and are standing 'majestic'.
4. Other rounds may be played by reducing the number of one color sticker to represent different environmental conditions.

Who Cleans the Air on my Club Site?

1. Discuss why we need trees.
2. Tell children that they will look for some interesting and favorite trees on a tree hunt. Hand out a Tree Hunt worksheet to each learner. Tell the learners to make a check mark next to each tree they find.

Supplies

- paper plates
- crayons
- green, yellow, and blue circles or dot stickers
- *Who Cleans the Air on my Club Site?* worksheet

Stage 4. Fallen Leaves *Journaling*

Procedure:

1. Discuss why trees lose their leaves (to save energy and help survive the winter months).
2. Give a brief overview of the 'Fallen Leaves' journal entry.
3. Learners will need to walk around and explore the area before starting their journal writing. Allow learners to find a quiet place outside with their journals and/or 'Fallen Leaves' worksheet. To start, have learners record the date, time, and surroundings of their journal entry.
4. Give learners time to read through and complete the journaling activity (15-20 minutes).
5. Gather learners back together and allow those who want to share to discuss their journal entries.

Supplies

- Journal or 'Fallen Leaves' worksheet
- Pencil/pen
- Crayons
- Tree ID field guides (optional)

