

**Activity: Tree Trek**

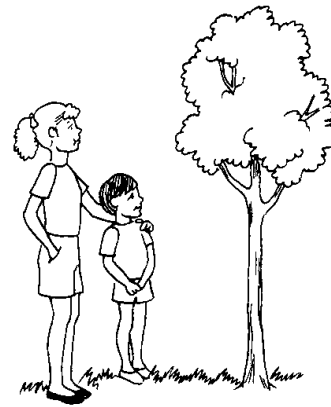
**Grade Level:** Grade 3

**Major Emphasis:** Trees and the Effect of Seasons

**Major Curriculum Area:** Science

**Related Curriculum Areas:**

- Refer to Outdoor Education Curriculum Matrix 3-5
- Language Arts
- Mathematics
- Human Relations



**Program Indicator:**

The student will be able to explain how seasons effect deciduous and non-deciduous plants.

**Student Outcomes:** The student will:

1. describe the physical characteristics of deciduous and evergreen trees during a particular season by collecting data using scientific instruments. **(DL2&4)**
2. compare the physical characteristics of deciduous and evergreen trees to determine seasonal effects. **(DL3)**

**Readiness:**

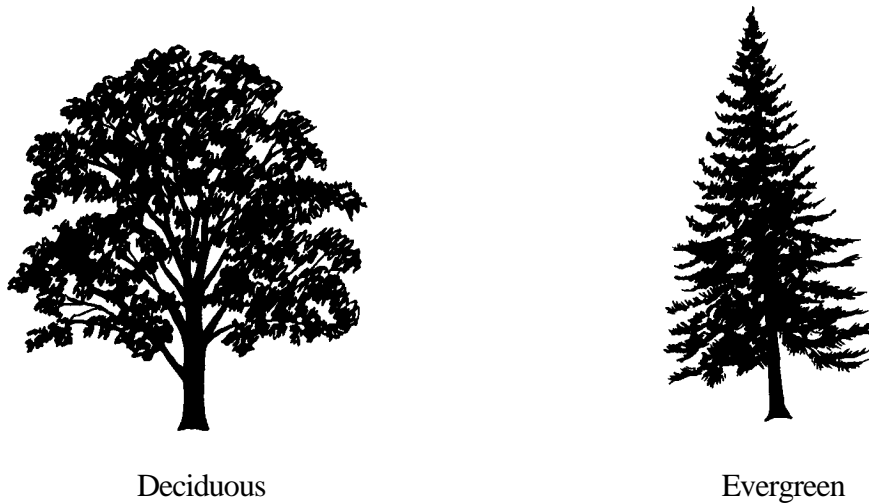
1. Introduce vocabulary:  
deciduous                      crown                      calipers  
evergreen                      diameter                      circumference  
understory                      average                      plant parts/function  
canopy
2. Draw and label the parts of a tree.
3. Discuss seasonal changes.
4. Practice using measuring tools: measuring tape, thermometer, calipers.
5. Introduce how to measure a tree crown. Refer to Supplement A.
6. Refer to science units, "Seasons/Deciduous Trees."

**Materials:**

- |                   |                    |                         |
|-------------------|--------------------|-------------------------|
| plain paper       | clipboards         | 10 foot measuring tape  |
| soil thermometers | rubber leaf prints | 100 foot measuring tape |
| air thermometers  | metric slide       | Tree Comparison Chart   |
| trowels           | bow calipers       | Supplements A,B,C,D&E   |
| magnifiers        | easels             | Tree Shapes Chart       |
| crayons           | erasable markers   | Tree Habitat Chart      |

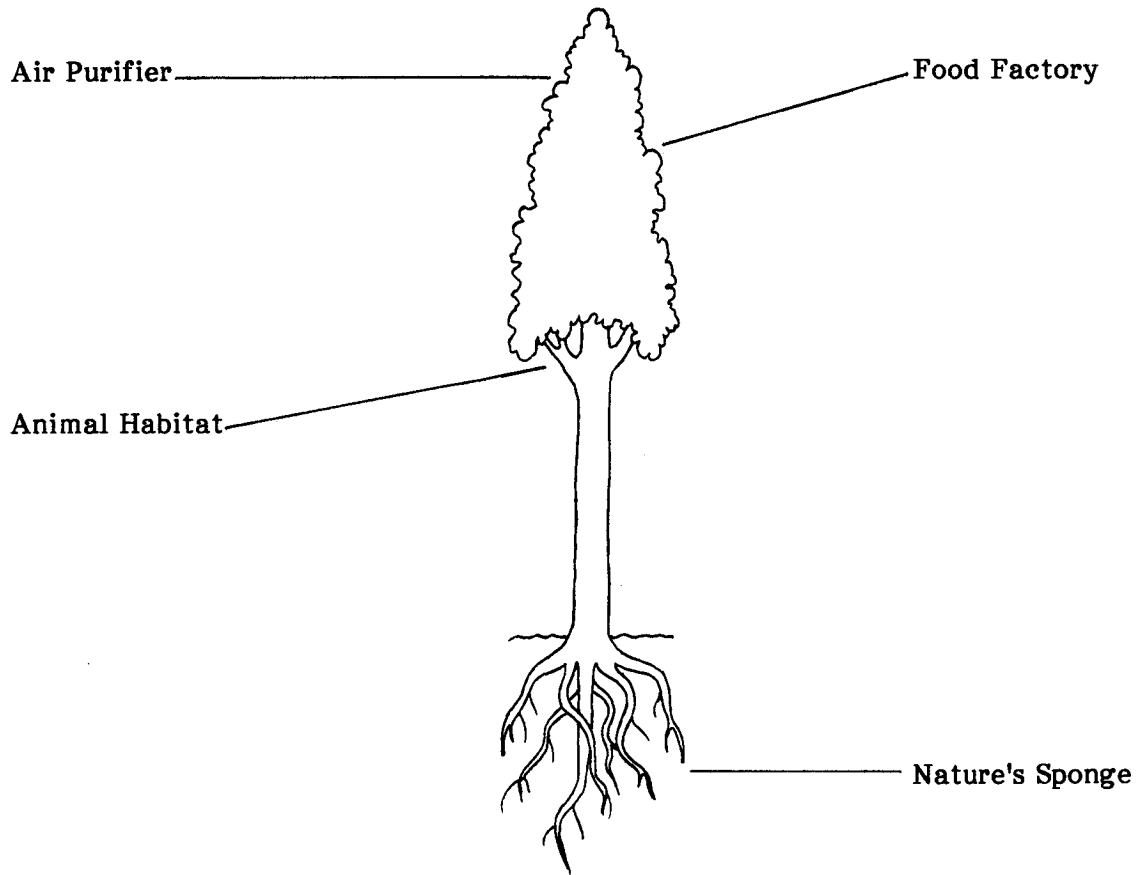
## Procedures:

1. Select an area in which deciduous and evergreen trees are in close proximity to each other.
2. Divide into 2 groups. Assign Group 1 a deciduous tree of known kind and Group 2 an evergreen tree of known kind.
3. Locate the different parts of the tree that include: leaves, branches, crown, trunk and roots. Refer to Supplement A for more tree crown information.
4. Explain the “Tree Data Sheet” to the students. Review how to use the measuring tools so students will be able to measure and make observations about their trees. Students should work together in groups to fill out the data sheet. Choose one from each group to be the recorder. Refer to Supplement B.
  - a. Use the “Tree Shapes Chart” to aid the students in recognizing their particular tree shape. Refer to Supplement C.
  - b. Use the “My Tree” sheet for leaf and bark rubbings of their particular tree. Refer to Supplement D.



**Figure 1: Tree Shapes**

5. Bring both groups together again. Groups share their observations concerning their specific tree. Use Supplement E, “Tree Comparison Chart,” to report their findings.
6. Groups compare the similarities and differences found between deciduous and evergreen trees.
7. Discuss what changes they would expect to find in their tree as seasons change.
8. Refer to Figure 2 and discuss how trees benefit the environment:
  - a. Nature’s Sponge; trees absorb water and prevent erosion.
  - b. Air Purifier; trees give off oxygen and take in carbon dioxide.
  - c. Animal Habitat; trees provide homes for several kinds of animals. Refer to the “Tree Habitat Chart.”
  - d. Food Factory; trees use sunlight and water to make food for people and animals.



**Figure 2: The Role of a Tree in the Environment**

9. In the event of inclement weather:
  - a. Divide the class into two groups.
  - b. The instructor will choose a specific deciduous and evergreen tree and supply each group with bark, rubber leaf prints and color pictures of the tree.
  - c. Measurements may be deleted. However, the instruments and techniques can be demonstrated using a volunteer to act as the tree (i.e. Tree Canopy = volunteer with arms stretched out to each side, etc.).

**Summary:** To end this activity, ask the following questions: **(DL3&4)**

1. How can you tell the difference between an evergreen and deciduous tree?
2. What seasonal changes does an evergreen tree go through?
3. What tools did you use to gather tree data?
4. Why are trees important to the environment?

**Follow-Up:**

1. Complete a comparison chart of tree data. **(DL3)**
2. Adopt a tree at your school. Refer to Project Learning Tree, NatureScope: "Trees are Terrific" and A Teacher's Guide to Celebrating Arbor Day: "Adopt-A-Tree." **(DL5)**
3. Research information in your media center regarding utilization of your tree. **(DL2)**
4. Make a collage of the bark and leaf rubbings. **(DL2&5)**

**Extension Activities:**

1. View "The Lorax." Use the discussion questions in NatureScope: Trees are Terrific, pp. 53-54.
2. Participate in a tree planting activity at your school or at one of the outdoor education centers.
3. Participate in the seedling program sponsored by the Maryland Department of Natural Resources.
4. Create a leaf collection.
5. Identify the trees on your school property.
6. Plan and implement a special Arbor Day celebration. Refer to A Teacher's Guide to Celebrating Arbor Day.
7. Refer to NatureScope: Rain Forests: Tropical Treasures, pp. 34-39 and p. 45 for a story on Pygmies and their way of life. **(MC)**
8. Refer to NatureScope: Rain Forests: Tropical Treasures, pp. 55-62 for information on saving the rain forest. **(MC)**
9. Refer to NatureScope: Trees are Terrific, pp. 62-67 for ways trees are important in our lives.
10. Refer to Arbor Day Guidebook of Activities, p. 29 for the activity "Adopt-A-Tree."

**Teacher Resources:**

## Books:

- \*A Teacher's Guide to Celebrating Arbor Day, Outdoor Education Program.
- \*Identify Trees and Shrubs by Their Leaves, Knobel, Edward, 582.16 KNO.
- \*Illustrated Guide to Trees and Shrubs, Graves, Arthur, 582.16 GRA.
- \*Maryland Leaf Key, Maryland Cooperative Extension Service.
- \*Master Tree Finder, Watts, May Theilgaard, 582.16 W.
- \*NatureScope: Trees are Terrific, National Wildlife Federation.
- \*NatureScope: Rain Forests: Tropical Treasures, National Wildlife Federation.
- \*Trees, Zim, Herbert S. and Martin, Alexander C.

- \*Teacher’s Guide for the Green Shores Arbor Day Distribution of Pine Seedlings, Department of Natural Resources.
- \*Teacher’s Guide for Arbor Day Distribution of Pine Seedlings, Department of Natural Resources.
- \*Arbor Day Guidebook of Activities, Outdoor Education Program.

Charts:

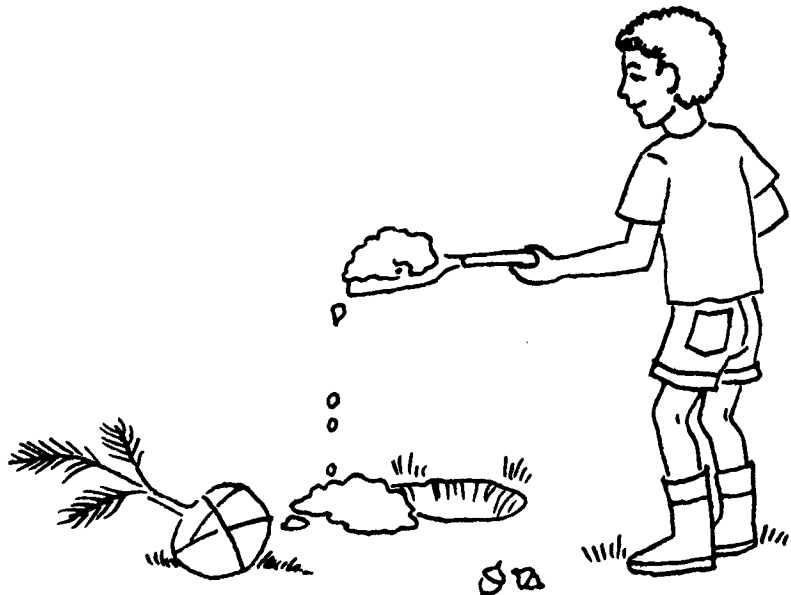
- \* “Tree Comparison Chart,” Outdoor Education Program, Anne Arundel County Public Schools.
- \* “Tree Shapes Chart,” Outdoor Education Program, Anne Arundel County Public Schools.
- \* “Tree Habitat Chart,” Outdoor Education Program, Anne Arundel County Public Schools.

Film/Video:

- \* “The Lorax,” Sues.

Filmstrip/Kits:

- \* “Learn the Trees,” 582 LEA.
- \* “This Unique Bit of Life-Trees and Our Environment,” 623.9 THI.



## Tree Crown Measurement

### Introduction

The crown spread of a tree is the distance its branches spread away from its trunk.

### Procedure

1. Have students determine which branch sticks out the farthest.
2. Have one student stand directly under its outer tip.
3. Have another student stand directly under the tip of the longest branch on the opposite side of the tree.
4. Have the students face the tree.
5. Have one student take one or two steps to the left and the other student take one or two step to the right. This removes the tree trunk from between them.
6. Have the remaining students in the group measure the distance between these two students.
7. Average the distance to the nearest foot and record the data.

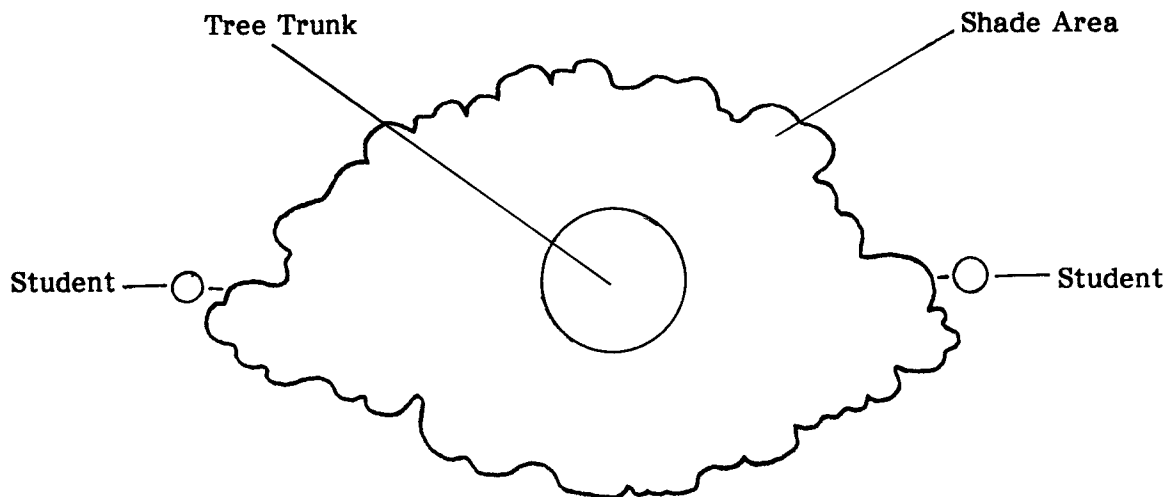


Figure 3: Measuring a Tree Crown

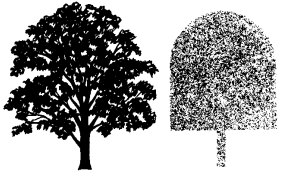


## Tree Data

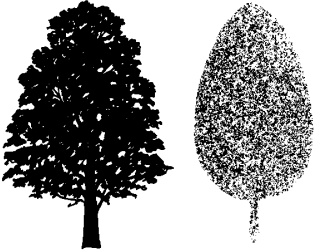
1. What is the name of your tree? \_\_\_\_\_
2. Is your tree part of the canopy or understory? \_\_\_\_\_
3. What season are we in? \_\_\_\_\_
4. Record the following:
  - ♣ Soil Temperature \_\_\_\_\_ degrees (soil thermometer)
  - ♣ Air Temperature \_\_\_\_\_ degrees (air thermometer)
  - ♣ Tree Crown \_\_\_\_\_ feet (100 foot tape)
  - ♣ Tree Diameter \_\_\_\_\_ inches (bow calipers)
5. Hug your tree. Do your arms fit all the way around it? \_\_\_\_\_
  - ♣ Tree Circumference \_\_\_\_\_ inches (10 foot tape)
6. What silhouette number closely matches your tree shape? \_\_\_\_\_
7. What is the color of the tree's bark? \_\_\_\_\_
8. Feel the bark. Make a bark rubbing.
9. Are there leaves on your tree? \_\_\_\_\_
10. If there are leaves, sketch one of the leaves or do a leaf rubbing.
11. What color are the leaves? \_\_\_\_\_
12. What do the leaves on the forest floor look like? \_\_\_\_\_
13. Investigate the material making up the forest floor using a trowel and hand lens. List as many of the objects as you can on the back.
14. Make a list of the objects found on your tree such as marks, galls, fungi, lichen and moss.
15. Make a list of animals or signs of animals using your tree.
16. Can you find a bud, seed or fruit on your tree? \_\_\_\_\_
17. Sketch what you think your tree will look like in another season.

### Tree Shapes

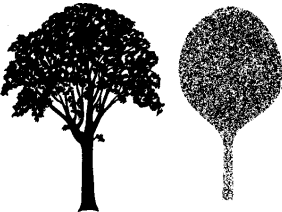
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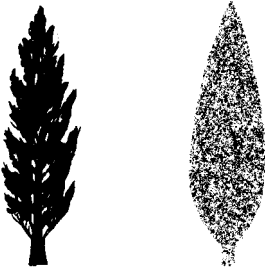
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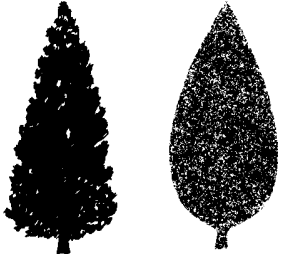
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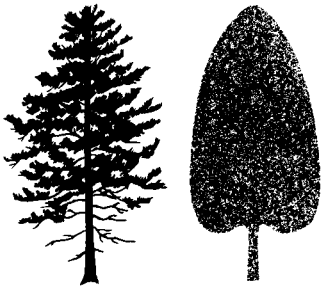
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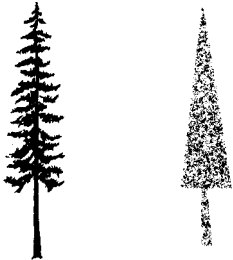
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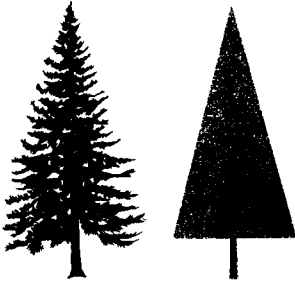
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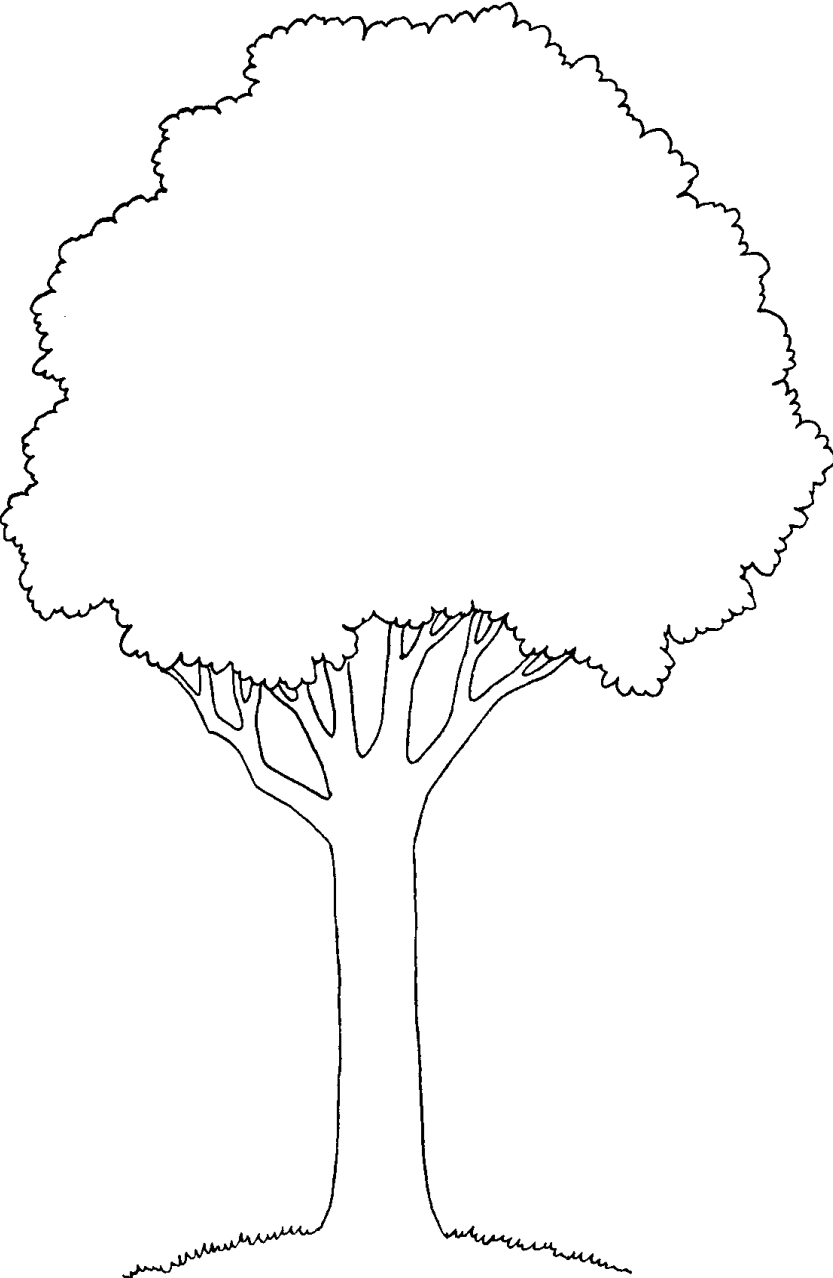
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**My Tree**

_____	_____	Deciduous or Evergreen
<b>Tree Name</b>	<b>Season</b>	<b>Type of Tree</b> ( <i>Circle one</i> )

**Leaf Rub or Sketch**



**Bark Rub**

### Tree Comparison Chart



Group 1 (Deciduous)	Observation	Group 2 (Evergreen)
	1. Tree Name	
	2. Soil Temperature	
	3. Air Temperature	
	4. Crown Diameter	
	5. Tree Diameter (chest height)	
	6. Trunk Circumference	
	7. Leaf Shape	
	8. Leaf Texture	
	9. Tree Bark Texture	
	10. Tree Bark Color	
	11. Overall Tree Shape	
	12. Expected Changes: a. Spring b. Summer c. Fall d. Winter	