**The Urban Forest and Mapping in the Park**
**By Gerilyn Nichols**

**Overview:** This lesson introduces student to the concept of an urban forest and to basic mapping skills. In groups, students will observe and record data on three trees in a local park. Prior to this lesson, students will have learned how to use a compass, hypsometer and pacing. Students will map the location of the trees and research the trees. Each group will synthesize the new information, develop and present their predictions about the trees in the park.

**Geographic Questions:**
Where are the trees in the park located and what is their purpose?
Are the species of trees located in the park appropriate for this area?

**Connection to the Curriculum:** The lesson is preparation for on-site field work in either science or geography.

**National Geography Standards:**

#1 How to use maps and other geographic representations, tools and technologies to acquire, process and report information from a spatial perspective.

#14 How human actions modify the physical environment.

Geographic Skills would include Acquiring Geographic Information and Organizing Geographic Information.

**Oregon State Content Standards and Benchmarks:**

Life Science: Diversity/Interdependence, Benchmark 3

Science and Technology: Understand the process of technological design to solve problems and meet needs.

**Grade Levels:** Middle School $6^{th}$, $7^{th}$ or $8^{th}$. The lesson can be modified to other grade levels.

**Objectives:** Students will:

- Visit the selected site and make observations.
- Gather data on size, shape, or distinctive characteristics of selected trees.
- Present their findings to another group of students.
- Locate and map the location of trees using data provided by another group.
- Research information on the tree species mapped.
- Evaluate whether or those those trees are appropriate for that particular area.
- Present group findings to the class

**Materials:** Each group will need a compass, hypsometer, flagging, copies of handouts and a rough map of the park area with the trees locations marked without tree names. One master map with the tree names labeled identified to post in the classroom.

**Presentation Steps:**

*1) Anticipatory set:* The day before, take students out for an initial look at a park setting and observe the different types of trees. Discuss with students the different shapes of the trees and how the trees enhance the environment in the park. Discuss with the class what they consider to be an urban forest.

*2) Activities:*

- Explain to the class that they will be working on their observation, recording, orientation and mapping skills.
- Tell the students that they will be mapping the trees based on information provided by another team.
- Set up the activity by going over the activity sheets. Emphasize the importance of the correct starting point.
- Divide students into groups of three. Explain each team will be observing, collecting and recording the data about three different tree species.
- Review steps for observing, collecting and recording data. Emphasize the need for accuracy.

- Each observed tree should be flagged so that no other group will duplicate the data.
- Each team will then be map the three selected trees from another team's information.
- Student groups will research information about their three selected trees online.

**Assessment:**

Students will work in teams to make a poster presentation about their selected trees in the urban forest and predict how their trees will survive in the park micro-climate. Each group presents their assessment of the trees in the park.

Wrap up would be a group discussion on urban forestry and their importance.

**Extensions:** Students may:

- Map the park
- Do a tree inventory
- Make a master plan of the park and present it to city officials
- Calculate the value of the trees in board feet

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**Team Members names_____**

**Mapping Teams Names_____**

**PERIOD_____ DATE_____**

**Goals:** **Using your observation, pacing and orienteering skills write out directions that can be followed by another team of students.**

**Map out the location of three species of trees from written directions of another team.**

**Research the three identified trees online. Describe the environmental conditions required for these trees. Predict how the trees will survive in the park and why these trees are important to the park.**

**Step one: Record your starting position here (be specific):**

**_____**

***Remember to mark each tree you have observed so no other group duplicating your data.***

**Step two:** **Find the bearing and pace out the distance from the door to the first tree.**

**Bearing_____**
**Distance_____**
**Height of Tree_____**
**Shape of Tree_____**

**Leaf description_____**
**_____**
**Other identifying features_____**
**_____**

**Step three: Find the bearing of the second tree (must be at least 30 ft away) and pace out the distance from the first tree to the second tree.**

**Bearing_____**
**Distance_____**
**Height of Tree_____**
**Shape of Tree_____**

**Leaf description_____**
**_____**
**Other identifying features_____**
**_____**

**Step four: Find the bearing of the third tree (must be at least 20 ft away) and pace out the distance from the first tree to the second tree.**

**Bearing_____**
**Distance_____**
**Height of Tree_____**
**Shape of Tree_____**

**Leaf description_____**
**_____**
**Other identifying features_____**
**_____**

**This page is the directions for the mapping group.**

**On the map handout of the park provided and using data provided by another team, locate and label the position of the identified trees.**

- **You may add any observations not recorded by the previous group.**
- **Accurately mark where the trees are located and the distance showing from arrows from the starting position to the identified trees.**
- **Label the tree names from the master map posted.**
- **Note----remember to include compass rose showing the cardinal directions.**

**Check your results with the other team. Draw a happy face if you were successful or a sad face if it didn't work.**

**What worked well or could have been improved:**

_____

_____

_____

**Look up information about the three trees your team identified online.**

1) **On the world map mark and label the area where these trees are found.**
2) **Describe the environmental conditions required by the selected trees.**
3) **Compare the environmental requirements for the selected trees to the environmental conditions in the park. Predict whether this tree will thrive or not in the park.**
4) **What benefits will these trees have in the park? Why are these important?**

**Tree #1:**

**Tree #2:**

**Tree #3:**