

# Planting A Tree And Helping It To Grow

## Introduction

Trees are very much a permanent part of the landscape and you must select the type of tree to plant very carefully. When the decision has been made to plant a tree, you must then do your homework and find out what types of trees will be suited for your site. Some of the information that you need to know about the tree is: how large will it get, how fast will it grow, how much sunlight does it need, and what type of soil conditions does it like? Once you have chosen that perfect tree for your school, park, or home, more information must be obtained about the site where the tree will grow.

Selecting the proper tree is as important as selecting the proper location in an urban environment. Drawing a map of the selected area is a good first step. Don't forget to include the direction and dimensions of all problems above and below the ground that you might encounter. Information you may have already gathered by doing the soils lab (What's Happening Below the Surface?) will be of great help in determining what must be done to allow the tree to thrive. Many books on tree selection are available. A resource list should be developed by the class.

## Questions

1. How do we prepare for planting trees?
- . What is the currently accepted method for successful tree planting?

## Hypothesis

*Students should prepare their own before continuing.*

## Materials

Shovels	Pruners	Ruler	Composted material
Mulch	Rakes	Stakes	Tree wrap
Water	String	Tree tag	Old hose sections

## Procedure

### Site Selection:

1. Using specific information about the conditions required for the tree to grow and a map of the site, choose 3 possible planting sites. Take soil core samples to determine what lies below the surface.
2. After developing a data table format for soil moisture, soil temperature, and pH readings at each site, gather the data. Map the area including measurements of the distance from buildings, sidewalk, power lines and shrubs that could affect the growth of the tree.

3. Bring this data into the classroom and place it on the board or overhead projector, so all students can make a case for each of the sites.
4. Choose the site that is most compatible with your tree.

### Planting:

1. With a location determined, decide:
  - a. How large the hole needs to be. (3x rootball diameter)
  - b. How much organic matter should be placed in the hole with the tree.
  - c. How much mulch should be placed over the soil around the tree. (to a depth of 4 inches)
2. Tree wrap should be applied to the tree, if needed, starting at the bottom and working up.
3. Bring this data into the classroom and place it on the board or overhead projector, so all students can make a case for each of the sites.
4. Watering is the **single most important** task of the planting procedure and must be carefully accomplished. When you plant the tree, add soil and water at the same time. Simply return the soil that was dug out, or substitute a mix of other soil. Both are acceptable.
5. Water the entire mulched area daily for the first week, then at least 3 times per week for the next month. Approximately 3-5 minutes of water from a hose, will be sufficient.
6. Check the soil moisture in the rootball by using a soil probe, or large piece of wire. Resistance to penetration indicates that the rootball is drying out.

### Results

Using the data table and map of the area, each student group should respond how they would adapt the planting technique described above if the tree were placed:

1. Along a narrow parkway.
2. Underneath a much larger and older tree.
3. Underneath power lines.
4. Next to the school building.

### Discussion Questions

1. Where would you plant a tree that has thorns?
2. How would you use a shrub you are told will never get larger than 4 or 5 feet.
3. If the school objected to the choice of tree (Crabapple), what could you do to make them understand that your choice is the right one?

### Conclusions

1. Why do we need to plant trees in the urban areas of our country?
2. Why do you put woodchips underneath the tree?

3. If you were to plant a tree at your house, explain how you would change the procedure we used.

## **Terminology**

### **define these words and phrases**

bud	cultivar	leaves
bare root	container plants	pruning
roots	rootball	fertilizing
balled and burlaped	mulching	watering
growth rate	compacted soil	clay soil
amending soil	backfilling the hole	drainage
power lines	light requirements	longevity
size of hole		

## **Background Information**

Planting a tree and/or shrub on your school grounds can become an overwhelming event. The components must be well defined; map drawings, note taking, and picture sketching of how the planting procedure was accomplished. Every student will want to dig the hole. You must insist the job has to be done correctly, and we must do only those tasks assigned. You should try, to get help from the public to purchase materials by advertising this event.

Realize that the work to be done can be accomplished by many people in a short time if everyone works together. Task cards for each group can be used for assessment. If the task will take more than one class period, each hour of the day can have a few students working on each part of the task. Have students write questions for other classes to discuss, covering what has been done and how the job could be done more efficiently. Explanations and questions of the students can generally be answered by anyone who has read a tree planting reference (Selecting and Planting Trees from the Forester's Trunk).

The resource materials in the Forester's Trunk inventory will provide the students with much of the information about trees. Some extra library work may be required.

## **Target Group**

Elementary through high school.

## **Hypothesis**

*Examples:*

1. Determine the proper place to plant a tree?
2. Plant a tree correctly.
3. Demonstrate what must be done after planting the tree.

## **Timeline**

Pre-lab preparation is accomplished for the most part, by completing the previous lab exercises in this unit. Gathering materials should begin early in the year. Check with the janitorial service about the possibility of borrowing equipment. Call the city or park district several weeks before the planting to make sure woodchips are available.

### ***Tasks can include:***

- a. bringing assigned tools
- b. lining out the site after school
- c. mapping of the area
- d. preparing a maintenance schedule
- e. collecting 5 gal buckets for watering / moving mulch
- f. testing the soil before planting the tree
- g. acquiring plastic to put under the soil that is removed from the hole

- Day 1 -- Student groups make all the site measurements and take soil cores to examine the characteristics of each site. Discussion back in the classroom as to which site is the best. What are the criteria for selection of a site?
- Day 2 -- If the site can be marked with a stake, do so. If not, then spray paint on the ground can mark the area. Decide if a pre-digging day is necessary to complete the task with available tools, or if the hole will have to be dug outside of class time.
- Day 3 -- Have the assigned groups gather their materials and head out to the planting site, where everyone performs their assigned tasks. If multiple classes are involved, break down the work into parts and discuss proper techniques that everyone can observe while work is being done.
- Day 4 -- Check the site to determine the soil moisture, and whether the plant has settled. Discuss the kind of long term care required. Have students check their hypothesis to see how well they accomplished all their tasks.

## **Placement of this Lab in the Curriculum**

This exercise is the summative experience for the entire Urban Forestry curriculum package.

This lab can be done anytime after the teacher has covered safety and procedures in a classroom, but it is better placed after the class has completed the other exercises. This is a culminating activity that should be used as a growth experience for the students, and not as a strictly graded exercise. Planting the tree should become an aesthetic and recreational activity along with educational. Point out to the students that these trees, if maintained, could live for over 100 years. Typical urban trees live 7-40 years, depending on the site.

*The field work for this lab can be done at any point in the year, but the tree should be planted in the spring, not too close to the end of the school year, so that students can learn about maintaining the tree. Be sure to arrange for watering during the summer.*

## **Student Learning Objectives**

The students will be able to:

1. Understand the interaction among trees, soil, and people by participating in planting a tree.
2. Develop questions to be answered as part of the planting activity.
3. Explain the relationship between the new plantings and other organisms in the immediate area.
4. Evaluate the map and data to determine an appropriate planting site.

## **Evaluation**

1. The on-time completion of assigned tasks with all the data can be the easiest method of assessment.
2. The pre- and post-test can measure increases in the student's understanding of the process.
3. A written response, including answers to the student discussion and conclusion questions, will provide some insight into the student's understanding of the planting process.

## **Preparation and Teaching Tips**

A large amount of planning is necessary for this lab to be successful. The following committees will be needed:

1. A *site committee* to rope off the area and prepare it for the planting.
2. A *digging committee* responsible for measuring and staking the site, and digging the hole. Accurate measurements should be taken and noted in journals.
3. A *tree committee* responsible for the removal of the rope and burlap once the tree is situated properly in the hole. If the tree is in a container, the group must decide what method to use to remove the container.
4. A *mulching committee* responsible for gathering and moving the proper amount of mulch. City street crews or the park districts usually have mulch available and will drop it off at school.
5. A *tool committee* responsible for gathering and cleaning all the equipment. This includes shovels, rakes, buckets, hose, and stakes.
6. A *data committee* to measure the hole, the tree, and the rootball for inclusion in the data bank for future reference.

## **Discussion & Conclusion Question Answers**

- 1-3. The answers to all of these are based on all previous work and your specific site requirements. Helping the students with hints may be necessary.

- 1-3. The answers will vary. These are also based on the previous readings and laboratory work accomplished by the students.

## **Blowouts**

1. Students can go to local greenhouses to inquire about donations for other materials for plantings at the school for beautification.
2. Students could prepare small trees from seeds they collect in the fall and sell them to raise money for more plantings. These seedlings could also be planted in a nursery to be used in future years, or to give away to smaller children or shut-ins.

## **References**

1. *Selecting and Planting Trees*, The Morton Arboretum, Lisle, IL. 1990.
2. *Manual of Woody Plants*, Michael A. Dirr. Stipes Publishig Co., Champaign, IL. 1983.
3. *The Right Tree in the Right Place*, Commonwealth Edison.
4. *Tree and Shrub Planting in Illinois*, Planting Shade Trees, Tree Care, Guide to Illinois Big Tree, Plant Illinois, Illinois Dept. of Conservation.
5. *Benefits of Trees, Trees and Turf, Tree Selection*, USDA Forest Service.
6. *Transplanting Trees*, Vocational Agricultural Service Bulletin 5002a.

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