

Trees Are a Stream's Best Friend



Activity 11: Tree Planting

Trees and shrubs planted anywhere in the watershed help improve water quality by slowing down stormwater runoff and reducing soil erosion. They also help lessen flooding. In the woods, trees trap and use up excess nutrients. The forest floor is made up of many layers of decaying leaves, twigs and branches. This organic material acts as a natural sponge. Forests are such an effective infiltration system that they can filter six inches of water or more each hour. Trees and shrubs planted along shorelines act as a buffer, retaining as much as 89% of the nitrogen and 80% of the phosphorous that runs off the adjacent land. Vegetation helps to stabilize the stream banks by reducing erosion caused by water, ice, debris and direct rainfall. In addition, falling leaves decompose in the water and provide food for many aquatic insects that, in turn, becomes food for fish. Trees provide shade, food and cover for wildlife and brighten a drab landscape.

Goal

- ❖ Improve water quality by planting trees in your stream's watershed.

Voluntary State Curriculum

1.0 Skill and

Processes

A Scientific Inquiry: 1, 9

B Critical Thinking: 4

C Applications: 2

6.0 Environmental Science

C Natural Resources & Human Needs: 1

D Environmental Issues: 1

Vocabulary

Riparian – an area along the bank of a stream, river or other water body

Buffers – trees, shrubs, weeds and tall grasses planted along a stream

Time Prep/Planting/Follow-up may span several weeks.

Materials

- ✓ Seedlings
- ✓ Shovels
- ✓ Watering Cans
- ✓ Garden Stakes – Wooden
- ✓ Permanent Felt-tip Markers
- ✓ Tree Planting Data Sheet

Motivation

- ❖ Read “Tree Planting”
- ❖ Building background on native plants and trees

Resources

National Arbor Day Foundation Web Site:
<http://www.arborday.org/>

Native Trees & Shrubs:
www.dnr.maryland.gov/criticalarea/trees.html

Department of Natural Resources Education:
www.dnr.maryland.gov/education

TEAM: Teaching Environmental Awareness in Maryland
<http://www.dnr.state.md.us/education/teamdnr/>

Procedure

- 1) The best time for tree planting is March/April or October/November. You may want to conduct your planting on Arbor Day, which in Maryland is the first Wednesday in April. Consider planting the Maryland State Tree - the white oak. Whatever tree you chose, be sure it is a native tree.
- 2) Have students use a decision-making process to produce a plan for tree planting in your watershed. It is important for the teacher to guide them in this process, but not give them answers unless it is necessary.
 - a) Define the problem.
 - b) Brainstorm answers to the following questions:
 - Where will we plant? (Determine areas of erosion or bare earth. Check land ownership.)
 - Who will plant? (Groups, classes, individuals)
 - When will we plant? (Set possible dates)
 - What do we need? (Materials, plants, transportation)

Optional Challenges/Extensions

- ❖ Check on the tree each month. Record the height. Check for soil erosion and replace soil around tree if needed. Water the tree. Replace dead trees. Remember replacement planting must be done in appropriate months.
- ❖ Conduct several buffer restoration projects (Plant or transplant grasses and weeds along ditches to create swales instead of washouts.) around the neighborhood, school grounds or at the students' homes. Remember to obtain permission from the landowner.
- ❖ Journal

- How will we handle maintenance of trees?

3) Planting Day

- Have students make tree markers by writing the group's name, date and type of tree on garden stakes with permanent ink. (This can be done ahead of time.)
- Plant the trees
 - Dig holes deep enough for the roots to fill in without being bent or broken.
 - Hold the tree in the hole and carefully fill the hole with good soil. Pack soil firmly.
 - Water the tree after planting and several times during the next few weeks.
- Put the markers in the ground, one next to each tree.

Wrap Up

- ❖ Have students evaluate the plan they used.
- ❖ What problems or situations did they overlook?
- ❖ Were they prepared for the actual planting?
- ❖ What would they do differently next time?
- ❖ How does it feel to actually do something to improve your neighborhood?
- ❖ Why are trees and plants important to the stream and the environment?

Modifications

Group work.

Assessment

Completed worksheet
Participation in project



Tree Sources



The State of Maryland has two tree planting programs.

John S. Ayton State Forest Tree Nursery takes orders in September for the following spring planting season. Various native hardwoods and conifers are sold in bundles of 25 seedlings designed for wetland, wildlife or upland plantings. For more information call 1-800-TREESMD or visit : www.dnr.marylandgov/forests/nursery

Tree-mendous Maryland is a program that takes orders for trees planted in honor or memory of someone. You may purchase an individual tree or a grove of ten trees. These trees are then planted on public land, in parks and forests, on school grounds, along streams, creeks and river to support Stream ReLeaf, and along county and state rights-of-ways. Student and other youth groups may participate in these plantings. For more information on Tree-mendous, visit: www.dnr.maryland.gov/forests/treemendous/giftoftrees.html or email tgalloway@dnr.state.md.us

Trees may be obtained from private sources:

Seedlings and balled trees may be obtained from commercial nurseries. Your local nursery can help you with selecting the proper species for your site, and can provide advice on planting and maintenance.

The **Arbor Day Foundation** distributes bare root saplings for reforestation and beautification projects. For a nominal fee they will send you a selection of trees for planting. These trees are selected for suitability to local growing conditions, and are shipped to arrive at the right planting time for your area. For more information: www.Arborday.org
The National Arbor Day Foundation
100 Arbor Avenue
Nebraska City, NE 68410
1-888-448-7337.



Consider getting a grant for your trees and planting equipment and supplies. There are two grant programs that will fund tree planting:

Maryland's Aquatic Resources Education Grant reimbursement program assists public and private schools (Grades K-12) and school systems by providing teacher training and funding for aquatic resource education projects. For a grant application visit:

<http://www.dnr.maryland.gov/education/are/aregrants.html>

or contact:

Cindy Etgen
DNR/Watershed Services
580 Taylor Avenue, E-2
Annapolis MD 21401
410-260-8716
cetgen@dnr.state.md.us

Chesapeake Bay Trust awards more than \$1.9 million in grants that engage Marylanders in the protection and restoration of the Chesapeake Bay. For a grant application and information visit:

<http://www.chesapeakebaytrust.org/grantopportunities.html>

or contact:

Kerri Bentkowski, Grants Manager
Chesapeake Bay Trust
60 West Street, Suite 405
Annapolis, MD 21401
phone: 410-974-2941 (extension 3)
fax: 410-269-0387
kbentkowski@cbtrust.org



Maryland Department of Natural Resources *Project Forester's Phone List*

County	Phone
Anne Arundel	410-768-0830
Allegany	301-777-2027
Baltimore City & County	410-665-5820
Calvert	410-535-1303
Caroline	410-479-1623
Carroll	410-848-9290
Cecil	410-287-5777
Charles	301-923-2543
Dorchester	410-228-1861
Frederick	301-473-8417
Garrett	301-334-3296
Harford	410-836-4551
Howard	301-854-6060
Kent	410-758-5254
St. Mary's	301-475-8551
Somerset	410-651-2004
Talbot	410-882-1800
Washington	410-473-8417
Wicomico	410-543-1950
Worcester	410-749-2206

Tree Planting

WHAT YOU WILL NEED

- Tree seedlings
- Shovels
- Watering can
- Wooden garden stakes
- Permanent magic markers
- Tree Planting Data Sheet
- Pencils

WHAT TO DO

Before planting day, take time to look at the information about trees that your teacher has. Work with your groups to decide how many trees you will plant, what kind(s) and when. Determine what you need to do to buy the tree seedlings and get ready for planting day.

On planting day, write your group's name, the date, and the kind of tree on the garden stakes. Dig holes

deep enough for the root of your tree to be completely covered. Make sure the roots are not bent or broken when you place the tree in the hole. Have one person hold the tree in place while others pack the soil around the tree. Pack it very firmly so your tree won't fall over in the wind. Water the tree well.

Decide who will be able to come back to water the tree until it can get by on its own.

AT HOME...

Tell your parents about your tree planting and why it is important to the stream. Are there places in your yard where trees might be planted as buffers for rainwater? Talk to your family to see what they think. If you live in the city and don't have a large yard, are there parks where your group could do a tree planting? Maybe your parents have ideas!



Student Page

Tree Planting Data Form



Trees planted:

Kind of Tree	Number Planted

Describe where the trees were planted:

How do you think the trees will make a difference to the stream?

Will you be able to return to check on your trees? How often?
