MD Forest Service
Junior Forest Ranger
Patch Program

In 2006, the Maryland Forest Service celebrated 100 years of assisting Maryland landowners with their forestry needs. A patch program was one of the many projects created for that celebration. We, along with the Maryland Forestry Boards, are happy to continue offering the program as the Maryland Junior Forest Ranger Patch Program.

What are urban forests? Urban forests are the trees and other plants that grow where people live, go to school, work, and play. Even if you live in a rural community, the trees in your yard, around buildings, and in parks are called urban forests. Calling them urban forests helps you to see that they are different from the kind of forests that grow in large undeveloped areas. Urban forests include trees in community parks and other public land, along streets, in neighborhoods, around businesses and industry, and just about everywhere in a community. You will find urban forests almost anywhere that you find people living, going to school, working, and playing. Urban forests provide many benefits to people and to their communities. Trees and other plants help to slow soil erosion, reduce noise, provide homes for wildlife, and provide recreational opportunities. Can you imagine a park without trees? There are other benefits as well. Benefits of urban forests include— 1) Reducing the amount of rainwater going down storm drains. 2) Improving air quality. 3) Increasing the value of property. 4) Making communities more attractive. 5) Keeping the temperature cooler in the warm summer months. (excerpt, Natural Inquirer)

Patch Requirements

K grade – do any 3 of the 20 activities
1-3 grade – do any 4 of the 20 activities
4-6 grade – do any 5 of the 20 activities
7- 8 grade – do any 6 of the 20 activities
9-12 grade – do any 7 of the 20 activities

Activities

1.   How do different living environments compare? Look at living in an apartment building, single-family home, etc. How are things different in cities, suburbs, villages and rural areas: In your group, find a way to show your dream environment – your favorite types of homes in your favorite types of communities.

- Compare living in a city to the suburbs or rural areas. What is different about the environment? Such as types of buildings, amount of grass, trees. How are the trees and forests different?

2.   Create a tree journal. Adopt a tree in your schoolyard or meeting place. Make observations of the adopted tree. Some suggested activities:
   a) Create bark rubbings
   b) Collect the leaves and compare to other trees. (Do leaf rubbings)
   c) Draw the tree during different seasons – observe how the canopy changes
   d) Write a poem about the tree or develop a song
   e) Identify and measure the diameter of the tree.

3   Conduct a Leaf Hunt – look for different types of leaves on the ground. Pick one leaf that you like. Describe it by drawing it or writing about it. You and your friends can put all your leaves in a pile. Describe your leaf to someone. Can your friends find it?

4   Participate or organize an Arbor Day or Earth Day Celebration. (Maryland's Arbor Day is the first Wednesday in April; National Arbor Day is the last Friday in April and Earth Day is April 22.)

5   Plant a tree or participate in a tree planting.

6   Learn how to plant seedlings, containerized and ball and burlap trees. Then plant a tree or participate in a tree planting or plant 20 seedlings. Discuss how to care for the trees and seedlings after the planting such as how to water, mulch and fertilize correctly.

7   Draw your own urban forestry plan for adding trees to a street, yard or park near your home. Show what types of native trees you would like to see planted.

8   Identify 6 forest trees common to the area where you live. Tell how both wildlife and humans use them.

9   Learn the difference between shade (deciduous) trees, evergreens (conifers) and shrubs. Identify the list of benefits provided by the trees at your school or meeting place. Such as air quality, water quality, erosion control, product, noise reduction and aesthetic appeal.

10   Draw a picture to show the plant and tree layers of a forest in your area. Label the different layers.

11   Take a hike through a forest located in an urban or suburban park.

12   Identify 10 tree species using leaves, seeds, fruit and bark. Describe the kind of ecosystem where each is likely to be found.

13   Name the state bird, flower, and tree. Why were these chosen?

14   Identify 3 or more degree programs in the fields concerned with the trees and forests. Compare the course requirements and list the career possibilities with each of those degrees. Try to visit or speak with someone enrolled in the program or a faculty member. Examples: horticulture, forestry, landscape architecture, urban forestry.)

15   Attend a career fair that gives you the opportunity to speak with individuals working in professions related to the environment.

16   Do a computer search for careers related to the trees and forests. Follow it up by contacting an organization, business or individual for information on a specific career in this field.

△17   Help turn a vacant lot or other public space into an "oasis" by volunteering to landscape it.

△18   With a partner, or your troop or group, plant an area with native vegetation that will provide food or shelter for birds.

△19   Find out about at least one career related to plants. Arrange an interview or shadow a person in that career. Careers to consider: groundskeeper, landscape architect, florist, greenhouse owner, botanist, forester, tree pruner, researcher, farmer, agricultural consultant, or botanical illustrator.

△20   Organize a tree planting by 1) locating a planting site and obtaining permission form the landowner. 2) Develop a planting plan utilizing native tree species. 3) Obtain funding to purchase the trees thru a grant (such as Chesapeake Bay Trust grant or other grants. 4) Organize volunteers to plant the trees.

Upon completion of the patch program, mail in the attached order form. If you have any questions contact:

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Completes all or some of the required activities for the following Scout requirements:

Girl Scouts:	Boy Scouts:
Brownie Try-its Eco-Explorer Plants	Cub Scouts – Bear Achievement 6 Take Care of Your Planet Elective 15 Water and Soil Conservation
Junior Badges Humans and Habitats Earth Connections Eco-Actions	Cub Scouts – Webelo Forester activity badge Naturalist activity badge Outdoorsman activity badge
Teen Interest Projects Plant Life	Boy Scouts Forestry Merit Badge

Credits

• Natural Inquirer Volume 6, Number 1 Urban Forest Edition, USDA Forest Service FS-809 Spring 2005

• The National Arbor Day Foundation, The Right Tree in the Right Place website

• Girl Scouts of Black Hawk Council Fun in the Forest Try-it and supplemental materials, Forest Exploration Badge, Forest Ecosystems Interest Project.
• Girl Scouts' Brownie Try-it book, Junior Badge book, Interest Project book

• Cub Scouts' Wolf Handbook, Bear Handbook, Webelo Handbook

• Boy Scout Merit Badge Handbook

Mid-Atlantic Center for Urban and Community Forestry: http://www.fs.fed.us/na/morgantown/macucf/index.htm
Urban Forestry South Expo: http://www.urbanforestrysouth.org
Urban Forestry South: http://www.urbanforestrysouth.usda.gov
USDA Forest Service: http://www.fs.fed.us
The Natural Inquirer: http://www.naturalinquirer.usda.gov
USDA Kid's Page: http://www.usda.gov/wps/portal/usdahome
Smokey Bear: http://www.smokeybear.com
TreeLink: http://www.treelink.org
The National Arbor Day Foundation: www.arborday.org/trees/righttreeandplace/

Tree Parts

There are many different kinds of trees that live in Maryland and they can look very different from each other. Despite looking different, trees have many similar parts.

Roots	Trees have both tap roots and lateral roots. Tap roots are deep, thick roots that anchor the tree in place so it doesn't fall over. Lateral roots are thinner and shallower and suck up water from the soil.
Trunk	Holds the tree upright and the branches up high where the leaves can collect sunlight.
Bark	Covers and protects the tree from disease and injury
Leaves	Capture sunlight so the tree can make food for itself.
Seeds or cones	The trees method of reproducing.
Xylem	The veins that move water up the tree.
Phloem	The veins that move nutrients through the tree.
Cambium	Layer of tissue under the bark that produces new cells so that the tree can grow wider around.

To identify the many trees that grow in Maryland, one must focus on the differences of the trees. These differences are unique to the specific characteristics of each tree species. These can include different shapes, sizes, textures, and smells. To identify one tree from another, focus on the following:

Height
Leaf Shape and color
Trunk Circumference
Bark texture and color
Smell
Branch position
Seed Characteristics

Leaves can be an easy form of identification. Trees can be either:
- Broad-leaved – wide, flat leaves such as oaks, maples and palm trees.
- Needle-leaved – skinny, pointed, needle-like leaves such as pines and spruces.

In addition, trees can be either:
- Deciduous – trees that shed all of their leaves seasonally when the weather turns too cold or dry.   Deciduous trees can be either broad or needle leaved.
- Evergreen – trees that do not shed all of their leaves seasonally, and are green year round. Evergreen trees can be broad or needle leaved.

Plant A Tree

Before picking out the tree to be planted the following need to be considered:

1. Growing conditions
   Light (full sun is approximately 6 hours of sun daily)
   Rainfall
   Drainage of the soil (check for standing water or very dry conditions)
   Soil type
2. Ultimate tree size
   Height and width
3. Planting procedure
4. Maintenance and long-term care
   Regular watering during the first growing season
   Removal of competing weeds and grasses

   See attached for tree planting directions.

Right Tree-Right Place

Before the tree is even planted, a planting plan should be drafted and the following should take in consideration:

1. the ultimate height of the trees.   Will the tree grow up into something or bump into something as it's growing?
2. the ultimate canopy spread. How wide will the tree grow?
3. is the tree deciduous or coniferous?   Will losing leaves cause a safety or health issue on the ground?
4. the ultimate form or shape of the trees. Will the tree be columnar, pyramidal, v-shaped, round or oval in shape?   V-shaped and round provide the most shade.
5. growth rate of the trees. How long will it take for the tree to grow to it's ultimate height?
6. soil, sun and moisture requirements.
7. fruit. Will the fruit, acorns or seed cause an aesthetic, safety or health issue on the ground?
8. hardiness zone. This indicates the temperature extremes in which plants can be expected to grow. Check to see if your tree is suitable for your area.
   (National Arbor Day Foundation)

Benefits of Trees

- Tree plantings for auditory screening filter noise levels from highways, trails and recreation areas. Although a solid barrier, such as a fence or wall, provides more "soundproofing", trees create a permeable screen which provides privacy, is aesthetically pleasant and is less conspicuous. Also the perception of noise diminishes when it is not visible. (The Urban Forest Management Handbook: A Guide for Managing Our Urban Forest Lands, Metropolitan Washington Council of Governments 1999)

  - Strategically placed trees:
    - Provide a wind break during winter – reduce heat costs
      - Evergreens serve as windbreaks and can save 10-50% in heating costs. Plant on north side to diminish winter winds.
    - Provide shade during summer – reduce air conditioning costs
      - 3 large shade trees around your home can reduce air conditioning costs up to 30%. Plant deciduous trees on south and west side. The trees will provide shade in summer and after dropping their leaves will admit sunlight in winter – which will also lower your heating costs.

- Urban trees and street trees can create an aesthetically pleasing environment which
    - Can increase the property value on average 5-7 % or as much as 20%. Lots with trees sell faster than lots without. .
    - Enhance community economic stability be attracting businesses and tourists. (People linger and shop longer along tree-lined streets.
    - Apartments and offices in wooded areas rent more quickly have higher occupancy rates and tenants stay longer.
    - Businesses leasing office space in wooded developments find workers are more productive and absenteeism is reduced. (The Value of Urban Trees – MDNR web page)

- Trees:
    - Help settle out, trap and hold particle pollutants (dust, ash, pollen and smoke) that can damage human lungs.
    - Absorb CO_2 and other dangerous gases.
    - Absorb enough CO_2 on each acre in one year to equal the amount produced when you drive your car 26,000 miles.
    - Produce enough oxygen on each acre for 18 people every day.

A 2001 study by American Forests in a 636 square mile metropolitan Washington DC study area found that tree cover currently provides $49 million in air pollution removal annually. (American Forest Report, Urban Ecosystem Analysis for the Washington DC Metropolitan Area: An Assessment of Existing Conditions and a Resource for Local Action. Feb. 2002)

Name: _____

Mailing address: _____

City: _____ State: _____ Zip Code :_____

Phone #: _____

Youth Group : _____

Scout Council : _____

Troop #: _____ Level: _____

Number of Participants who earned this patch: _____

Briefly explain the activities completed to earn the patch:

Mail to :

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