

## **A Special note to parents**

Your child is participating in a joint project between the City of Hampton Public Schools, the Hampton Clean City Commission, Virginia Department of Forestry and Virginia Cooperative Extension. The project is designed to enhance the science curriculum using the urban forest as a study site. Teachers will be using *Project Learning Tree* activities that are correlated with the Virginia Standards of Learning (SOL's). These activities offer a special, hands-on approach to learning. After each activity, a 4-H project book will be sent home so that students can practice what they have learned and extend that learning to new and challenging situations. The end-result is greater mastery of subject matter and life skills.

## **Related Virginia Standards of Learning**

Science SOL 4.4 plant structures

Science SOL 4.4 reproduction, dormancy

Science SOL 4.8 Virginia natural resources

## **Suggested Goals for this project**

Complete at least three of the four activities in this book.

Activity one: Take a closer look at a tree growing near your home.

Activity two: Participate in a seed study

Activity three: Collect seeds for the Virginia Department of Forestry

Activity four: Plant a pine seedling

## **Why study urban forestry?**

Trees surround us with an outdoor laboratory for the study of plants. Our knowledge of trees and plants is important to our livelihood and quality of life. For example, Virginia's forest industries provide employment to many people, and contribute over \$11 billion to the economy.

The seeds you collect and the seedlings you plant as a result of this project will improve our environment in many ways. Trees add beauty to our landscape, increase the value of our homes, filter the air we breathe, provide homes to wildlife, and protect our water supply. Thanks for thinking of the next generation!

Activity One

## Taking a closer look at trees at school.

Observe your tree at least once a month for a year. Look for such things as when buds break in the spring, the first flowers of the season, when fruits or seeds start to fall, evidence of insects eating leaves, etc. Use the space below to describe what you see.

This information will be used to predict when events occur in a tree's life.

Common Name of Your Tree \_\_\_\_\_

Scientific Name \_\_\_\_\_

Circumference of the trunk at 4.5 ft. \_\_\_\_\_

County and zip code of your tree \_\_\_\_\_

Month	Observation	Date
September	_____	_____
October	_____	_____
November	_____	_____
December	_____	_____
January	_____	_____
February	_____	_____
March	_____	_____
April	_____	_____
May	_____	_____
June	_____	_____

**Activity Two**

**Taking a closer look at trees at home.**

Now do the same thing for a tree at your home or a nearby park or cemetery. Use the space below to describe what you see. If you do not know the name of your tree, press a leaf and bring a sample of the fruit or seed to school or the Extension Office. Someone will be able to help you.

This information will be used to predict when events occur in a tree's life.

Common Name of Your Tree \_\_\_\_\_

Scientific Name \_\_\_\_\_

Circumference of the trunk at 4.5 ft. \_\_\_\_\_

County and zip code of your tree \_\_\_\_\_

<b>Month</b>	<b>Observation</b>	<b>Date</b>
September	_____	_____
October	_____	_____
November	_____	_____
December	_____	_____
January	_____	_____
February	_____	_____
March	_____	_____
April	_____	_____
May	_____	_____
June	_____	_____

# Schoolyard Seed Study

Seed production is important for tree survival. Seeds must also be dispersed to new locations so they have room to grow. Trees use a variety of methods to get their seeds dispersed. For example, some seeds are dispersed by wind, others by birds, and still others by mammals. In this study you will compare the number of seeds you find on the ground with the distance from the tree that produced them.

## Directions

Take a hula-hoop or some other object that outlines an area. Throw the hula-hoop randomly in one direction, and count the seeds within the hula-hoop where it lands. This is called a random sample. Next, count the number of paces to the nearest tree. Do this at least two more times at different distances from the tree. Record the number of seeds you count in each sample.

# Seeds in sample one \_\_\_\_\_ Paces to nearest tree: \_\_\_\_\_

# Seeds in sample two \_\_\_\_\_ Paces to nearest tree: \_\_\_\_\_

# Seeds in sample three \_\_\_\_\_ Paces to nearest tree: \_\_\_\_\_

Common name of the tree \_\_\_\_\_

## Questions

Describe and/or draw a picture of the seed you counted.

Does the number of seeds per sample seem to change with the distance from the tree?

\_\_\_\_\_

How do you think your tree disperses its seed to new locations (for example, wind, birds, mammals, water, etc.) Why do you think this?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Activity Four

# Acorn Study

Oaks are the most abundant trees in Virginia, and acorns are an extremely important wildlife food. We know very little about how seed production varies geographically or from year to year. You can help increase our knowledge by completing this study.

**Directions:** Use a hula-hoop or some other way to define a round, fixed radius plot. Randomly select several places underneath the crown of a tree to take samples of the acorn population. Count only the seed that is produced by the tree; do not count seed from other trees. Take at least four samples

School name and zip code \_\_\_\_\_

Common name of tree \_\_\_\_\_

Scientific name of tree \_\_\_\_\_

Tag number (if available) \_\_\_\_\_

Circumference of the tree trunk at 4.5 ft. above the ground \_\_\_\_\_ cm

Diameter of the hula-hoop or plot \_\_\_\_\_ cm

Sample	Number of acorns	Notes
1		
2		
3		
4		
5		
6		
7		
8		

### Questions

Do you think oak trees produce the same amount of acorns each year? Why?

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What was the date you sampled acorns? Why is this important to know?

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## Activity Five

# Collect Seeds for the Virginia

## Department of Forestry

The Virginia Department of Forestry (VADOF) grows seedlings at their nurseries. These seedlings are later sold to landowners to protect land from erosion and provide habitat for wildlife. You can help by collecting seeds from a tree near you and returning them to your teacher.

Look at the list of the 10 most wanted seeds. You will notice that they are all oak trees. Oak trees begin to drop acorns in September. The sooner you collect acorns after they drop, the better chance they will germinate and become trees.

Once the nursery receives your seeds, they will be stored in a cool environment to simulate winter conditions. This is called stratification and is required for most seeds to break dormancy. Seeds are planted in the spring and will be ready for replanting the following year.

### The "Ten Most Wanted" Seeds

- |   |   |
|---|---|
| 1. Willow Oak- <i>Quercus phellos</i>     | 6. Southern Red Oak- <i>Quercus falcata</i>     |
| 2. Pin Oak- <i>Quercus palustris</i>      | 7. Swamp Chestnut Oak- <i>Quercus michauxii</i> |
| 3. Water Oak- <i>Quercus nigra</i>        | 8. Overcup Oak- <i>Quercus lyrata</i>           |
| 4. White Oak- <i>Quercus alba</i>         | 9. Live Oak- <i>Quercus virginiana</i>          |
| 5. Northern Red Oak- <i>Quercus rubra</i> | 10. Post Oak- <i>Quercus stellata</i>           |

Date collected \_\_\_\_\_

Name of the tree you collected your seed from \_\_\_\_\_

County and Zip Code Where you Collected Seed \_\_\_\_\_

For more information about Virginia Department of Forestry seedling program, or to order seedlings, visit their web site:

**<http://www.state.vipnet.org/dof/index.html>**

For help with tree identification, visit the Va. Tech Forestry Outreach Site:

**<http://www.fw.vt.edu/dendro/>**

**Activity Six**

**Plant a Seedling**

You will be receiving a free seedling from the Virginia Department of Forestry in March. We want you to plant it near your home and learn about natural resources in the process.

**Step one**

Draw a map of your planting area. Indicate the location of buildings, roads and where you will plant your seedling. Keep in mind that most seedlings need full sunlight. You do not want to plant it in the shade of another tree. Also, the tree will eventually grow very big, so do not plant it beneath power lines or near buildings.

**Step two**

Record the following information and share it with your classmates at school.

Date planted \_\_\_\_\_

Height of the seedling at planting \_\_\_\_\_

Height of the seedling on June 1 \_\_\_\_\_

Other observations

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## City of Hampton 4<sup>th</sup> Grade Urban Forestry Project

