Dear Educator,

You are invited to join other fifth-grade teachers across Massachusetts in the 2017 Arbor Day Poster Contest sponsored by the Department of Conservation and Recreation, the U.S. Forest Service, and the Massachusetts Tree Wardens’ and Foresters’ Association. This year’s theme, “Trees are Terrific...from Berkshires to Bay!” is designed to increase students’ understanding of the importance of a diverse urban and community forest and of the role trees play in their community and in the world around them.

Trees are the dominant feature of all forest communities and can be found everywhere in our daily lives. They exist in parks, schoolyards, backyards, and along our roads. Whether we are in a city or small community, the urban and community forest is so ubiquitous that we often don’t stop to think that we are actually part of a forest community and have a complex relationship with its ecosystem. Increasing students’ understanding of their relationship with the urban forest and the trees around them is an important step toward appreciation of trees and of the environmental benefits they provide our communities.

For participation in the contest, the use of part or all of the activities in this guide is encouraged, but not mandatory. You may adapt, alter, or supplement these activities to meet the needs of your students. Follow the contest rules as they appear on page 5. Make sure your school’s poster is signed with the student’s first name and last initial and that the school winner report form (page 6) is completed and affixed to the back. Submit one entry per school to DCR.

The deadline for the Poster Contest is March 15, 2017.

Details are also available on the Internet. Visit our site at http://www.mass.gov/eea/agencies/dcr/conservation/forestry-and-fire-control/branching-out-additional-programs.html and view past state winners or download other great activities.

Julie Coop, the DCR Urban & Community Forester, will announce the state winners.

Contact Mollie Freilicher, mollie.freilicher@state.ma.us or 413-577-2966 for more information.
**2017 Massachusetts Arbor Day Poster Contest**  
*Trees are Terrific...from Berkshires to Bay!*

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Activities Overview

Trees are Terrific...from Berkshires to Bay!

I. Discover the importance of tree diversity in a community

Student Learning Objective:
- Students will demonstrate knowledge of specific trees' growth characteristics, landscape functions, and planting site requirements by designing a diverse community forest landscape plan.

Basic Activity (Page 5 of the Arbor Day Foundation curriculum booklet. This booklet has been adapted for Massachusetts.)
- Students will design a diverse community forest landscape plan.

Extension Activities
- Tree Selection Game (Page 18 of the Arbor Day Foundation booklet.)

II. Create a Poster:

Student Learning Objective:
- Students will create a poster that reflects their understanding of the importance of a diverse urban and community forest.

Activity:
- Ask each student to create a poster around the theme “Trees are Terrific...from Berkshires to Bay!” that reflects their understanding of the importance of a diverse urban and community forest.

- Before they begin creating their posters, encourage students to think about how different trees contribute to their lives in their school, in the community, or in Massachusetts.
Contest Process
Create a Poster

Ask each student to create a poster around the theme “Trees are Terrific...from Berkshires to Bay!” that reflects their understanding of the importance of a diverse urban and community forest.

Before beginning to create the posters, encourage students to think about how different trees contribute to their lives in their school, in the community, or in Massachusetts.

Students should follow the poster contest rules by using the checklist on page 5.

Hold a School Poster Contest

You may select the winner or have a judging panel for the classroom and school contest. Judges could include other students, garden club members, tree board members, nursery personnel, arborists, the city forester, teachers, PTA members, or individuals with an interest in trees who are willing to volunteer some time.

Submit your Winning Poster to DCR

Submit your winning poster to DCR by March 15, 2017.

Poster Contest Prizes

First Place
- A tree is planted on the grounds of the winner’s school (valued at $200)
- A certificate for art supplies and many other prizes
- and more...

Second Place, Third Place, and Honorable Mention Winners receive art supplies and many other prizes at a ceremony for all the winners.

Winner’s teacher will also receive prizes that include educational materials that will support continued learning about forests and natural resource conservation.
Poster Contest Rules

Use this checklist to make certain all entries are eligible for judging. Entries not meeting these guidelines may be disqualified.

1. All entries must be original artwork created by a student who is currently in the fifth grade. A student may enter the contest only once.

2. The student’s first name and last initial must be written in the lower right-hand corner on the front of the poster. Do not include the last name on the front of the poster.

3. CONTENT: The poster must be related to the contest theme in some way. The theme “Trees are Terrific...from Berkshires to Bay!” must be on the poster. All words must be spelled correctly and be written clearly.

4. ENTRY MEDIA
   a) Entries may be done in marker, crayon, paint pens, watercolor, ink, acrylic, colored pencil, and/or tempera paint.
   b) Collages are not acceptable. (Do not glue anything on your poster.)
   c) Computer or photo-generated art and/or printing is not acceptable.
   d) Entries should not display the names of commercial products, companies, or organizations.

5. SIZE: Entries must be no smaller than 8.5 x 11” and no larger than 14 x 18.”

6. PAPER: Entries must be done on paper that will allow for duplication, display, and framing.

7. Entries should not be matted, mounted, laminated, framed, or folded.

8. Submit your school’s entry by March 15, 2017 to DCR’s Urban and Community Forestry Coordinator, Julie Coop, as described on the “School Winner Report Form” on the next page. Affix School Winner Report Form to the back of the school’s winning poster.
School Winner Report Form
2017 Massachusetts Arbor Day Poster Contest

All information should be complete to expedite notification of winners. All artwork becomes the property of contest sponsors.

After selecting a winning poster for the school, copy and complete this form, attach to the back of the winning poster, and send to:
Julie Coop, DCR Urban & Community Forester
251 Causeway St. 9th floor,
Boston, MA 02114

Winner’s Name ________________________________
Winner’s Home Address __________________________________
City State ZIP _________________________________________
Winner’s parent or guardian name ________________________________
Teacher’s Name _______________________________________
Teacher’s e-mail address ___________________________________
School Name ______________________________________________
School Address ___________________________________________
City County State ZIP _____________________________________
School Phone (___) ____ - _______

Important—School Tally:
How many fifth-grade students participated in your poster contest? _____
How many teachers participated in your poster contest? _______
Celebrate Arbor Day
Friday, April 28, 2017

Since 1872, Arbor Day has been celebrated throughout the United States, and Arbor Day celebrations in schools have always played an important role. An Arbor Day celebration can be:

**Simple** – Plant a tree in honor of your school poster contest winner or to recognize an outstanding volunteer.

**Inspiring** – Have your graduating class plant a tree with the younger students. This is a tradition that honors the students leaving and gives new students something to enjoy throughout their years!

**Entertaining** – Students compose poems or songs about trees or perform an Arbor Day play. (A sample play is available at [www.arborday.org/arbordayplay](http://www.arborday.org/arbordayplay).) This could be performed for fellow students, families, or senior citizens. Whatever you choose for your celebration, go outside and enjoy the trees and environment that surround you!

Get your students outside and celebrate Arbor Day!

For ideas on incorporating Arbor Day into lesson planning, go to [http://arborday.org/arborday/classroom.cfm](http://arborday.org/arborday/classroom.cfm).

The Massachusetts Department of Conservation and Recreation prohibits discrimination in employment on the basis of race, color, creed, religion, national origin, ethnicity, gender, gender identity or expression, age, sexual orientation, Vietnam Era Veteran status, or disability.
Discover the importance of tree diversity in a community

**BASIC ACTIVITY**

Design a healthy, diverse community forest

**Classroom Activity:**
- Students will design a diverse community forest landscape plan

**Objectives:**
- Students will demonstrate knowledge of specific trees’ growth characteristics, landscape functions and planting site requirements by designing a diverse community forest landscape plan

**Time Recommended:**
- 60-90 minutes

**Materials Needed:**
- Photocopied worksheets on pages 12-17
- Scissors
- Glue or glue sticks
- Ruler
- Pencils and paper

**National Education Standards Correlation:**

**National Science Education Standards Correlation:**
- Design a solution or product in light of the information at hand
- Understand diversity and adaptation of organisms

**National Geography Education Standards Correlation:**
- Understand characteristics and spatial distribution of ecosystems on Earth’s surface

**National Social Studies Education Standards Correlation with People, Places, and Environments:**
- Estimate distance, calculate scale, and distinguish other geographic relationships such as population density and spatial distribution patterns
- Examine, interpret, and analyze physical and cultural patterns and their interactions, such as land use, settlement patterns, cultural transmission of customs and ideas, and ecosystem changes
- Propose, compare, and evaluate alternative uses of land and resources in communities and regions

**Instructional Sequence:**
Assess your students’ prior knowledge and awareness of trees by asking how many different kinds of trees each student sees on their way to school. Record the responses, without comment, on the board. Ask students how they can tell different trees apart. Responses will vary. Some leading questions to ask could include:

- Does the tree have special fruits or seeds? Does the tree have a unique shape?
- Are the leaves broad and flat or are they needle-like?
- Does the tree stay green all year round or does it lose its leaves?
- What does the bark look like? (color, texture, thickness)

If students are unfamiliar with trees, or if time allows, go outside to observe trees together as a class. Take the Tree Clue Sheet (page 12) to use as a guide. Look for leaves and seeds, both on the trees and on the ground. Ask students to point out leaf patterns and shapes. Have students feel the bark on several different trees and then describe the texture and the color. Encourage students to mimic the shape of the tree with their bodies. Return to the classroom.

Leaf Shapes

6 • National Arbor Day Foundation
Hand out copies of the Vocabulary Sheet/Rubric and the Tree Information Sheets (pages 13-15) to each student.

Tell students that they are going to create a community forest landscape plan by selecting appropriate trees to “plant” in designated locations. Explain that knowing how to properly plant a tree is important, but planting the right tree in the right place is essential if you wish to enjoy that tree for years to come. In selecting a tree for a specific location there are several important things to consider.

Write the following five concepts on the board as you discuss them (see above). Include some of the background information in the discussion. Bolded words are defined on the Vocabulary Sheet, but if students are unfamiliar with any of the terms, define them as you progress though the concepts.

**Concept 1: Without a diversity (variety) of trees, one disease or insect could destroy all the trees in an area.**

**Background:** Explain that insect pests and diseases can affect almost any tree but usually these are not life-threatening to the tree. For example, tiny insects cause bumpy, wart-like **galls** to develop on hackberry leaves. While these galls do not kill the tree, some people think the galls make the tree less attractive. But occasionally a disease or pest will appear and almost completely destroy a particular tree **species**. For instance, the American elm was once the most commonly planted **street tree** in North America. A fungus called Dutch Elm Disease found its way to the United States and spread across the nation killing millions of elm trees and leaving many cities almost treeless. Planting a **diversity** of trees prevents one disease from destroying all the trees in a community.

Ask students to look at the “Comments” section for each tree on their Tree Information Sheet and identify a tree species that has problems with pests or disease. *(Answer - Lombardy poplar.)*

Today, the emerald ash borer, an insect that is an **invasive species**, has made its way to Massachusetts and can kill ash trees. Green ash was once an **ideal** tree, commonly planted in the landscape, but because of the threat of emerald ash borer, we no longer recommend the planting of ash trees.
Step 1: Discover the importance of tree diversity in a community - BASIC ACTIVITY

**Concept #2: Trees come in different shapes and sizes.**

**Background:** If given enough space to grow, trees have characteristic shapes. Some shapes fit better in a space and serve different functions than others. For example, a tree with a rounded crown (tree’s leafy top) will shade your backyard.

Pyramidal-shaped trees, especially evergreens that are wider at the bottom than at the top, provide less shade but are better at breaking the wind nearer the ground. The pyramidal-shaped tree that takes up more space near the ground means less lawn to mow, but also less space to play.

*Ask students to look at the “Key to Tree Shapes” on the bottom of their Tree Information Sheet. Have them identify the shapes of the trees listed.*

**Size** is also important in tree selection. Knowledge of whether a two-foot seedling will grow into a 30’ high tree with a 20’ spread (width) or a 100’ tree with a 70’ spread is critical in deciding where to plant a particular tree. Trees too large for a particular site can quickly crowd a house, block a view, or get tangled in power lines. (See page 9.)

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**Trees Come in a Variety of Sizes**

Size and location of the tree, including available space for roots and branches, affects the decision on which species to plant.

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**Trees Come in a Variety of Shapes**

Crown Form or Shape varies among species, including round, oval, columnar, V-shaped or pyramidal shapes. Consider how the shape of the tree works in the space available.

*Ask students to identify which trees on the Tree Information Sheet will grow to be the largest ...the smallest?*

The tree’s purpose will impact the suitability of different tree species, whether used for shade, aesthetic beauty, wind protection, screening, or other purposes.

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**Teacher’s Tip!**

If time permits, have your students draw and cut out the different tree shapes. Go outside. Have students hold the different shapes in front of the sun and look at the different shadows they cast. Have students make the tree shapes with their bodies. Sketch each tree shape and its shadow!
Concept #3: Some trees need certain locations, temperatures and soils to survive.

Background: Discuss with students that it is important not only to determine if the tree fits the location, but if the location provides what the tree needs to survive. Do the environmental factors of the location provide conditions that the tree needs to grow?

Ask students to think what some of these environmental conditions could be.

Environmental factors include:

- **Temperature**: The average lowest temperature of the year limits the growing range of many trees. Some trees grow best in cool climates; some do best in warm climates; while some trees can tolerate a wide range of temperatures.

Want to learn more? At www.arborday.org/zones the National Arbor Day Foundation has a hardiness zone map with the country divided into regions based on temperature. Using this map, you can determine if a particular tree will survive the climate where you live.

- **Soil and Moisture**: Each tree species can tolerate wet or dry growing conditions to a different degree. Some species do better in sandy soils, some grow better in rocky or clay-like soils. The soil in parking lots often contains a great deal of salt from winter de-icing. The salt can affect growing conditions for many kinds of trees. Honeylocust is a tree that is very tolerant of many soil conditions, as well as salt.

Have students refer to the “Key to Ideal Site Conditions” at the bottom of the Tree Information Sheet and identify a tree that requires a wet soil to grow...one that is tolerant of many different soil conditions.

- **Light**: Another important environmental factor to consider is the amount of light the tree needs to grow. Some tree species, like white birch and most pines, require full sunlight to grow. Other tree species are more shade tolerant. Do not make the mistake of planting a tree where it is mismatched with its need for light.

Ask students to look at the “Key to Ideal Site Conditions” at the bottom of the Tree Information Sheet. Ask students to identify a tree that needs full sun ...one that is shade tolerant.

- Other environmental factors include other weather conditions like high winds, soil compaction, and air pollution (some species are very sensitive to chemicals in the air).

Plant the Right Tree in the Right Place

Wrong Trees, Wrong Places

- Large trees planted under utility lines can interfere with lines
- Evergreens planted too close to the house can block warming winter sunlight and restrict views
- Avoid planting shade trees near a garden
- Be careful not to plant a large tree near a chimney

Better Choices

- Short flowering trees don’t grow up into over head lines
- Large deciduous trees on the southeast, southwest, and west provide cooling shade in summer and don’t block the low winter sun helping warm your home
- An evergreen windbreak on the north blocks cold winter winds and provides a home for wildlife
Concept #4: A greater diversity of trees means a greater diversity of wildlife.

Background: Trees play an important role in the web of life that exists in a rural or urban forest. They provide food and shelter to many kinds of animals. Certain tree species can determine the insect, bird, and even some mammal populations that exist in the area. Without that tree the dependent animal would not be present.

Proper selection of trees and plants can provide beauty and shade and, at the same time, provide a haven for wildlife. The presence of wildlife can make a backyard, schoolyard, or park a special place for you and your family. As urban and suburban development displaces many birds and animals from their natural habitat, it becomes increasingly important for people to provide mini-sanctuaries for birds and other wildlife. When selecting trees to plant that benefit wildlife be sure to select trees that provide for their needs.

Trees that provide food: A diversity of trees with high food value for wildlife is the single best way to bring wildlife close by. Students should be reminded that when selecting trees to plant for wildlife they should consider a wide variety of trees so there will be food for the animals year round.

Some tree species produce seeds in the spring, other species produce their seeds and fruits in the summer or fall. Some trees keep fruit on the branches into the winter. Select species that produce high food value seeds, berries, nuts and acorns.

Trees that provide cover and shelter: Birds and small animals need concealed places for nesting and hiding, protected from the eyes of predators. Planting conifers (evergreens) in groups, growing hedges with low branches, and using prickly or thorny plants in a few areas are all ways to provide wildlife cover and habitat.

Using their Tree Information Sheets, have students identify some of the tree species that are most beneficial to wildlife.

Ask students what kinds of wildlife they would like to attract.

What are some of the benefits and disadvantages of attracting wildlife?

An example could include the fun of bringing many species of birds to your backyard versus problems with attracting large numbers of birds to city streets where bird droppings get on parked cars and business signs.

Concept #5: Tree diversity provides beauty and interesting variety.

Background: Trees provide beauty and add value to a landscape. Trees simply make our lives more pleasant.

Ask students to describe the benefits we get from trees. Record the responses on the board. If not mentioned by the students, include the benefits listed below.

Trees line our streets, cool our air, trap dust, muffle noise, shield us from wind, shade our parks, screen unattractive sites, and bring wildlife to our backyard. Trees also provide social benefits. Hospital patients have been shown to recover from surgery more quickly when their room has a view of trees.

Some tree species have showy spring flowers; others have spectacular fall color. Certain trees have tasty fruit while others have fragrant needles or leaves. Planting different kinds of trees enhances the community landscape throughout the year.

Have the students once again refer to the Tree Information Worksheet. Have them look at the diversity among the leaf shapes and the fruit produced by different trees. Ask them to describe the shapes of the various leaves. Ask students to think about what tree, or trees, they would most like to play under... or view from a window... and why.
THE ACTIVITY:
Design a healthy, diverse community forest

Provide the opportunity for students to apply information learned by designing a community forest landscape plan.

Pass out the Tree Selection Sheet and the Community Landscape Plan Worksheets (pages 16-17). Using data from the Tree Information Sheets and recalling the previously discussed concepts, students are to determine what tree to plant in each lettered location. Students should cut the selected trees from the Tree Selection Sheet and glue them at the tree planting site they have chosen. Remind students that many different trees might work in some of the sites - but just select one tree for each site.

Some trees are suitable for several locations. Some trees, like the Lombardy poplar, should not be planted because of the current problems it has with disease.

When the landscaping projects are complete, ask students to explain their planting plans and their choice of tree locations.

Provide the opportunity for peer review and redesign.

ANSWER KEY

| Site A: | #3, #4, #5, #7, #8, #9, #12, #15, #16 |
| Site B: | #3, #4, #6, #8, #9, #11, #12, #15 |
| Site C: | #13, #14 |
| Site D: | #1, #5, #10, #16 |
| Site E: | #12 is best, #3, #4, #8, #9, #10 are acceptable |
| Site F: | #5, #10, #16 are best; #1 acceptable |
| Site G: | #6, #9, #11, #12, #15 are best; #8 is acceptable |
| Site H: | #7 is best; #3, #4, #6, #8, #9, #10, #12 are acceptable |
| Site I: | #3, #4, #6, #9, #12 |
| Site J: | #8, #14, #15, #16 |

Assessments:

Assessment Rubric:
Hand out a copy of the rubric (page 13) or put the rubric on the board at the start of the activity so students clearly understand the measured objectives.

Alternative Assessment:
Ask students to look at tree plantings around the school building. Determine if these trees were good choices for the sites in which they were planted.

Activity Adaptations:
You can adapt this Basic Activity for students with special needs by asking those students to draw an enlarged picture of the park site (site G) and select one or more trees from Tree Information Sheets A & B to “plant” in the park. They can choose to cut and paste trees from the Tree Selection Sheet OR they may draw and color in their own trees by looking at the illustrations on the Information Sheets. Students should label the trees in their picture and be able to describe why they picked the trees they did during the class discussion.

Extension Activities:

Many of the trees used in the Basic Activity are tree species commonly planted across much of the United States. However not all may be tree species that are well suited to your local environment. It is important for students to recognize some trees common to their own region. Two extension activities are available for you to extend your students' interest and learning.

• Tree Selection Game is found on pages 18-20. It can be used as a follow-up to Create a Classroom Forest, (below) or used as a fun way to reinforce concepts introduced in the Basic Activity.

• Create a Classroom Forest is an activity designed to introduce the basics of classification and help familiarize students with trees common to their region. Students first head outside to observe the diversity of trees in their own community. Then they select a local tree species to research, compiling what they have learned into a class Tree Information Worksheet (similar to the one used in the Basic Activity). Finally, using measuring skills and a representative scale, students design a proportional forest in the classroom that reflects the tree diversity in their community. You can find this activity on the Foundation’s Web site at arborday.org/classroomforest.
Use this page to gather clues about a specific tree. Look closely before checking your responses. The tree will be either conifer OR broadleaf. Check only one set of responses.

☐ Conifer: (cone-bearing)

Leaves (Conifer)

___ NEEDLE

SHAPE:

____ round  ____ triangular

____ flat     ____ square

___ SCALE

NUMBER IN BUNCHES:

____ 1    ____ 2     ____ 3    ____ 4     ____ 5    ____ 6 or more

TEXTURE:

____ stiff     ____ limber

____ sharp tip     ____ blunt tip

LENGTH: ______ inches long

☐ Broadleaf: (Deciduous)

Leaves (Broadleaf)

ATTACHMENT:

_____ Simple (single-blade)  _____ Compound (more than 1 blade)

palmate (like a hand)  pinnate (like a feather)

bipinnate (2 x like a feather)

ARRANGEMENT:

____ Opposite  ____ Alternate

LEAF MARGINS:

_____ lobe d                _____ entire           _____ toothed

LEAF SHAPE:

____ triangular           _____ fan shaped

____ egg shaped           _____ heart shaped

____ mitten shaped         _____ cross shaped

____ round                _____ 5-pointed star

____ pear shaped

Leaves (Broadleaf)

Tree Shape

☐ Columnar (tall and thin)  ☐ Pyramidal (triangular)  ☐ V-Shaped

☐ Round  ☐ Vertical Oval  ☐ Horizontal Oval

Branching Patterns

OPPOSITE  ☐ (branches across from each other at same level)

ALTERNATE  ☐ (branches on a different level)

WHORLED  ☐ (three branches at same level)

Seeds, Fruiting Bodies, Flowers

(Use the back of this sheet to describe or draw the flower or seed body, if it is present. Write down any special characteristics these have, including color, texture, and shape.)

Bark

COLOR:

____ brown    ____ reddish

____ grey     ____ white

____ black

TEXTURE:

____ smooth    ____ deep

____ ridged     ____ shallow

PATTERN:

____ diamond    ____ horizontal

____ vertical

ATTACHMENT:

____ tight     ____ loose
**Vocabulary**

- **Broadleaf** – a tree with thin, flat leaves that produces flowers and fruit
- **Capsule** – a sack or pod containing seeds
- **Catkin** – a cluster of many tiny flowers on a stem or stalk
- **Conifer** – a tree with needle-like or scale-like leaves that bears (grows) cones
- **Crown** – the top or head of a tree
- **Deciduous** – shedding all leaves each year
- **Diversity** – differing from each other, a variety
- **Evergreen** – holding on to leaves through the winter
- **Gall** – a swelling on a plant often caused by insects
- **Growth Rate** – how quickly a tree grows
- **Hardy** – tough, able to stand poor or harsh conditions
- **Hardiness Zone** – The range of soil and weather conditions in which a tree can successfully grow
- **Ideal** – perfect
- **Invasive Species** – A living organism, such as a plant or insect, not native to an area, that causes environmental, economic, or human harm
- **Landscape Plan** – a planned drawing of plants in a particular area
- **Mammal** – a warm-blooded animal, often with hair or fur, whose babies are born alive and fed with mother’s milk.
  (Examples: raccoon, deer, squirrel, mouse, bear, human.)
- **Species** – a kind or sort
- **Spread** – the width of a tree’s crown
- **Street tree** – a tree planted near the street, often cared for by a city or town
- **Windbreak** – a group of trees planted to act as a shelter from the wind

**RUBRIC - Design a healthy, diverse community forest**

<table>
<thead>
<tr>
<th>0-2 POINTS</th>
<th>3-5 POINTS</th>
<th>6-8 POINTS</th>
<th>9-10 POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>POOR PLAN</strong></td>
<td><strong>AVERAGE PLAN</strong></td>
<td><strong>GOOD PLAN</strong></td>
<td><strong>EXCELLENT PLAN</strong></td>
</tr>
<tr>
<td>❑ Less than 6 trees are “planted” in sites on the Worksheet.</td>
<td>❑ 6 or 7 trees are “planted” in sites on the Worksheet.</td>
<td>❑ 8 or 9 trees are “planted” in sites on the Worksheet.</td>
<td>❑ 10 trees are “planted” in sites on the Worksheet.</td>
</tr>
<tr>
<td>❑ Less than 6 trees in your plan fit the described site needs.</td>
<td>❑ 6 or 7 trees in your landscape plan fit the described sites needs.</td>
<td>❑ 8 or 9 trees in your landscape plan fit the described site needs.</td>
<td>❑ All 10 trees in your landscape plan fit the described site needs.</td>
</tr>
<tr>
<td>❑ You cannot clearly explain why trees were selected for sites A-J.</td>
<td>❑ You can explain why some trees were selected for at least 6 sites A-J.</td>
<td>❑ You can explain clearly why each tree was selected for at least 8 sites A-J.</td>
<td>❑ You can very clearly explain why each tree was selected for each site A-J.</td>
</tr>
<tr>
<td>❑ You do not participate in the class discussion of landscaping plans.</td>
<td>❑ You participate a little in class discussion of landscaping plans.</td>
<td>❑ You participate actively in class discussion of landscaping plans.</td>
<td>❑ You actively participate in the class discussion of landscaping plans.</td>
</tr>
<tr>
<td>❑ You make little effort to improve your landscape plan after discussion.</td>
<td>❑ You make some effort to improve your landscape plan after class discussion.</td>
<td>❑ If needed, you make good improvements in your landscape plan after class discussion.</td>
<td>❑ If needed, you make good improvements in your landscape plan after class讨论.</td>
</tr>
<tr>
<td>❑ Your final landscape plan does not create a healthy, diverse community forest.</td>
<td>❑ Your plan is a start toward creating a healthy, diverse community forest.</td>
<td>❑ Your plan results in a healthy, diverse community forest.</td>
<td>❑ Your plan results in a very healthy, diverse community forest.</td>
</tr>
</tbody>
</table>
Tree Information Sheet — Side A

1 Douglasfir

Height: tall
Spread: 20 feet
Growth Rate: medium
Fruit: cone
Comments: an important timber tree; can grow to over 200' in a natural setting.
Value to Wildlife: medium
Attracts: birds, mammals

2 Lombardy Poplar

Height: tall
Spread: 10 to 15 ft.
Growth Rate: fast
Fruit: no fruit, male clones
Comments: has serious problems with insect pests.
Value to Wildlife: low

3 Red Maple

Height: medium
Spread: 40 feet
Growth Rate: medium
Fruit: winged seed
Comments: has beautiful red fall color.
Value to Wildlife: low

4 Ginkgo

Height: medium
Spread: 30 to 40 ft
Growth Rate: medium
Fruit: naked, smelly seed
Comments: yellow fall color. Because of smelly fruit, plant male trees.
Value to Wildlife: low

5 Norway Spruce

Height: medium
Spread: 25 feet
Growth Rate: medium
Fruit: cone
Comments: ideal windbreaker
Value to Wildlife: low

6 White Oak

Height: tall
Spread: 60 to 80 ft
Growth Rate: slow
Fruit: acorn
Comments: a majestic tree, it does not do well in city conditions.
Value to Wildlife: high
Attracts: birds, mammals

7 Weeping Willow

Height: medium
Spread: 35 feet
Growth Rate: medium
Fruit: small capsule
Comments: graceful tree with ground sweeping branches.
Value to Wildlife: low

8 Green Ash

Height: medium
Spread: 25 feet
Growth Rate: Fast
Fruit: winged seed
Comments: very hardy tree, leaves turn yellow in fall.
Value to Wildlife: Low to medium
Attracts: birds

Key to Ideal Site Conditions:
- Full Sun
- Shade Tolerant
- Dry soil
- Average soil
- Moist soil
- Wet soil
- Wide range

Key to Tree Shapes:
- Columnar (tall and thin)
- Pyramidal (triangular)
- V-Shaped
- Round
- Vertical Oval
- Horizontal Oval
9 Hackberry
Height: medium
Spread: 50 feet
Growth Rate: fast
Fruit: hard, berry-like seed
Comments: grows easily, leaves sometimes get wart-like galls.
Value to Wildlife: high
Attracts: birds, small mammals

10 Eastern White Pine
Height: tall
Spread: 50 feet
Growth Rate: fast
Fruit: cone
Comments: soft needles in bundles of five.
Value to Wildlife: moderate
Attracts: birds, mammals

11 Horsechestnut
Height: tall
Spread: 40 to 70 ft.
Growth Rate: medium
Fruit: spiny capsules with nuts
Comments: has white flowers in the spring.
Value to Wildlife: moderate
Attracts: small and large mammals

12 Honeylocust
Height: medium
Spread: 50 feet
Growth Rate: fast
Fruit: pod
Comments: tolerant of salt and most soils. Select a thornless variety for planting.
Value to Wildlife: moderate
Attracts: large mammals

13 Redbud
Height: short
Spread: 20 to 30 ft.
Growth Rate: medium
Fruit: pod
Comments: has pretty purple blooms in spring.
Value to Wildlife: low

14 Hawthorn
Height: short
Spread: 25 feet
Growth Rate: slow
Fruit: berry
Comments: sharp thorns; fruit remains on tree into winter, attracting birds
Value to Wildlife: moderate
Attracts: birds

15 White Birch
Height: medium
Spread: 25 feet
Growth Rate: medium/fast
Fruit: catkin
Comments: has lovely white bark; often grown in groups.
Value to Wildlife: medium
Attracts: birds

16 Redcedar
Height: medium
Spread: 20 feet
Growth Rate: medium
Fruit: berry-like cone
Comments: excellent for windbreaks; birds love berries.
Value to Wildlife: high
Attracts: birds, small mammals

Key to Ideal Site Conditions:
- Full Sun
- Shade Tolerant
- Dry soil
- Average soil
- Moist soil
- Wet soil
- Wide range

Key to Tree Shapes:
- Columnar (tall and thin)
- Pyramidal (triangular)
- V-Shaped
- Round
- Vertical Oval
- Horizontal Oval
Assignment: Imagine you are helping a new community develop a landscape plan that will result in a healthy, diverse community forest. Look at the Community Landscape Plan Worksheet. Notice the holes that have already been dug at sites A-J for trees to be “planted.” Read through the list below and you’ll see that each site has different conditions and different tree needs. Using what you’ve learned, as well as referring to Tree Information Sheets A & B, select what you think is the best tree to “plant” in each site (Sites A-J) on the Community Landscape Plan Worksheet.

Cut out the trees you select and lightly tape or paste them in the site locations on the Worksheet. Be able to explain why you selected each tree and planted it where you did. (Several different trees may work in some sites—just select one tree for each site.)

Site A — Needs a medium-sized tree that will grow well in a front yard.
Site B — Needs a tree tall enough to provide shade and leave room near the ground for children to play in a backyard.
Site C — Needs a street-side tree that will fit under a power line.
Site D — Needs an evergreen that holds its leaves year round.
Site E — Needs a tree that can tolerate poor soil and salt from winter de-icing in a parking lot.
Site F — Needs a tree that can help break the wind just west of a farmhouse.
Site G — Needs a medium or tall shade tree under which people can picnic and relax that will also benefit wildlife.
Site H — Needs a tree that will grow in wet soil near a wetlands area.
Site I — Needs a medium-sized tree that will grow in a variety of soil conditions.
Site J — Needs a tree that will attract birds to a narrow space outside a class room window.
Community Landscape Plan Worksheet
Discover the importance of tree diversity in a community

Step 1

EXTENSION ACTIVITY - Tree Selection Game

Objective:
- Students will research trees common to their community and evaluate how some of their region's environmental conditions affect tree diversity in different tree planting situations.

Time Recommended:
- 60 minutes

Materials Needed:
- Worksheet (page 20) • one copy per pair
- Scissors
- Glue
- Pencil & chart paper
- Assorted tree reference books and/or Internet access
- 1 paper sack per pair of students

National Science Education Standards Correlation:
- Diversity and adaptations of organisms

Advance Preparation:
Create a list of 15 trees common to your area. If you are unfamiliar with your region's trees, check with your local forester or visit arborday.org/pc/regionaltrees to find a listing of trees common to general areas of the United States.

If few trees species are common to your area, or if class time is limited, use the trees listed on the Tree Information Sheets (pages 14-15). Write the name of each tree on a separate slip of paper.

Background Information:
Helpful tree-related websites and books that your students can utilize are listed in the box on page 19. Some references that students use may list a hardness zone range for different tree species. Visit arborday.org/zones to view the ArborDay.org Hardiness Zone Map which shows the country divided into regions based on temperature. Many factors affect tree survival but these zones can help determine if a particular tree species is likely to survive the climate where you live. You may wish to refer to this map and share your area’s hardiness zone with your students as they conduct their tree research.

Instructional Sequence:
Divide students into pairs. Provide a sheet of paper, one copy of the ‘Tree Selection Game’ worksheet (page 20) and one paper sack per pair. Have each pair draw the name of one tree to research from the slips of paper prepared earlier. Using available resources, allow students 15 minutes to collect the following information about their assigned tree and write it on their chart paper. (See four topic areas below.)

1. **Tree function.** (Is it a shade tree, a windbreak tree, a hardy tree, or a tree planted for its beautiful blooms or leaf color?)
2. **Attraction to wildlife.** (What kinds of animals depend on this tree for food or shelter?)
3. **Size at maturity.** (What is the tree’s expected height and spread? Small- under 30’, Medium – 30 to 70’, Tall – over 70’)
4. **Soil conditions.** (What kind of soil & moisture conditions does the tree need?)

Post the completed tree information on the wall.

Instruct students to cut out the four Tree Selection Cards listed under the column “Tree Function.” Have students put these cards in the paper bag and shake.

Explore your community’s trees with your students.
the bag. Students in each pair take turns pulling a card out of their bag, pasting down the cards in the Tree Function column of the Chart in the order they are drawn. Students can assign any Tree Function characteristic they wish to the Wild Card.

Repeat the process, column by column, for the three remaining groups. Again, students can assign any characteristic of that column to Wild Cards.

Once all pairs have their charts completed, explain that they are going to look at the information each team collected to see if they can find a tree that fits all the tree characteristics in each row. For example, if the first row reads:

<table>
<thead>
<tr>
<th>Tree Function</th>
<th>Attraction to Wildlife</th>
<th>Size at Maturity</th>
<th>Soil Conditions</th>
<th>Tree Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides shade</td>
<td>Attracts birds</td>
<td>Medium size: 31 to 70 feet</td>
<td>Wild card</td>
<td>Hackberry</td>
</tr>
</tbody>
</table>

Students then try to find a medium sized tree that provides shade, attracts birds, and grows in whatever soil type the students selected to represent the Wild Card. Hackberry would fit all of these characteristics.

Allow students 15 minutes to study the posted tree information. Once students identify a tree that fits all the characteristics in the row, they should write the name of the selected tree in the space provided on the chart. When completed, each group should have four trees identified on their chart.

**Note:** It is possible that with some combinations you may not have a tree common to your area that fits the listed requirements.

Each pair should select one row of their Tree Selection Game Chart to read to the class. Other students in class can try to guess what tree was found that fits all the characteristics. Discuss what tree characteristics were found, or not found, in your community’s trees and speculate why.

**Alternative Assessment:** Have students work in pairs to write a value statement about the importance of diversity in a community forest.

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**Tree Information Web Sites**

U.S. Department of Agriculture Plant Database:  www.plants.usda.gov/
United States Forest Service:  www.fs.fed.us/
University of Georgia collaboration:  www.discoverlife.org/nh/
Center for Plant Conservation:  www.centerforplantconservation.org/ASP/CPC_PlantLinks.asp#90

**Tree Reference Books**

*Field Guide to Trees and Shrubs* by George Petrides (Houghton Mifflin) 1972
*The Complete Trees of North America* by Thomas Elias (Van Nostrand Reinhold) 1980
*Trees of North America* by C. Frank Brockman (Golden Press) 1986
*Western Trees* by George and Olivia Petrides (Houghton Mifflin) 1992

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National Arbor Day Foundation • 19
## Tree Selection Game

<table>
<thead>
<tr>
<th>Tree Function</th>
<th>Attraction to Wildlife</th>
<th>Size at Maturity</th>
<th>Soil Conditions</th>
<th>Tree Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides shade</td>
<td>Does not attract wildlife</td>
<td>Small size: 30 feet or less</td>
<td>Dry Soil</td>
<td></td>
</tr>
<tr>
<td>Provides shade</td>
<td>Attract birds</td>
<td>Medium size: 31 to 70 feet</td>
<td>Average or moist soil</td>
<td></td>
</tr>
<tr>
<td>Provides a privacy screen or creates a windbreak</td>
<td>Attracts many kinds of wildlife</td>
<td>Large size: Over 70 feet</td>
<td>Wet soils</td>
<td></td>
</tr>
<tr>
<td>Wild card</td>
<td>Wild card</td>
<td>Wild card</td>
<td>Wild card</td>
<td></td>
</tr>
</tbody>
</table>