

# *All About Minnesota's Forests and Trees: A Primer*

## Quiz

### **Chapter 1: Tree Basics**

1. Trees have three main parts: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
2. Three types of cells make up the trunk of a tree  
The \_\_\_\_\_ cells make up the bulk of the tree and the annual rings; these cells move water and nutrients between the roots and the leaves.  
The \_\_\_\_\_ cells move sugar and other substances between the leaves and the roots.  
The \_\_\_\_\_ cells are in a very thin layer between the two types of cells named above. This layer is so thin it can only be seen with a microscope.
3. Trees are divided into two groups:  
\_\_\_\_\_ trees shed their leaves each fall and grow new leaves each spring.  
\_\_\_\_\_ trees have needlelike or scaly leaves that are shed as the leaves age and not all at once.
4. Of the two types of trees above, the term "softwoods" refer to \_\_\_\_\_ trees and the term "hardwoods" refer to \_\_\_\_\_ trees.
5. Because of the way trees grow taller, if you were to drive a spike into the trunk of a sapling exactly 3 feet from the ground and come back 30 years later, where would you find the spike? (Circle the letter of the correct answer.)
  - A. Less than 3 feet from the ground
  - B. Exactly 3 feet from the ground.
  - C. More than 3 feet from the ground
  - D. From 6 to 12 feet from the ground, depending on the species of tree.
6. Fall colors of trees vary from year to year depending on the \_\_\_\_\_ and \_\_\_\_\_ conditions before and during the time when chlorophyll in the leaves dwindles away.
7. Three species of trees that are able to survive in temperatures as low as  $-100^{\circ}\text{F}$  ( $-73^{\circ}\text{C}$ ) are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

8. Each species of tree has unique characteristics that allow it to grow and thrive best under a given set of conditions. Conditions that affect tree growth include (check all that apply):

- Sunlight
- Moisture
- Slope
- Temperature
- Soil type

## **Chapter 2: Forest Ecosystems**

1. A forest ecosystem is made up of several components, both living (biotic) and nonliving (abiotic). In the list below, put an “L” next to the living components of a forest ecosystem and an “N” next to the nonliving components:

- |                                    |                                 |
|------------------------------------|---------------------------------|
| <input type="checkbox"/> Soil      | <input type="checkbox"/> Plants |
| <input type="checkbox"/> Trees     | <input type="checkbox"/> Water  |
| <input type="checkbox"/> Landforms | <input type="checkbox"/> Air    |
| <input type="checkbox"/> Animals   |                                 |

2. Forests contain several different heights or layers of plants, with different animals often found within each layer. Draw a line from each group of animals in the left column to the forest layer in which it is most likely to be found.

<b>ANIMALS</b>	<b>WHERE FOUND?</b>
White-tailed deer, black flies and mosquitoes	Canopy
Eagles and bats	Understory
Mice, insects and snakes	Shrub layer
Insects, bacteria and fungi	Herb Layer
Birds and red squirrels	Forest Floor

3. The Canada lynx is an example of a (circle one) SPECIALIST / GENERALIST because it can thrive only in large tracts of relatively undeveloped forests.
4. The raccoon is an example of a (circle one) SPECIALIST / GENERALIST because it can thrive in a wide range of habitat types.
5. As environmental conditions change, the types of plants, shrubs and trees that make up a forest may also change. This process is called \_\_\_\_\_.

### **Chapter 3 Forests Before Settlement**

1. About 20,000 years ago, a glacier covered all of Minnesota except which part? The \_\_\_\_\_ corner.
2. The first species of tree to move in as the glaciers retreated, perhaps 10,000 or 11,000 years ago, were \_\_\_\_\_.
3. When Europeans began settling in Minnesota about 1800, a portion of the state was prairie and another portion was forest. About what percentage of the state was forest at that time? (circle one)    30%                  60%                  90%
4. Minnesota has four biomes – regional ecosystems characterized by the plant, animal, and microbial communities that have developed under specific soil and climate conditions. Minnesota’s four biomes are: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
5. In Minnesota, much of the land located the northeast section is \_\_\_\_\_ forest.
6. The biome that is fairly small in Minnesota but extends north into the Canadian provinces of Manitoba, Saskatchewan, and Alberta is the \_\_\_\_\_ biome.
7. A 3,000 square mile area known as the Big Woods is part of the \_\_\_\_\_ biome.
8. Of Minnesota’s four biomes, which one gets the least precipitation on average? \_\_\_\_\_.
9. Which biome has the lowest average temperature? \_\_\_\_\_.
10. Archeologists have found evidence of human activity in McCarthy Beach State Park near Hibbing dating back to \_\_\_\_\_ years ago.
11. Before European explorers arrived, American Indians used fire to manage the land (circle one)  
   A lot                  Occasionally                  Almost never

## Changes in the Forest since 1800

1. Some historians view the construction of Minnesota's first sawmill on the Mississippi River at St. Anthony Falls in the year \_\_\_\_\_ as the beginning of Minnesota's logging era.
2. The heyday of logging in Minnesota was from about \_\_\_\_\_ to \_\_\_\_\_.
3. During the logging era, loggers did not even consider planting new trees because they thought they were clearing land for (circle one):  
                  Cities                    Farms                    Recreation                    Hunting                    Buffalo
4. "L"-shaped lines of trees which are wrapped around the windward side of homes and farm buildings are called \_\_\_\_\_.
5. The \_\_\_\_\_, established in 1876, is Minnesota's first forest conservation organization. Today it is known as the \_\_\_\_\_ or MFA for short.
6. Name the Year:  
\_\_\_\_\_ Minnesota's first sawmill opens at St. Anthony Falls.  
\_\_\_\_\_ Treaties with American Indians open most of Minnesota for logging.  
\_\_\_\_\_ Minnesota gains statehood.  
\_\_\_\_\_ Logging production hits an all-time peak: 2 billion board feet of lumber produced.  
\_\_\_\_\_ Chippewa National Forest is established. (Superior National Forest was established one year later.)  
\_\_\_\_\_ Red pine, also known as the Norway pine, is named Minnesota's "State Tree"
7. Of Minnesota forest fires, which one burned the most acres and killed the most people?  
\_\_\_\_\_

**Chapter 5 Forests Today**

1. While most of the forests have been cleared in southern Minnesota for farming, we still have \_\_\_\_\_ million acres of forested land, which is about ½ of the original total. The forest we still have in place cover about \_\_\_\_\_ of Minnesota’s land area.
  
2. Forest management today is increasingly focused on stewardship, multiple benefits and sustainability. Those who care for Minnesota’s forests recognize that (see page 29):
  - a. This resource is to be \_\_\_\_\_ but not \_\_\_\_\_.
  - b. \_\_\_\_\_ needs are to be balanced with other goals.
  - c. Current demands must be compatible with our responsibility to \_\_\_\_\_.
  
3. Of today’s 16.3 million acres of forest land in Minnesota:
  - \_\_\_\_\_ % is owned by private citizens
  - \_\_\_\_\_ % is owned by private industry and corporations
  - \_\_\_\_\_ % is the total owned by state, federal and county/municipal governments.
  
4. Check those items below that represent a benefit provided by today’s forests:
 

<ul style="list-style-type: none"> <li>_____ Timber</li> <li>_____ Nontimber products</li> <li>_____ Jobs</li> <li>_____ Wildlife habitat</li> <li>_____ Biological Diversity</li> <li>_____ Cultural resources (historic burial grounds, large or very old trees, etc.)</li> <li>_____ Water and Air Quality</li> </ul>	<ul style="list-style-type: none"> <li>_____ Carbon Sequestration (absorbing carbon dioxide from the air and storing it in roots, stems, branches and foliage)</li> <li>_____ Recreation</li> <li>_____ Aesthetics (adding beauty to our surroundings)</li> <li>_____ Energy from Woody Biomass (burning trees, plants and associated residues to generate heat or electricity)</li> </ul>
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5. List the tree species from which the products listed below are made:

Tree Species	Timber Products	Nontimber Products
	Pulp for paper; Christmas trees	Christmas (seasonal) wreaths
	Furniture, cabinets, railroad ties	Firewood
	Pulp for paper (more pulp is made from this tree species than all others combined), oriented strand board (similar to plywood), paneling	Walking sticks

## **Chapter 6 Forests Tomorrow**

1. Can you love the earth and cut trees too? Yes because trees are a \_\_\_\_\_ resource.
  
2. From the Forestry-related careers listed on pages 41 and 42, list the two that sound most interesting to you:
  1. \_\_\_\_\_
  2. \_\_\_\_\_

# All About Minnesota's Forests and Trees: A Primer Quiz

## Chapter 1: Tree Basics

1. Trees have three main parts: crown, trunk, and roots.
2. Three types of cells make up the trunk of a tree  
The xylem cells make up the bulk of the tree and the annual rings; these cells move water and nutrients between the roots and the leaves.  
The phloem cells move sugar and other substances between the leaves and the roots.  
The cambium cells are in a very thin layer between the two types of cells named above. This layer is so thin it can only be seen with a microscope.
3. Trees are divided into two groups:  
Deciduous trees shed their leaves each fall and grow new leaves each spring.  
Coniferous trees have needlelike or scaly leaves that are shed as the leaves age and not all at once.
4. Of the two types of trees above, the term "softwoods" refer to deciduous trees and the term "hardwoods" refer to coniferous trees.
5. Because of the way trees grow taller, if you were to drive a spike into the trunk of a sapling exactly 3 feet from the ground and come back 30 years later, where would you find the spike? (Circle the letter of the correct answer.)  
B. Exactly 3 feet from the ground
6. Fall colors of trees vary from year to year depending on the temperature and moisture conditions before and during the time when chlorophyll in the leaves dwindles away.
7. Three species of trees that are able to survive in temperatures as low as -100°F (-73°C) are black spruce, balsam fir, and quaking aspen.

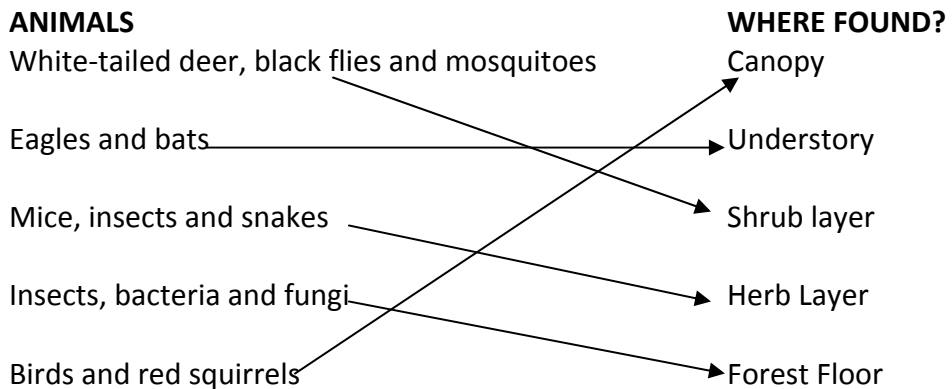
8. Each species of tree has unique characteristics that allow it to grow and thrive best under a given set of conditions. Conditions that affect tree growth include (check all that apply):
- Sunlight
  - Moisture
  - Slope
  - Temperature
  - Soil type

**Chapter 2: Forest Ecosystems**

1. A forest ecosystem is made up of several components, both living (biotic) and nonliving (abiotic). In the list below, put an “L” next to the living components of a forest ecosystem and an “N” next to the nonliving components:

- |                    |                 |
|--------------------|-----------------|
| <u>N</u> Soil      | <u>L</u> Plants |
| <u>L</u> Trees     | <u>N</u> Water  |
| <u>N</u> Landforms | <u>N</u> Air    |
| <u>L</u> Animals   |                 |

2. Forests contain several different heights or layers of plants, with different animals often found within each layer. Draw a line from each group of animals in the left column to the forest layer in which it is most likely to be found.



3. The Canada lynx is an example of a (circle one) SPECIALIST because it can thrive only in large tracts of relatively undeveloped forests.
4. The raccoon is an example of a (circle one) GENERALIST because it can thrive in a wide range of habitat types.
5. As environmental conditions change, the types of plants, shrubs and trees that make up a forest may also change. This process is called Succession.



### Chapter 3 Forests Before Settlement

1. About 20,000 years ago, a glacier covered all of Minnesota except which part?  
The southeast corner.
2. The first species of tree to move in as the glaciers retreated, perhaps 10,000 or 11,000 years ago, were spruce.
3. When Europeans began settling in Minnesota about 1800, a portion of the state was prairie and another portion was forest. About what percentage of the state was forest at that time? (circle one) 60%
4. Minnesota has four biomes – regional ecosystems characterized by the plant, animal, and microbial communities that have developed under specific soil and climate conditions. Minnesota’s four biomes are: deciduous, coniferous, tallgrass aspen parkland, and prairie grassland.
5. In Minnesota, much of the land located the northeast section is coniferous forest.
6. The biome that is fairly small in Minnesota but extends north into the Canadian provinces of Manitoba, Saskatchewan, and Alberta is the tallgrass aspen parkland biome.
7. A 3,000 square mile area known as the Big Woods is part of the deciduous biome.
8. Of Minnesota’s four biomes, which one gets the least precipitation on average?  
tallgrass aspen parkland.
9. Which biome has the lowest average temperature? coniferous.
10. Archeologists have found evidence of human activity in McCarthy Beach State Park near Hibbing dating back to 10,000 years ago.
11. Before European explorers arrived, American Indians used fire to manage the land (circle one)  
A lot

## Changes in the Forest since 1800

1. Some historians view the construction of Minnesota's first sawmill on the Mississippi River at St. Anthony Falls in the year 1821 as the beginning of Minnesota's logging era.
2. The heyday of logging in Minnesota was from about 1890 to 1930.
3. During the logging era, loggers did not even consider planting new trees because they thought they were clearing land for (circle one):  
Farms
4. "L"-shaped lines of trees which are wrapped around the windward side of homes and farm buildings are called shelterbelts.
5. The Minnesota State Forestry Association, established in 1876, is Minnesota's first forest conservation organization. Today it is known as the Minnesota Forestry Association or MFA for short.
6. Name the Year:  
1821 Minnesota's first sawmill opens at St. Anthony Falls.  
1837 Treaties with American Indians open most of Minnesota for logging.  
1858 Minnesota gains statehood.  
1899 Logging production hits an all-time peak: 2 billion board feet of lumber produced.  
1908 Chippewa National Forest is established. (Superior National Forest was established one year later.)  
1953 Red pine, also known as the Norway pine, is named Minnesota's "State Tree"
7. Of Minnesota forest fires, which one burned the most acres and killed the most people?  
Cloquet - Moose Lake Forest Fire

**Chapter 5 Forests Today**

1. While most of the forests have been cleared in southern Minnesota for farming, we still have 16.3 million acres of forested land, which is about ½ of the original total. The forest we still have in place cover about one-third of Minnesota’s land area.
  
2. Forest management today is increasingly focused on stewardship, multiple benefits and sustainability. Those who care for Minnesota’s forests recognize that (see page 29):
  - a. This resource is to be used but not abused.
  - b. Human needs are to be balanced with other goals.
  - c. Current demands must be compatible with our responsibility to future generations.
  
3. Of today’s 16.3 million acres of forest land in Minnesota:
  - 36 % is owned by private citizens
  - 7 % is owned by private industry and corporations
  - 57 % is the total owned by state, federal and county/municipal governments.
  
4. Check those items below that represent a benefit provided by today’s forests:
 

<u>X</u> Timber	<u>X</u> Carbon Sequestration (absorbing carbon dioxide from the air and storing it in roots, stems, branches and foliage)
<u>X</u> Nontimber products	<u>X</u> Recreation
<u>X</u> Jobs	<u>X</u> Aesthetics (adding beauty to our surroundings)
<u>X</u> Wildlife habitat	<u>X</u> Energy from Woody Biomass (burning trees, plants and associated residues to generate heat or electricity)
<u>X</u> Biological Diversity	
<u>X</u> Cultural resources (historic burial grounds, large or very old trees, etc.)	
<u>X</u> Water and Air Quality	

5. List the tree species from which the products listed below are made:

Tree Species	Timber Products	Nontimber Products
<u>Balsam Fir</u>	Pulp for paper; Christmas trees	Christmas (seasonal) wreaths
<u>Oaks</u>	Furniture, cabinets, railroad ties	Firewood
<u>Aspen</u>	Pulp for paper (more pulp is made from this tree species than all others combined), oriented strand board (similar to plywood), paneling	Walking sticks

## **Chapter 6 Forests Tomorrow**

1. Can you love the earth and cut trees too? Yes because trees are a renewable resource.
  
2. From the Forestry-related careers listed on pages 41 and 42, list the two that sound most interesting to you:
  1. answers will vary
  2. answers will vary