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 roods 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, were 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°F (-73°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:
    - __ Soil
    - __ Trees
    - __ Landforms
    - __ Animals
    - __ Plants
    - __ Water
    - __ Air

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.

ANIMALS	**WHERE FOUND?**
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

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

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 roods 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, were 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____.

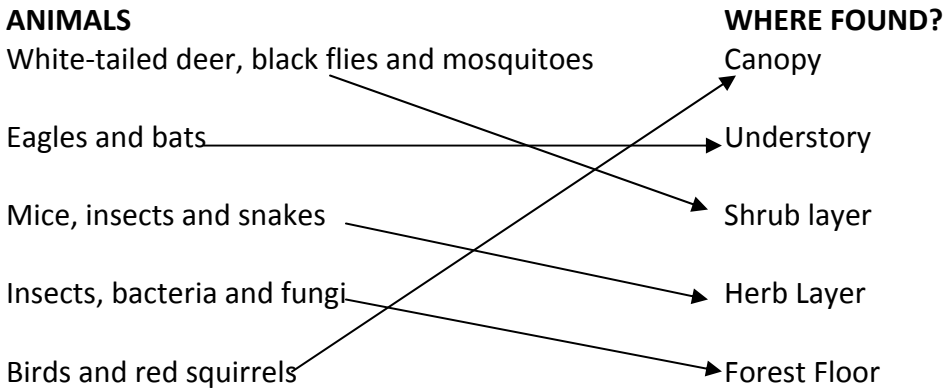
8. Each species of tree has unique characteristics that allow it to grow and thrive best under a given set of conditions. Conditions that affect tree growth include (check all that apply): X Sunlight
   X Moisture
   X Slope
   X Temperature
   X Soil type

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:

   N Soil
   L Trees
   N Landforms
   L Animals
   L Plants
   N Water
   N Air

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

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

Tree Species	Timber Products	Nontimber Products
Balsam Fir	Pulp for paper; Christmas trees	Christmas (seasonal) wreaths
Oaks	Furniture, cabinets, railroad ties	Firewood
Aspen	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 _____