

WORKSHEET #1 - TREE MEASUREMENT

NAME: _____

1. In order to assess a tract of timber, foresters conduct a survey, or _____, to estimate its quantity by species, products, size, quality, or other characteristics.
2. A _____ is a tool used to measure both tree diameter (girth) and height.
3. A _____ is used to get a more accurate measurement of tree diameter.
4. In order to measure the diameter of a tree, the forester takes the measurement at "dbh", which stands for _____.
5. "dbh" is _____ feet above the ground.
6. A _____ is another instrument used to measure tree height.
7. In order to measure the height of a tree, the forester must stand a certain distance from the tree. Typically, the forester will walk one "chain" from the tree, which is _____ in length.
8. Once tree height is known, the forester can determine how many "logs" are in the tree. A "log" is defined as a _____ long section of a tree.
9. After determining the diameter and height of a tree, the forester can use a _____ to determine the volume of wood in the tree.
10. The term used to denote the volume of wood in a tree is _____, and is a piece of wood 12 inches square and 1 inch thick.

11. Another important forestry tool is the _____, which is an auger-like instrument with a hollow bit and an extractor. It is used to remove a small cylindrical core from the tree. Foresters determine the age of a tree by counting the growth rings in the core sample.

VOCABULARY LIST FOR WORKSHEET #1 - TREE MEASUREMENT

biltmore stick

board foot

clinometer

cruise

diameter at breast height

diameter tape

increment borer

volume table

66 feet

16 foot

4.5

WORKSHEET #2 - TREE PHYSIOLOGY

NAME: _____

1. The study of tree classification is called _____.
2. A _____ tree has no leaves at least some time during the year, whereas _____ trees are never entirely without green foliage.
3. A tree that usually has cones and needle-shaped leaves is a _____, whereas a _____ tree has large, flat leaves and true flowers.
4. Conifers produce wood known commercially as _____, and broad leaved trees produce wood known commercially as _____.
5. Broad leaved trees whose seedlings have one leaf are _____; those with two leaves are called _____. The leaves contained inside a seed are _____.
6. A _____ is generally large with a well defined main stem; a _____ is generally smaller and has no well defined stem.
7. A "baby" tree is called a _____. It becomes a _____ when the dbh is 2 to 4 inches.
8. The tree has _____, which carries water and nutrients up from the roots. The _____ transports food downward. The _____ layer is the area of actively dividing cells where phloem and xylem are made. Old dead phloem is called _____, and it helps protect the tree since it is on the outside of the stem.
9. As the seasons change during a one year period, the tree grows faster in early summer and slower in late summer, which creates a pattern in the tree's cross

section called an _____. The amount the tree gets wider each year at a certain point is called the _____.

10. A very small structural compartment of all tree tissue is a _____.

Inside each of these is _____, a chemical that helps turn the energy of the sun and water into food for the plant. Some of the water brought up to the leaves escapes through pores in the leaves. This process is called _____.

11. Once the tissue reaches its full size and development, it is called _____. Once the wood ceases to contain living cells it is called _____. Cells are generally long and narrow, and their pattern along their axis is called the _____.

12. If a person were to cut into a tree trunk deeper than the cambium layer, they would be _____ the tree. The tree would then die, leaving a _____.

13. The _____ of a tree is where most of the branches and leaves are.

VOCABULARY LIST FOR WORKSHEET #2 - TREE PHYSIOLOGY

adult wood
annual growth layer
bark
broad leaved
cambium
cell
chlorophyll
conifer
cotyledon
crown
deciduous
dendrology
di-cotyledons
evergreen
girdling

grain
growth rate
hardwood
heartwood
mono-cotyledons
phloem
sapling
seedling
shrub
snag
softwood
transpiration
tree
xylem

WORKSHEET #3 - FOREST PESTS

NAME: _____

1. Forest pests can be categorized into three main areas: _____, _____, and _____. Their respective fields of study are called _____, _____, and _____.
2. An attack on the forest by any pest is called an _____.
3. An organism that lives in or on another organism of a different kind and derives benefit without returning any is a _____. The organism that it takes advantage of is the _____.
4. More evolved insects have four parts to their life cycle. An adult insect lays _____, which hatch into _____, which molt several times. Each stage of molting is called an _____. The next stage, which often involves a cocoon, is called a _____, which hatches into an _____.
5. One of the most common insect pests is the _____, which bore usually into the cambium layer of the tree, although some species damage roots, twigs, cones, and solid wood.
6. The passages these and other insects make during feeding or excavating is called a _____.
7. Sometimes when a plant gets irritated by an insect or some other pest, the tissue starts growing abnormally, causing a _____ to form.
8. When insects start to colonize an area, the individual trees in which they begin reproducing and spread from are called _____.
9. Any disease that causes rapid wilting and dieback of infected tissue is termed a _____, while yellowing of the tissues is called _____.

_____ . The latter (second) condition can happen as a result not only of disease, but of mineral deficiency, girdling, or reduced light.

10. Often an organism that causes a disease (a _____) relies on animals such as insects, or other factors such as wind, water, or seeds to transport it from one host plant to another. Those "transporters" are called _____.

11. Three main types of organisms that cause disease in forest plants are _____, _____, and _____.

12. Three examples of diseases or problems in wood caused by fungus are _____, _____, and _____.

13. One common plant that is a parasite of forest trees is _____.

VOCABULARY LIST FOR WORKSHEET #3 - FOREST PESTS

adult
bacteria
bark beetle
blight
blue-stain
brood trees
chlorosis
diseases
dry rot
eggs
entomology
fungus
gall
galleries

host
infestation
insects
instar
larvae
mistletoe
parasite
pathogen
pathology
pupa
rust
vector
virus
weed science
weeds

WORKSHEET #4 - FOREST MANAGEMENT

NAME: _____

1. A person educated and trained as a forest professional is called a _____.
2. The application of business methods and technical forestry principles to the operation of a forest property is _____.
3. Managing the forest to obtain a high level of productivity is known as _____.
4. Long term planning to insure that the growth of timber on a particular piece of land will keep up with harvest is the _____ management philosophy.
5. A federally owned piece of land managed by the federal government for the purpose of preserving scenery, flora, and fauna for public enjoyment for eternity is a _____. Conversely, federally owned land managed by the government for the purpose of multiple use and sustained yield of timber is a _____.
6. Privately owned land managed by company employees or the land owner for the purpose of bearing merchantable timber that is either currently or prospectively accessible is called _____ land, or a _____.
7. After trees are cut from a piece of land, it is in the best interest of the landowner to return the land to forest (and legally required). When existing trees are allowed to disperse their seeds, or when small trees sprout from the stumps of cut trees, it is called _____. When the landowner plants seeds or small trees in the land, it is called _____.

8. An area set aside for the raising of young trees to be planted in a forest is a _____ . Those young trees are called _____ .
9. A _____ is a seedling that has lived in more than one place before it is planted out in the forest. Seedlings that have the soil removed before planting and are planted directly into the forest soil are _____ plantings.
10. Seedlings grown in a small tube and transported to the forest for planting intact are called _____ seedlings.
11. When the trees are finally planted in the forest, they are often set in between existing trees or brush, a process called _____ .
12. A natural forest uninfluenced by human activity is a _____ forest.
13. Managing a forest properly requires the forester to have objective information about the species and ages of trees in an area. If the trees are of varying ages, it is an _____ stand, whereas an _____ stand has trees that are generally no more than 10 to 20 years different in age. The predominant species within a stand is the _____ , the one around which management activities are based.
14. A forester can determine the amount of lumber contained in a tree by measuring the dbh and height and using a _____ .
15. A forest full of stunted trees and/or shrubs that are not merchantable is called _____ ; a small but well growing tree that is one size away from being merchantable is an _____ tree.

16. _____ refers to cutting trees that are not yet merchantable size in order to allow the remaining trees (often better formed trees) room to grow faster.
17. Once a forester gets precise information on how fast the trees in a forest are growing, and how healthy they are, the location can be categorized into a _____, which are denoted by the roman numerals I, II, III, and IV. It is often helpful to the forester to put this information onto a map to get an overview of the entire property. This map is called a _____.
18. By knowing site classes of land, and using a volume table as well as other tools, the _____ or price that a stand of timber could be sold for as it stands, can be determined.

VOCABULARY LIST FOR WORKSHEET #4 - FOREST MANAGEMENT

adolescent	natural regeneration
artificial regeneration	nursery
bare rooted	planting stock
commercial forest	pre commercial thinning
container grown	principal species
even aged	scrub
forester	site class
forest management	site map
industrial forest	sustained yield
intensive forestry	transplant
interplanting	tree farm
market value	uneven aged
national forest	virgin
national park	volume table

WORKSHEET #5 - FOREST FIRE

NAME: _____

1. The three elements required for a fire to exist are _____, _____, and _____. These elements make up the "fire triangle". A base chemical reaction is needed to start the fire. If any of these elements is removed, the fire will go out.
2. Different types of fires can occur in a forest. _____ is the planned application of fire to natural fuels. When it is confined to a specific area, it can be called _____. Further planning to set the fire when the conditions will create a specific outcome, such as the elimination of a particular type of fuel is called _____. An area with uniform conditions of tree stands and fuel that is treated with one type of burn is a _____.
3. A modified form of broadcast burning is _____, where slash is piled into small areas, and only those spots are allowed to burn.
4. An unplanned and uncontrolled fire is a _____, which can be started by natural or human means. A fire started unlawfully with the intent to burn property is an _____.
5. Fire behavior is influenced by topography, weather, and fuel type; these three factors make up the "fire behavior triangle". Fuel types vary, from grass, leaves, and moss that ignite readily and are consumed rapidly when dry (_____), to large wood pieces that burn slowly (_____), to foliage, twigs, and small branches that are not in direct contact with the ground (_____).

6. Weather conditions such as wind, temperature, and humidity occur in such combinations at certain times of the year that make fires likely to occur, spread, and do damage to forest value. This time of the year is called the _____ . Also, within each 24 hour period there are hours (10 am to sundown) when fire spreads most rapidly, a _____ .
7. Information about weather and fuels can be translated into one number that defines the probable ease of ignition of a fire and its behavior. This number is a _____ , which can be described in general _____ categories, such as "severe", or "low".
8. Fires are not always confined to trees. The uppermost layer of soil and/or surface organic matter (_____) can catch on fire, creating a _____ , which can burn unnoticed and can even burn under ground, consuming roots as well. Sometimes fires get so hot near the ground that the heat alone kills foliage above without any signs of charring or browning. This damage is called _____ .
9. All activities concerned in the protection of a forest from fire is called _____ , and includes prevention, pre-suppression, detection, and suppression.
10. One method of fire detection is to assign a person (a fire _____) to detect and report forest fires from a vantage point, such as the top of a mountain.
11. Fire suppression is the act of controlling a fire once it starts. Any natural or man made barrier to stop the spread of a fire is a _____ or _____ . Heavy equipment can be used to dig down to mineral soil, and can be used as a control line from which fire fighters can

work. Often a fire is set against the control line, a _____, to consume the fuel in the path of a forest fire and/or to change the direction of the fire.

12. The front edge of a fire is the _____, the sides of the fire, roughly parallel to the direction of spread, are the _____, and the back portion is the _____.

13. _____ after a fire involves making a fire safe after it has been controlled, and can include extinguishing or removing burning material along or near the control line, felling snags, or digging trenches to prevent logs from rolling out of the burned area.

VOCABULARY LIST FOR WORKSHEET #5 - FOREST FIRE

aerial fuels

backfire

broadcast burning

burning block

burning index

burning period

controlled burning

fire break

fire control

fire danger

fire line

fire season

flanks

flash fuels

fuel

ground fire

head

heat

heat kill

heavy fuels

heel

incendiary fire

litter

lookout

mopping up

oxygen

prescribed burning

spot burning

wildfire