

Unit B: Tree Growth and Development

Lesson 1: Examining the Structures of a Tree



Terms

📖 Cambium

📖 Cork cambium

📖 Crown

📖 Fibrous root system

📖 Heartwood

📖 Inner bark

📖 Outer bark

📖 Phloem

📖 Roots

📖 Sapwood

📖 Tap root system

📖 Tree

📖 Trunk

📖 Xylem

What are the major parts of a tree and their functions?

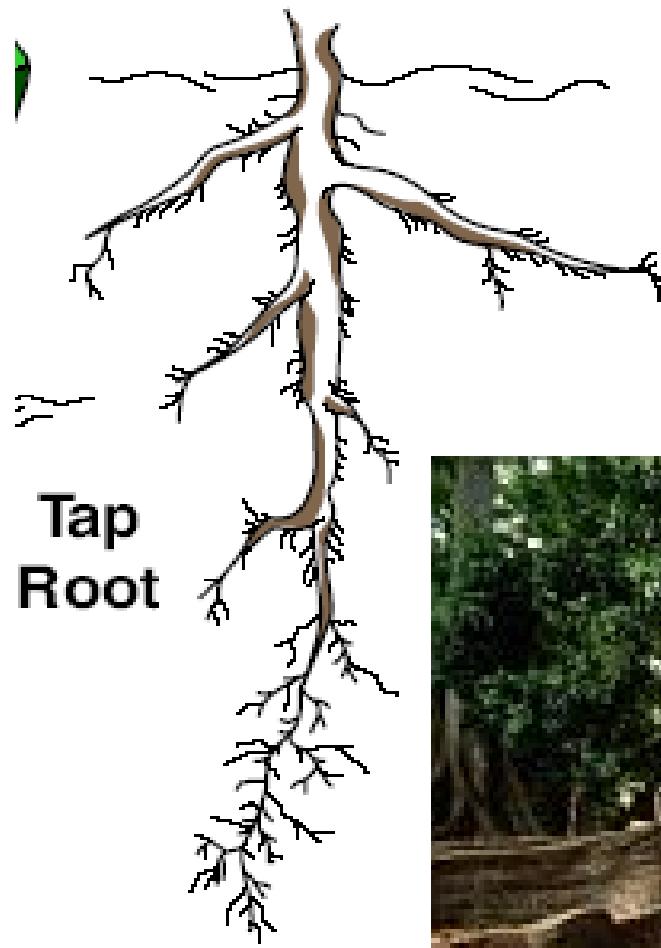
- A tree is a woody plant having one well-defined stem and a formed crown.
- There are three major parts to a tree.
- They are the roots, the trunk, and the crown.

Roots

- The roots are the part of the tree typically found below the soil surface.
 - The root system serves to anchor and support the tree.
 - Roots take water and nutrients from the soil for plant growth.

Roots

- Roots also act as a storehouse for manufactured food for the plant.
- There are two basic types of tree roots.
- They are tap and fibrous.
 - A tap root system has one large root with a number of small roots.
 - A fibrous root system has many roots that spread and branch in the soil.



**Tap
Root**



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Trunk

 The trunk of the tree serves to conduct nutrients and water from the roots to the manufacturing portion of the tree, represented by the crown.

Trunk

- The trunk also produces the bulk of the useful wood in a tree.
- The trunk is comprised of a series of rings.
- Under normal conditions, one ring is produced each year.

Trunk

- Each section of the ring has a specific purpose in the life of the tree.
 - In large trees, the center portion of the trunk is darker-colored and is known as heartwood.
 - Here the cells have ceased to function.

Trunk

- In other words, the wood in this portion of the tree is dead.
- The heartwood provides strength to the tree and keeps it upright.

Trunk

- Outward from the heartwood is the lighter colored wood known as sapwood, or xylem.
 - This is the living portion of the tree.
 - It is the means by which raw nutrients and water are carried from the roots to the crown.
 - The sapwood also serves as the storage area for some of the food made in the leaves.

Trunk

- Outside the sapwood is the cambium.
 - This active layer of cells is responsible for the growth of the tree.
 - Each year the cambium forms a new annual ring.
 - This is how trees grow in diameter.

Trunk

- » Immediately outward from the cambium are the living cells called the inner bark or the phloem.
 - The tissue carries food made in the leaves down to the branches, trunk, and roots.
 - The phloem is protected by dead, nonfunctioning outer bark.

Trunk

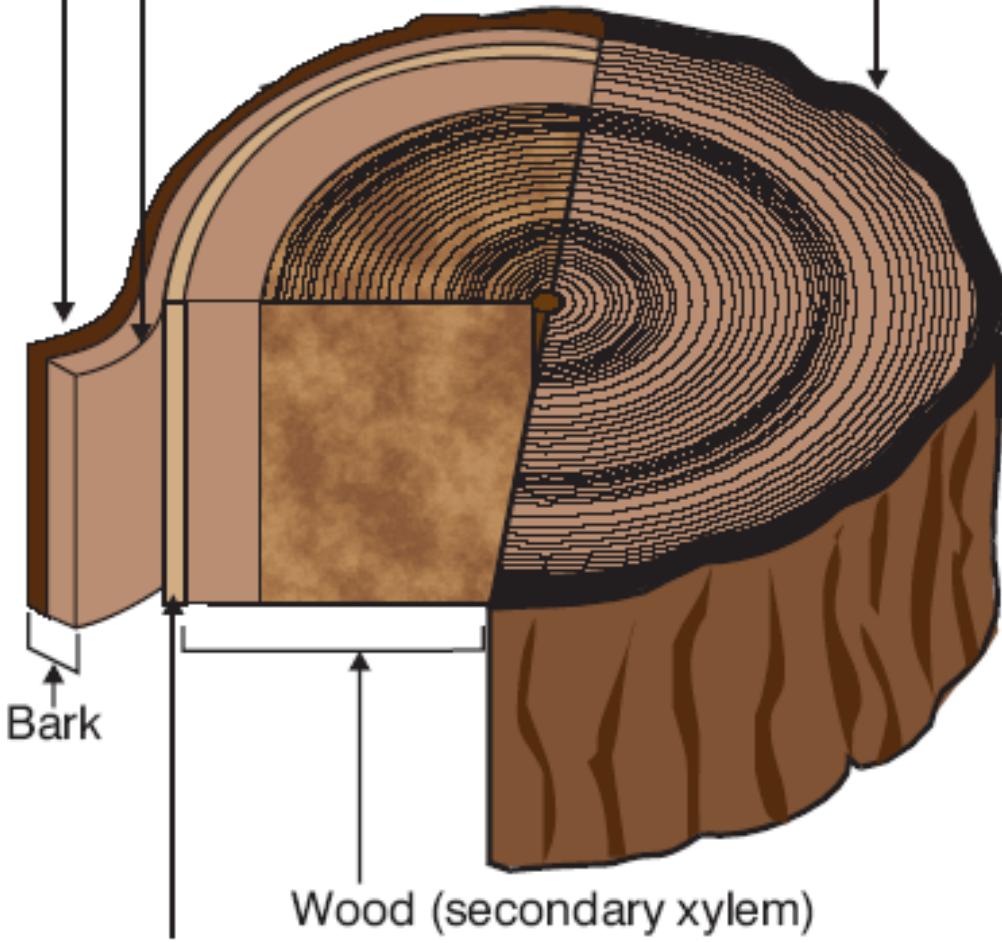
 The bark, which protects the trunk of the tree, is formed by the cork cambium, a thin layer of cells between the phloem and the bark itself.

WOOD STEM SECTION

Periderms with their cork cambia

Inner bark (secondary phloem)

Outer bark

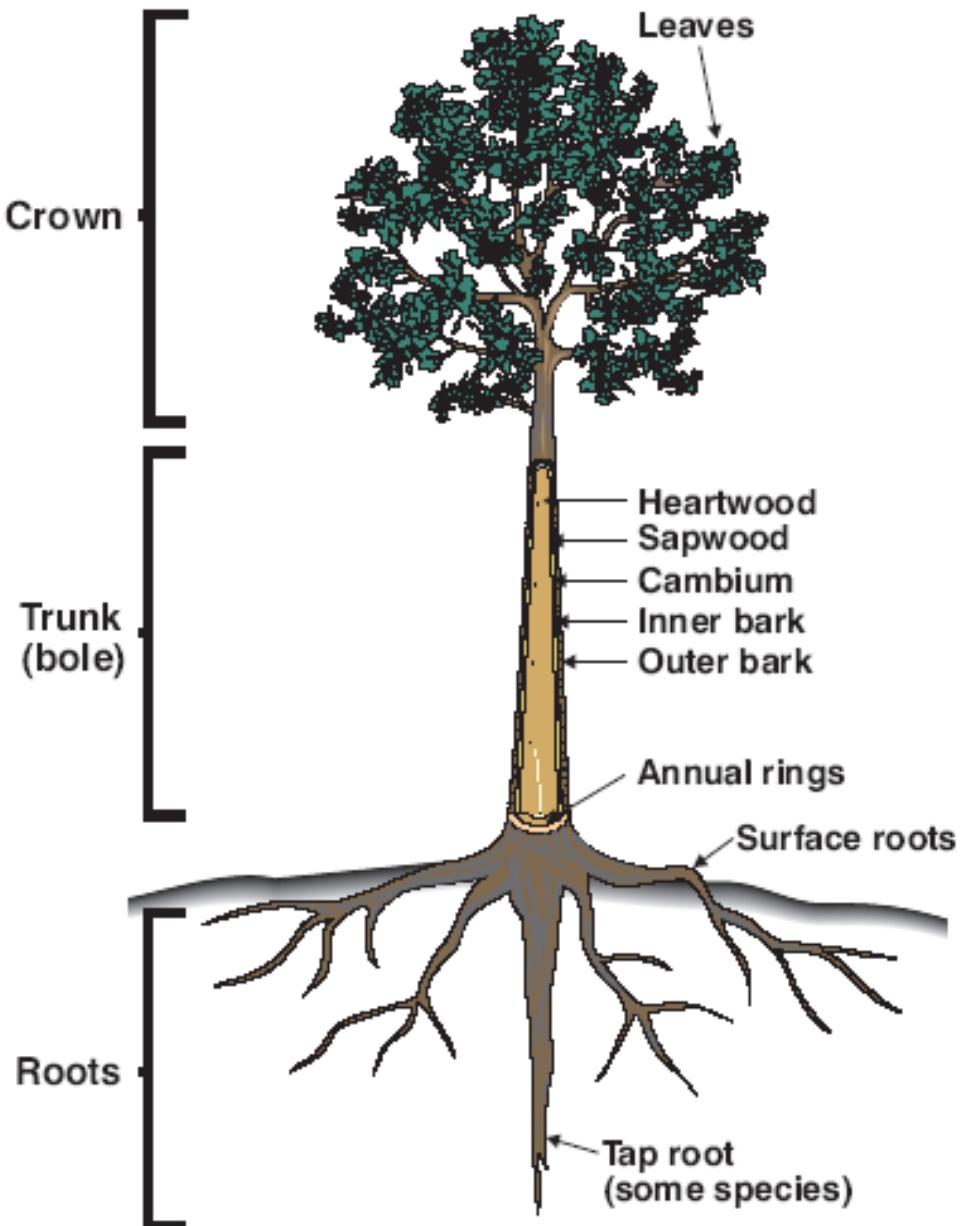


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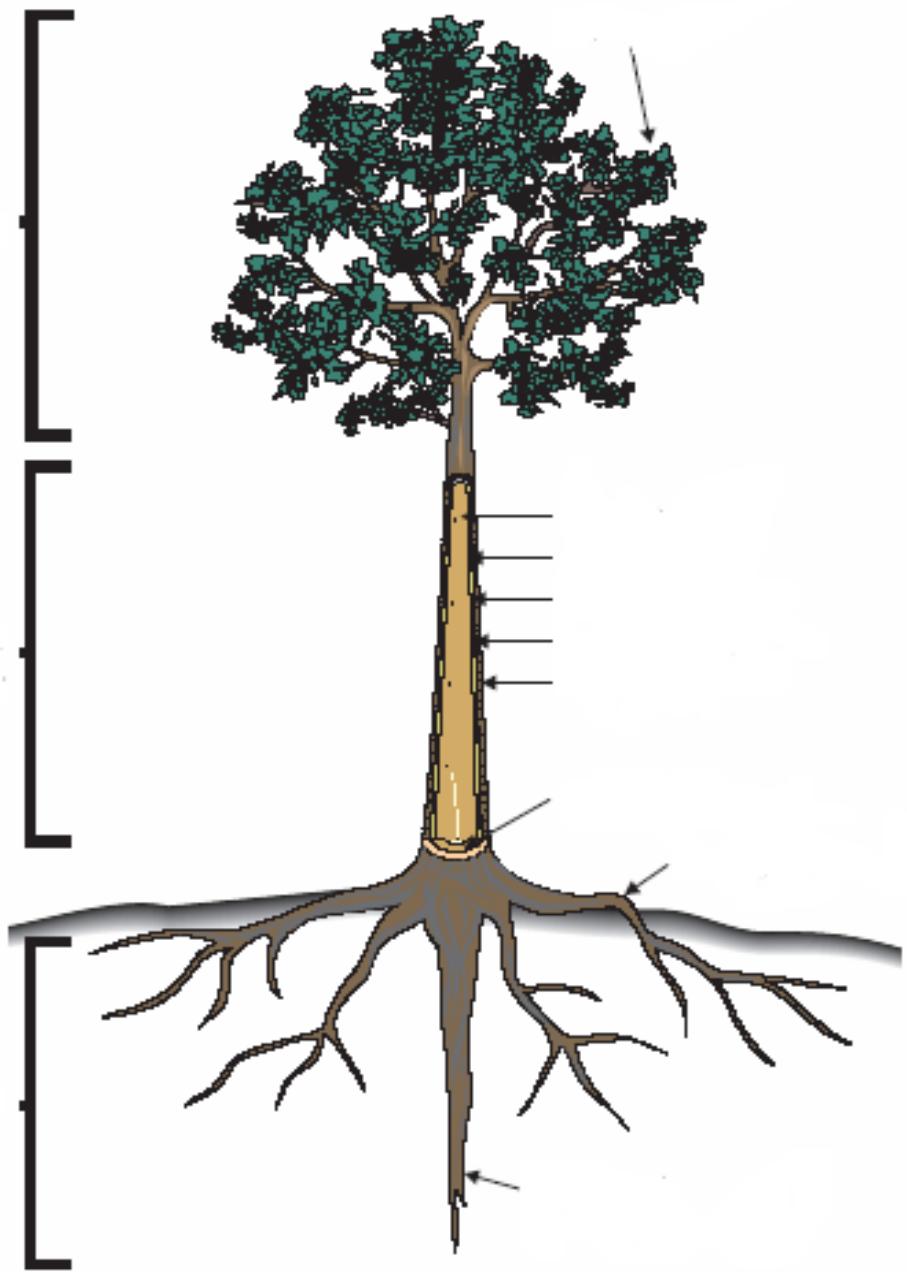
Crown

- 📘 The crown or the top part of the tree that includes branches, twigs, buds, and leaves.
 - A major role of the crown is to hold leaves to collect sunlight so photosynthesis can occur.
 - It is also in this section of the tree that seeds, fruits, nuts, and berries are produced.
 - The crown can also serve as a nesting site for wildlife such as squirrels and birds.

PARTS OF A TREE



Parts of a Tree



Review / Summary

❑ What are the major parts of a tree and their functions?