

Lab: Trees

Purpose: To examine the structure of a pine needle and stem.
As well, examine specimens of gymnosperm and angiosperm trees.

1. Examine the slide of the cross section of a pine needle. Draw it and label: stoma, endodermis, cuticle, epidermis, parenchyma, phloem, and xylem. **Explain the role** of each tissue in the plant. What are guard cells? What part of the plant are they most closely associated with?
2. Examine the slide of a pine stem (older). Make a labeled diagram of the resin duct, xylem, phloem, medullary ray, cuticle, epidermis, cortex and pith. How many years of growth is there?
Gymnosperms have woody tissue which is very strong. This allows gymnosperms to compete for light and allows roots to penetrate deep into the soil.
3. Identify the trees the branches came from. Is the tree a gymnosperm or angiosperm? Use the booklets beside the branches to help identify them.
4. **For your notes:** Using your textbook as a reference:
 - Explain alternation of generations (life cycle) of gymnosperms
 - What are microspores and megaspores? Where are they produced?
 - What is fertilization?
 - What is pollination?
 - Explain the difference between fertilization and pollination.
 - What is a pollen tube?
5. a) What is meristem tissue?
b) Explain the function of the two types of meristem tissue: apical and lateral.
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