Introduction to Plants
Objectives

- **Describe** three ways that seed plants differ from seedless plants.
- **Describe** the structure of seeds.
- Compare angiosperms and gymnosperms.
- Explain the economic and environmental importance of gymnosperms and angiosperms.

http://botany.thismia.com/__oneclick_uploads/2010/10/thelypteris_phegopteris.jpg

I. Characteristics of Seed Plants

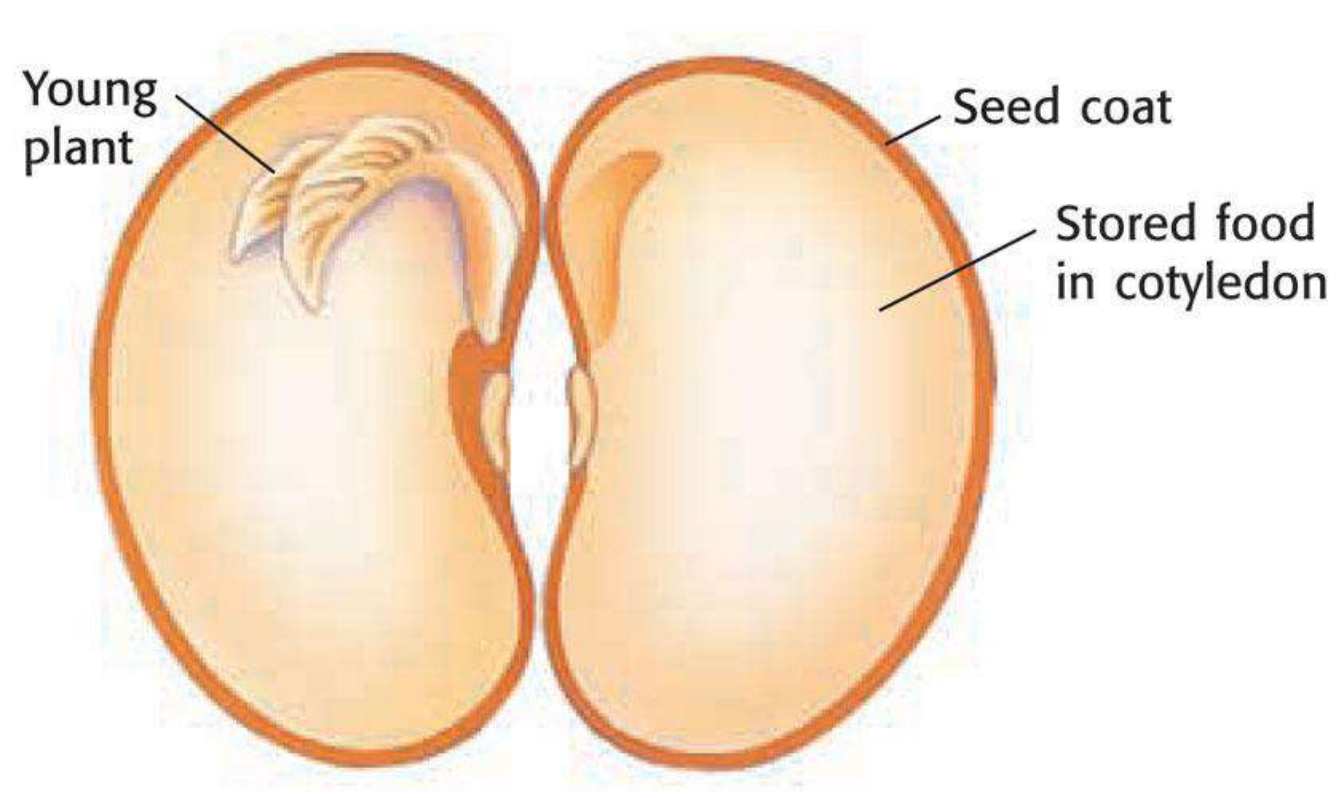
A. Seed plants differ from seedless plants in the following ways:

- Seed plants produce seeds.

- The sperm of seed plants do not need water to reach an egg.
- Sperm form inside pollen. Pollen can be transported by wind or by animals.

II. The Structure of Seeds

A. A seed is made up of three parts. The first part is a young plant, or the sporophyte. The second part is stored food. Finally, a seed coat surrounds and protects the young plant.



Critical Thinking Time

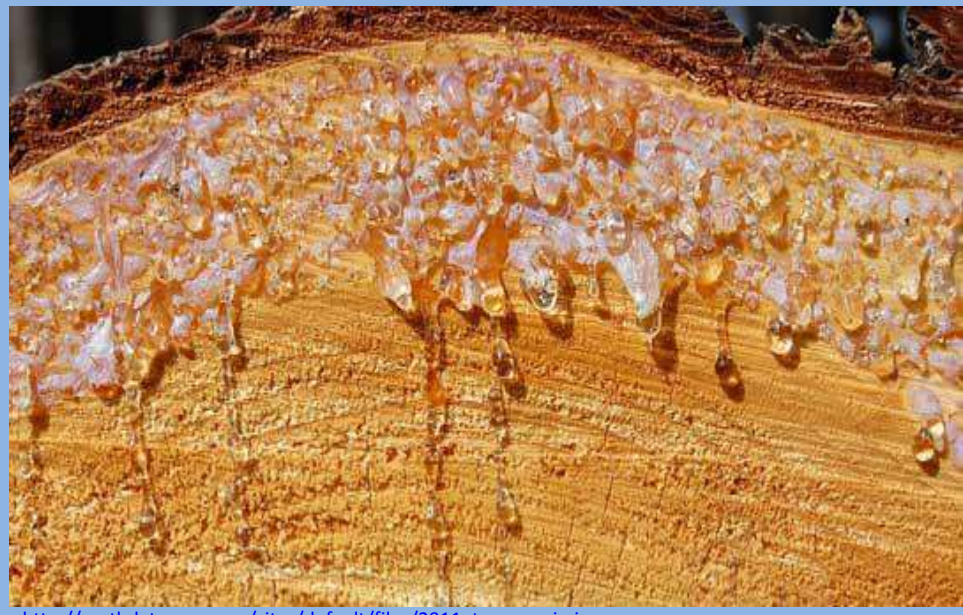
Grass flowers do not have strong fragrances or bright colors. How might these characteristics be related to the way by which grass flowers are pollinated?

I. Gymnosperms

A. The Importance of Gymnosperms Conifers are the most economically important gymnosperms. People use conifer wood for building materials and paper products.

- *Resin*, a sticky fluid produced by pine trees, is used to make soap, turpentine, paint, and ink.

http://biology.clc.uc.edu/graphics/taxonomy/plants/spermatophyta/gymnosperms/other%20pines/JSC%209805&06%20male%20&%20female%20pine%20cones%203.JPG

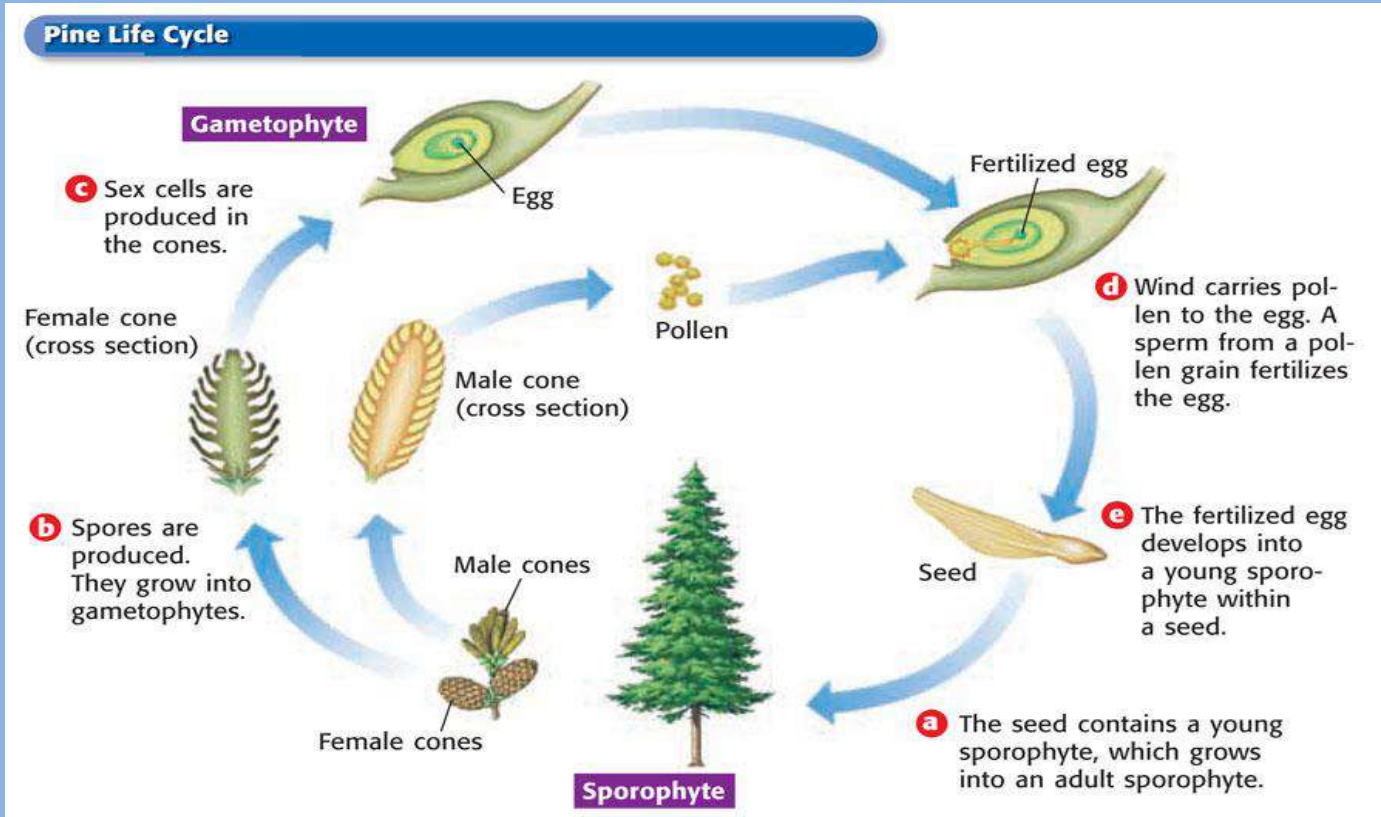


http://earthdata.nasa.gov/sites/default/files/2011_trees_resin.jpg

Gymnosperms

B. Gymnosperm Life Cycle Sperm from pollen in the male cone fertilize the eggs of the female cone. A fertilized egg develops into a young sporophyte within the female cone.

C. Pollination is the transfer of pollen from the male reproductive structures to the female structures of seed plants.



II. Angiosperms

http://www.nhptv.org/natureworks/graphics/shastasm.jpg

http://static.ddmcdn.com/gif/fruit-questions-1.jpg

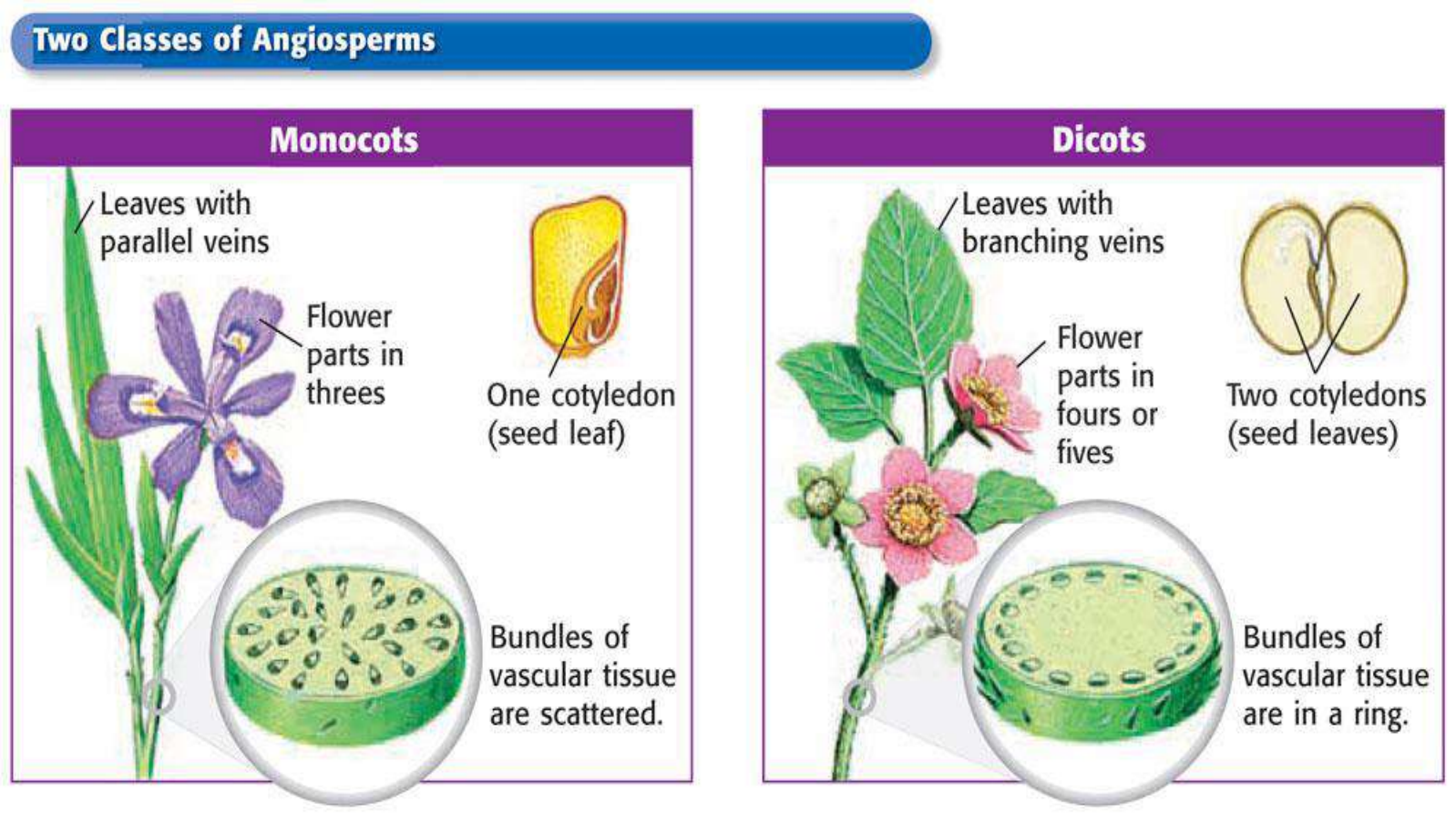
A. Angiosperms are vascular plants that produce flowers and fruit.

B. **Angiosperm Reproduction**
Flowers help angiosperms reproduce. Flowers attract animals that help spread pollen.

C. Fruits surround and protect the seeds. These fruits help angiosperms distribute their seeds.

II. Angiosperms

D. Two Kinds of Angiosperms Angiosperms are divided into two classes— monocots and dicots.



II. Angiosperms

E. The Importance of Angiosperms Flowering plants provide many land animals with the food they need to survive.

- **People use flowering plants in many ways. Major food crops, such as corn, wheat, and rice, are flowering plants.**

- **Flowering plants are used to make cloth fibers, rope, medicines, rubber, perfume oil, and building materials.**

Critical Thinking Time

How are gymnosperms and angiosperms different?