Adaptations of Plant to Land

Problems with moving to land:
1) air offered little support
2) water and nutrients had to be transported throughout plant
3) Need a way to prevent water loss, maintain proper gas exchange between plant and surrounding, increase chance of fertilization, protect the embryo and withstand extreme temperature fluctuations, in environment conditions.

Adaptations:

a) **cuticle:** a waxy covering which is secreted by epidermal cells. It covers the stem and the leaves. It prevents the plant from drying out.
b) **leaves:** to absorb light and photosynthesize. They can make food more efficiently than algae.
c) **stomata:** small pores in epidermis for gas exchange between the plant & atmosphere. Usually found in the leaves.
d) **roots:** to absorb water and nutrients and hold the plant in place in the ground.
e) **stems:** to support the leaves in the sunlight and connect the roots so a transfer of nutrients could occur. To do this they developed a vascular system which consists of:
   i) **xylem:** vascular tissue which carries water and minerals to the leaves (mainly dead cells). AND
   ii) **phloem:** vascular tissue which transports food, produced by photosynthesis in the leaves, throughout the plant (mainly living cells)
f) Reproduction does not depend on water. They developed flowers, pollen and seeds (protect zygote from drying out)

Land plants have the advantage, over aquatic plants, of being able to be exposed to direct sunlight and having an internal transport system (vascular tissues xylem and phloem)