

# Chapter 28 & 29 Essential Knowledge

Write a detailed response to each of the following pieces of information. If numbers are given in parentheses, they refer to the pages of your text book.

**Main Concepts:** Organisms must exchange matter with the environment to grow, reproduce and maintain organization. **AND** Growth and dynamic homeostasis are maintained by the constant movement of molecules across membranes. **AND** Homeostatic mechanisms reflect both common ancestry and divergence due to adaptation in different environments. **AND** Organisms exhibit complex properties due to interactions between their constituent parts.

1. Explain how plant systems depend on water's polarity and hydrogen bonding.
2. Explain how root hairs are specialized in structure for their function.
3. Describe how passive transport is important in the transport of resources in a plant.
4. Discuss the role that facilitated diffusion in the transport of sugar in a plant.
5. How do plants perform the following?
  - a. gas exchange
  - b. obtaining nutrients
6. How do plants deal with osmoregulation (different salt concentrations) – link your answer to water potential!
7. Explain how the roots, stems, and leaves (plant organs) all work together to transport water and nutrients through the plant.
8. How do a plant's vascular tissues and leaves directly interact and coordinate water transport.