**Questions to answer:**

1. Why is the presence or absence of vascular tissue a major evolutionary delineation for plants?  How does the presence/ absence of vasculature tissue constrain bryophyte anatomy?
2. Explain how transpirational pull is created starting with the roots and ending with evaporation of water at the stomates.
3. How is control of stomates utilized by different types of plants.
4. Diagram the pressure flow hypothesis for phloem transport of sap.
5. What are the trends that are seen in animal circulatory systems over evolutionary time?
6. Compare the open circulatory system of arthropods with the closed circulatory systems of vertebrates.
7. Explain how the components of blood allow for the various functions of blood.
8. Compare arteries, capillaries and veins.
9. Diagram the path that blood flows through the mammalian body.  Include all four chambers of the heart, and all arteries and veins that lead immediately to and from the heart.  Indicate where blood is the most oxygenated, and where it is the least oxygenated.
10. Explain how heart beat is regulated in the mammalian heart, and how that heartbeat relates to blood pressure.
11. Why do animals need specialized systems to exchange gasses with the environment?
12. What are the characteristics of a functional respiratory surface?
13. Diagram an alveolus to show blood flow, air flow, and oxygenation of both.
14. Compare the transport of oxygen and carbon dioxide in the bloodstream.

**Things you should make sure you understand:**

**(feel free to ask questions about them in class)**

* How the processes of plant transport depend upon water potential and how that water potential is generated as a function of pressure and solute concentration.
* Adaptations that minimize water loss in plants, and the consequences of adaptations that minimize water loss on plant physiology.
* The consequences of particular evolutionary trends in circulatory systems for the organisms that demonstrate those trends.
* The structure and function of all parts of the mammalian circulatory system.
* How the components of the circulatory system work with other body systems to maintain homeostasis.
* How the circulatory system is regulated.
* The causes, effects, and treatments of various circulatory system disorders.
* The consequences of particular evolutionary trends in respiratory systems for the organisms that demonstrate those trends.
* The structure and function of all parts of the mammalian respiratory system.
* How the components of the respiratory system work with other body systems to maintain homeostasis.
* How the respiratory system is regulated.
* The response of hemoglobin to conditions of low pH and why is this adaptive for mammals.
* The causes, effects, and treatments of various respiratory system disorders.