Review Sheet for 2014 Midterm Living Environment

1. Know how to measure using a microscope using millimeters and micrometers.
   Safety rules: How to heat things, goggles, apron, etc.
2. Scientific method: General principals - problem, hypothesis, procedure, observation, data, conclusion. The need to study one variable at a time (experimental variable).
   The need for a control, etc. The need for graphing data - why is it needed?
3. How to measure using a graduated cylinder.
4. How to use a microscope: also know what effect the compound microscope does to the image of the object being looked at - it does not make it look upside down!! Do no be fooled. It does change it. How to figure out total magnification. How to move the slide to position the object where you want it in the FOV. The effect of changing objective lens on the size of the field of view.
5. The pH scale - the difference between acid & basic - how to use the pH scale, etc.
6. How to use indicators: Iodine (lugol's), Benedict's (also blue) for glucose (Glucose indicator solution.
7. What is an Autotroph.
8. Respiration - all types, know the big picture, what goes "in" and what goes "out."
9. The cell theory and the exception(s)
10. The microscope - related to cell theory
11. The role of ATP.
12. Types of microscopes: What type would be used to see the various parts of the cell.
13. Differences between plant and animal cell.
14. Cell parts (organelles) and their function.
15. Organic vs inorganic.
16. The most abundant elements found in living things.
17. The role of water in the cytoplasm.
18. The basic formulas for photosynthesis and respiration.
19. The role of enzymes, the substrate, and things that influence how fast they work.
20. Different kinds of organic molecules: Carbs, Lipids, Proteins, DNA (structure and function).
21. Parts of leaf
22. Colors & photosynthesis.
23. Transport - Diffusion/Active transport/Osmosis
24. The state lab on Transport. See my website for the review sheet: http://www.herricks.org/webpages/RHutchinson/files/Diffusion%20state%20lab%20pdf1.pdf
25. DNA - Structure of nucleotides/base pairing rule/who discovered it/what is the name of its shape.
26. DNA replication
27. Protein synthesis - transcription/translation - the types of RNA
28. Biotechnology - genetic engineering. Restriction enzymes/plasmid