Practice Exam #1:

**Characteristics of Life:**

1. Is fire alive? How can you tell?
2. Why is a spayed (“fixed”) dog considered alive?

3. When a dog grows a winter coat, what characteristic of life is that?

**Chemistry:**

4. Draw a nitrogen molecule and draw the bonds it would form to another nitrogen molecule.

a. What kind of bonds are these?

b. What are the three bonds? Which one is the weakest?

**Macromolecules:**

5. What is the monomer of a sugar called?

6. What is the secondary structure of a protein composed of?

a. Why/how does heat damage proteins?

**Cell Structure:**

7. Name the components/steps of the endomembrane system?

8. Draw a eukaryotic cell with a detailed cell membrane:

9. What does surface area have to do with the function of a mitochondria?

**Cell Transport:**

10. Draw a cell in a hypotonic environment.

11. Explain why water can move through a cell membrane.

12. Give an example of a molecule that could not move through the membrane and explain why.

* Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Why:

13. What is osmosis?

* Why is **Osmosis** considered passive transport?

14. Why does a salty cell explode?

* What can a salty cell do to not explode?