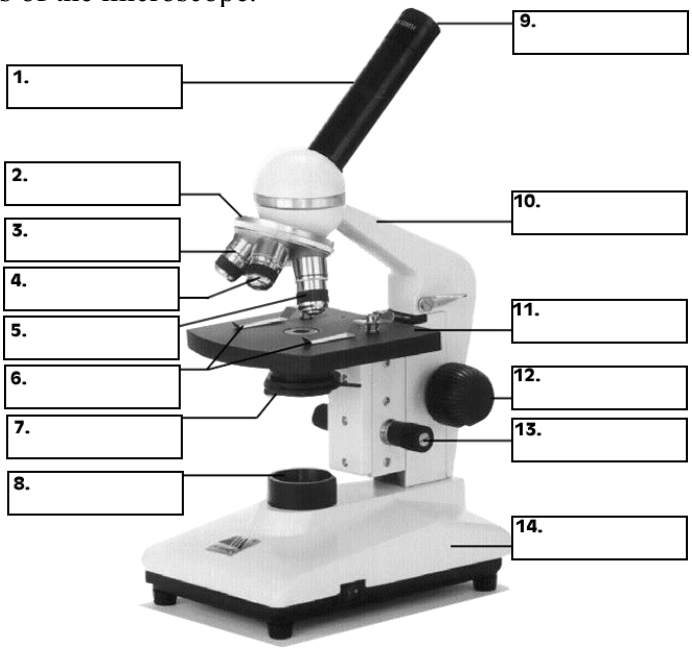
Unit 1 Review Sheet Honors Biology **Name** _____

Content Domain 1: Scientific Processes and Nature of Biology

1. List the steps of the scientific method, in order. Write a brief description of each step.
   a. _____
   b. _____
   c. _____
   d. _____
   e. _____
   f. _____
   g. _____
2. In a fish respiration experiment (put goldfish in different temperatures of water and count the respirations), what kind of data would be collected; quantitative or qualitative? _____How do you know? _____
3. What is the independent variable? _____ How do you know? _____
4. What is the dependent variable? _____ How do you know? _____
5. What are some controlled variables (constants)? _____
6. What is the difference between a conclusion and an inference?

   _____

   _____
7. Describe when you would use the following types of graphs:
   a. Line graph-_____
   b. Bar graph-_____
   c. Pie graph-_____
8. List some common tools used by scientists to make observations. _____
9. Label the parts of the microscope.



What is the function of these?

a. Objectives- _____
b. Coarse wheel adjustment- _____
c. Fine wheel adjustment- _____
d. Diaphragm- _____

11. What is the metric unit for the following?
    a. length _____ b. mass _____ c. volume _____
12. Common Safety Rules: When should goggles be worn?

    _____

When should you wash your hands? _____

13. What is the subject of each of the following branches of biology?
    a. Botany _____
    b. Ecology _____
    c. Genetics study of _____
    d. Microbiology study of _____
    e. Taxonomy study of _____
    f. Zoology study of _____

Content Domain 2: Cellular Basis of Life

1. List the 3 parts of the cell theory: a. cell is the basic unit of _____; b. all organisms are composed of _____; c. all cells come from _____.
2. List the characteristics of living things:
    a. Made of _____
    b. Require food for _____ to carry out life processes
    c. Respond to _____ in their environment
    d. _____ offspring
    e. _____ and _____
    f. Maintain _____; a balance of internal conditions
    g. Have and pass on a _____ code
3. A _____ organism has to perform all metabolic activities within one cell.
4. A _____organism has specialized/_____ cells that perform certain jobs.
5. In multicellular organisms, a group of related cells makes up _____, which makes up _____, which are grouped into _____, which work together to make up the organism.
6. A _____ cell does NOT contain a nucleus or membrane-bound organelles.
7. A _____ cell does have a nucleus and other organelles.

8. What is cell specialization? _____

    _____

    Does it occur in unicellular organisms only, multicellular organisms only , or both kinds?

    _____

Match the organelle with its function.

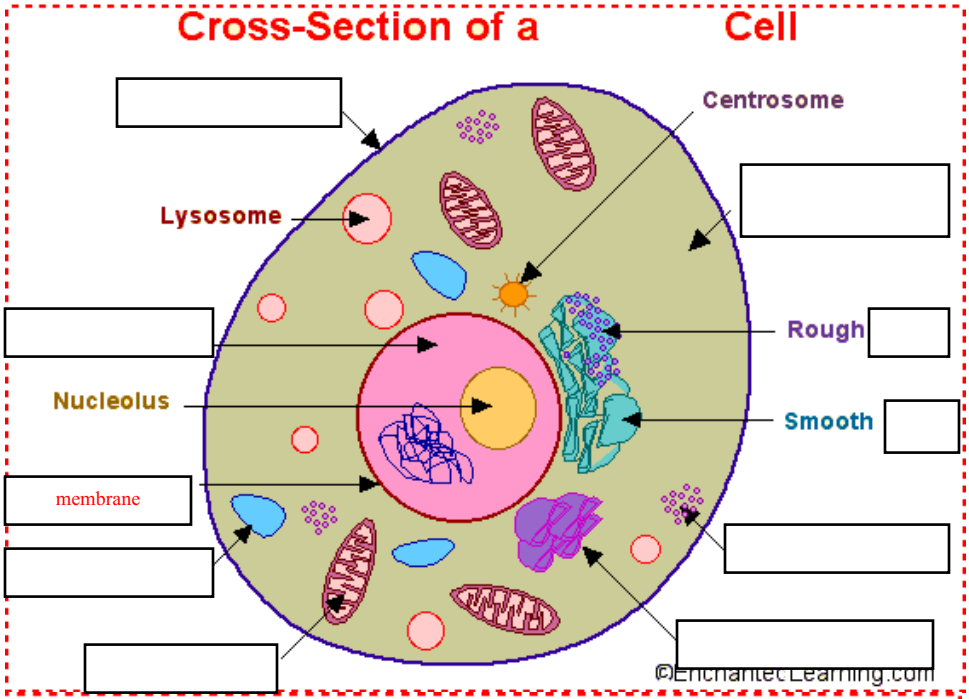
a. Boundary that surrounds the nucleus
b. Found in plants for support & protection
c. Gel-like material where organelles are found
d. Makes proteins
e. Gatekeeper; controls what comes in & out of cell
f. Control center of cell; where DNA is found
g. Powerhouse; where energy is made from food

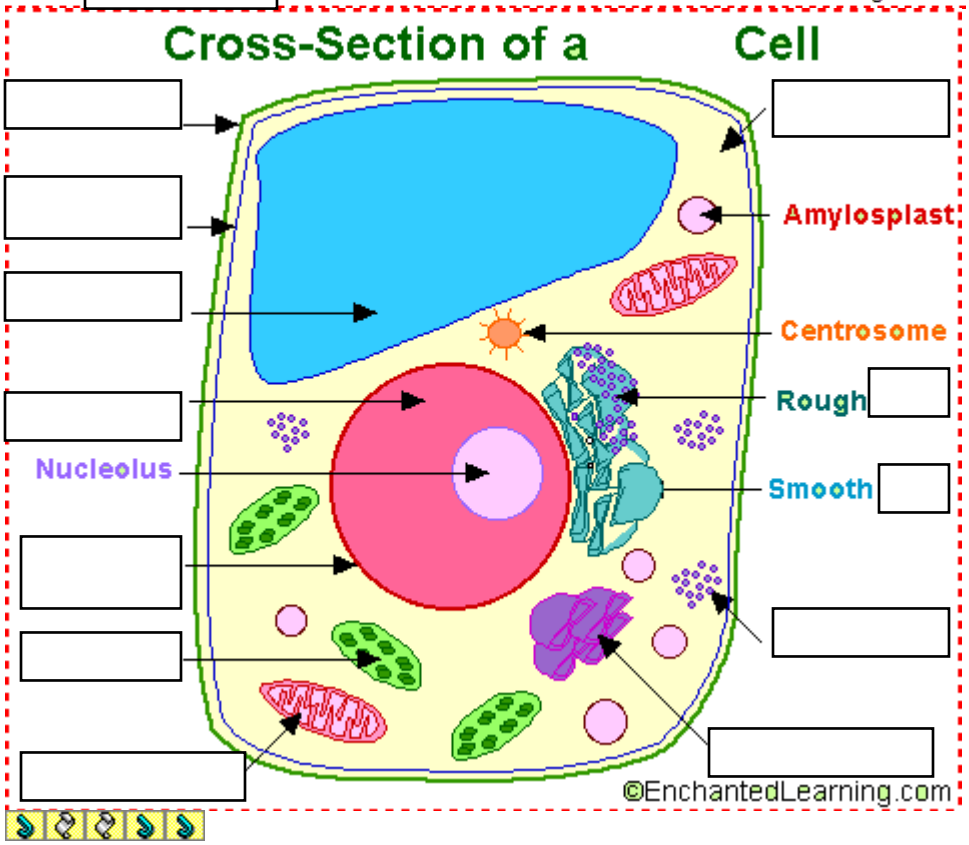
12.

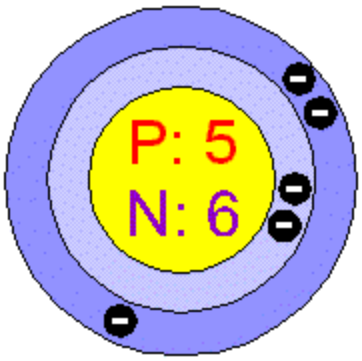
h. Stores substances
i. Packages proteins
j. Site of photosynthesis in plant cells
k. Distributes proteins like a roadway
l. Structure inside nucleus that contains genetic code

14. ___plasma (cell) membrane
15. ___chloroplast
16. ___nucleus
17. ___nuclear membrane
18. ___cytoplasm
19. ___cell wall
20. ___Golgi body
21. ___endoplasmic reticulum
22. ___ribosome
23. ___chromatin/chromosome
24. ___vacuole
25. __mitochondria

Label the following plant and animal cells.







Content Domain 3: Chemical Basis of Life

1. _____ is anything that takes up space and has mass. The 3 states are _____, _____, and _____.
2. The _____ is the building block of all matter. There are 3 particles. Inside the nucleus are the _____, which have a _____ charge, and the _____, which have no charge. Surrounding the nucleus are the _____-charged _____.
3. Electrons found in the outermost shell are called _____ electrons. When this shell is full, the atom is _____ and does not bond with others. There can only be 2 electrons in the first shell, 8 in the second shell, and 8 or 18 in the third shell.
4. The atomic number tells you the number of _____, which equals the number of _____ in a neutral atom. The atomic mass minus atomic number tells you the number of _____.
5. Draw the atomic structure for boron.
6. An _____ is a substance made up of all the same kind of atoms. The most common ones found in living things are carbon, hydrogen, oxygen, nitrogen, sulfur, and phosphorus.
7. There are 3 types of chemical bonds: ionic, covalent, and hydrogen.
   a. **ionic bond**: electrons are _____, resulting in charged atoms that are held together because opposites attract. Ex- NaCl (sodium chloride)
   b. **covalent bond**: electrons are _____. Ex- CO_2
   c. **hydrogen bond**: weak attractions between _____ molecules. Ex- holds water molecules to other water molecules; holds nitrogenous bases together in a DNA molecule
8. A chemical _____ is when chemical bonds are broken and new bonds form.
9. An _____ compound always contains carbon and comes from living things.
10. An _____ compound does not contain carbon and comes from nonliving things.
11. The most important inorganic compound for living things is _____. It is polar (the hydrogen side is positive while the oxygen side is negative). It is a great _____ (it can dissolve most things), necessary for most chemical reactions in living things.
12. The _____ scale, from 0 to 14, is a measure of how acidic or basic something is. Neutral is ___. Acids are _____ than 7. Acids release hydrogen ions (H^+). Bases are _____ than 7. Bases release hydroxide ions (OH^-). Stronger acids and bases are _____ from 7, while weaker acids and bases are _____to 7.
13. The four basic types of organic compounds found in living things are _____, _____, _____, and _____.

14. **Carbohydrates** contain these 3 elements: ___, ___, and ____. Carbs provide a major source of _____. Monosaccharide example: _____ polysacchararide example: _____ and _____
15. Three types of **lipids** are _____, _____, and _____. The building blocks of lipids are 1 _____ and 3 _____. Uses in the body: insulation; _____ skin (& plant leaves); cover neurons to _____ current; found in phospholipid _____
16. **Proteins** contain these elements: ___,____,____,_____, and sometimes ____. The building blocks are _____. They are used for growth and repair. A special type of protein that _____ a chemical reaction is called an _____.
17. **Nucleic acids** contain an organism's _____. The building blocks are _____. Ex: _____ & _____