NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_#\_\_\_\_\_\_\_\_ Block\_\_\_\_\_\_\_

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| ***Chemistry Review Worksheet- Honors Bio***  Use the PPt and Book to answer these questions. Remember: you are creating a study guide, so be thorough and neat!  \****Note****- the questions are not necessarily in the order of the book/PPt* | http://www.biologyjunction.com/images/atomicam3.gif |

1. Everything in the universe is made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What are the Three States of matter?  
       A.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
       B.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
       C.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Charged particles that move around an atom's nucleus are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Chemical bonds are broken, atoms are rearranged, and new bonds are formed during \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Atoms with filled outermost energy levels tend \_\_\_\_\_\_\_\_\_\_\_\_\_ to participate in chemical reactions.
6. The simplest part of an element is an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. The central core of an atom is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
8. In an ionic bond, atoms of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charge attract each other.
9. The part of an atom that has a neutral charge is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Atoms may have more than one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because they can have a varying number of \_\_\_\_\_\_\_\_\_\_\_.
10. Most of the mass of an atom is found in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. A pure substance made up of atoms of one or more elements is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
12. Most atoms tend to undergo \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, combining in ways that cause their atoms to become more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
13. When two or more atoms share one or more electrons, it is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
14. A bond formed by electrical attraction between two opposite charged ions is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
15. The ability to do work or cause change is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
16. The amount of energy needed to start a chemical reaction is the reaction's \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
17. A substance that neutralizes small amounts of acids or bases added to a solution is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
18. Sodium chloride (table salt) is an example of a compound formed by \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
19. The positive charge part of an atom is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
20. A compound with one or more atoms that share electrons is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
21. Chemical reactions that release free energy are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
22. Chemical reactions that absorb free energy are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .
23. The loss of one or more electrons gives the atom a \_\_\_\_\_\_\_\_\_\_\_\_\_ charge and is called a(n)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
24. The gaining of one or more electrons gives the atom a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charge and is called a(n)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
25. An atom has six electrons, what is it atomic number? \_\_\_\_\_\_\_\_\_\_\_\_  Name?\_\_\_\_\_\_\_\_\_\_\_  Is it a stable or unstable atom alone? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

DIRECTIONS: Answer the questions below as completely and thoroughly, using complete sentences. You may use diagrams or pictures to supplement your answers, but a diagram or picture alone without appropriate explanation will lose points.

1. Define acid and base, including which has more hydronium and which has more hydroxide.
2. What is a buffer and why are they necessary in organisms
3. Describe the relationship between the solute, the solvent, and a solution.
4. How does an ionic bond differ from a covalent bond?
5. What is a molecule? What kind of bonding must it have?
6. State the difference between endergonic and exergonic reactions.
7. What is activation energy? Show a graph that demonstrates this.
8. What is the role of enzymes in chemical reactions occurring in living things? Explain how an enzyme catalyst affects a reaction.
9. Show a graph that demonstrates how enzymes lower activation energy.
10. Explain: Polar covalent bond. Draw an example, showing which side is more positive and which side is more negative.
11. What is the pH Scale, and what does its range of values mean? Include the range for an acid, a base and neutral, giving an example of each.
12. An oxygen atom has six electrons in its outermost energy level. Explain why two oxygen atoms must share four electrons when they form a covalent bond. You may diagram this on your paper to assist in your explanation. Is it polar or nonpolar?
13. Draw 3 water molecules and show the hydrogen bonds between them with a dotted or dashed line.
14. Why can sugar dissolve in water? What must be the case if oil cannot dissolve in water?
15. Look in your book (use the index) and write the chemical balanced equation for cellular respiration. Why must the equation be balanced?
16. Compare and contrast: Cohesion and Adhesion. Include an example of each.
17. In addition to #16, give at least 2 more characteristics of water. Explain why these are vital to life.

\****More questions are on the back***



