

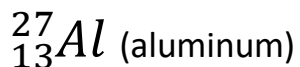
Atoms, Elements, Bonds

1. Match each vocabulary term with the appropriate definition

- | | |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| ___1 Element | A. The smallest, simplest unit of matter |
| ___2 Atom | B. A type of bond in which electrons are transferred from one atom to another |
| ___3 Ion | C. A type of bond in which electrons are shared between the bonded atoms. |
| ___4 Proton | D. Orbits the nucleus of an atom. Made up of a negative charge. |
| ___5 Neutron | E. A substance that is made up of only one type of atom |
| ___6 Electron | F. A value for an element you can get from the periodic table. Always equal to the number of protons in an atom. |
| ___7 Valence electrons | G. Found in the nucleus of an atom. Has a neutral charge. |
| ___8 Atomic number | H. A value for an element you can get from the periodic table. Equal to the number of protons and neutrons added together. |
| ___9 Mass number | I. An atom that has a positive or negative charge due to having an unequal number of protons and neutrons |
| ___10 Ionic bond | J. Found in the nucleus of an atom. Has a positive charge |
| ___11 Covalent bond | K. The electrons in the outermost shell of an atom. These electrons are involved in bonding |

2. What are the 6 elements that are known as the “elements of life”?

3. Determine the number of each particle type and complete the Bohr diagram for an atom of



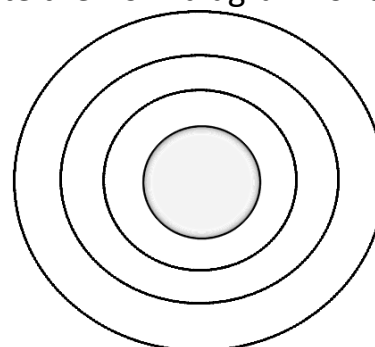
Atomic Number = _____

Mass Number = _____

Protons = _____

Neutrons = _____

Electrons = _____



4. In general, how many valence electrons does each atom want to have? What are the exceptions?

5. What is meant by the HONC-1234 Rule when it comes to bonding?

Properties of Water

1. Match each vocabulary term with the appropriate definition

- | | |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ___1 Polarity | A. the attraction between water molecules and other substances. |
| ___2 Hydrogen bonding | B. caused by the cohesive property of water. Minimizes the surface area of a liquid. When drops of a liquid with high surface tension are placed on a surface, they tend to bead together. |
| ___3 Cohesion | C. the attraction between molecules of water |
| ___4 Adhesion | D. the amount of heat energy needed to raise the temperature of 1 gram of a substance by 1 degree Celsius. |
| ___5 hydrophobic | E. the amount of mass in a certain amount of space (volume) |
| ___6 hydrophilic | F. relates to the symmetry of a molecule. A molecule is polar if it is NOT symmetrical. Water is polar |
| ___7 surface tension | G. the ability of a liquid to rise up in narrow spaces without the assistance of, and in opposition to, external forces like gravity. |
| ___8 universal solvent | H. the attractive forces found between water molecules as well as in other molecules containing Hydrogen and Nitrogen, Oxygen, or Fluorine. |
| ___9 specific heat capacity | I. water is known as the universal solvent because it can dissolve more substances than any other liquid due to its unique properties |
| ___10 density | J. refers to a substance that is attracted to and mixes well with water |
| ___11 capillary action | K. refers to a substance that is attracted to and does not mix well with water |

2. Identify the property of water that best explains why the following scenarios occur (use the vocab word bank above):

- Water forms drops as it comes out of a faucet. _____
- A water balloon does not pop when a flame is put to it for minutes. _____
- You can make Kool-Aid, coffee, ice tea, and lemonade, all using tap water.

- An ice layer forms on top of lakes, and insulates the water beneath. _____
- You step in a shallow puddle. The water climbs your jeans until your ankles feel wet.

- If two water molecules come in close contact a(n) _____ forms between them. (Hint: this bond is WEAK).
- If one were to separate the H and O in a water molecule what type of bond would have to be split? _____. (Hint: this bond is STRONG).

Acids, Bases, pH

1. What type of ions do acids form when dissolved in water?
2. What type of ions do bases form when dissolved in water?
3. The pH scale ranges from 0-14.
 - a. Which pH values correspond with an acidic substance?
 - b. A neutral substance?
 - c. A basic substance?
4. What is a buffer? What is its role in maintaining homeostasis in the body?

Monomers, Polymers, Macromolecules

Match each vocabulary term with the appropriate definition

- | | |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ___1 monomer | A. made up of amino acids. May be structural or function in transport, movement, defense or cell regulation |
| ___2 polymer | B. the small, building blocks of larger molecules |
| ___3 Dehydration synthesis | C. Made up of monosaccharides. Provide immediate energy and store energy |
| ___4 hydrolysis | D. made up of nucleotides. Contain the hereditary information and control cell activities by directing protein synthesis |
| ___5 carbohydrate | E. the general term for a large molecule |
| ___6 lipid | F. a type of macromolecule. Functions include: store energy, insulate, cushion organs, control the development and function of cells, make up cell membranes |
| ___7 protein | G. a type of protein that helps speed up reactions. It is not used in the reaction so it can be reused. |
| ___8 nucleic acid | H. a type of reaction that connects two monomers together to create a larger molecule. |
| ___9 enzyme | I. a type of reaction in which polymers are broken apart into monomers by the addition of water |