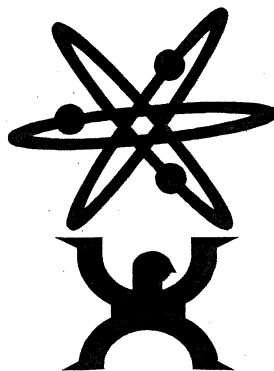


BASIC CHEMISTRY



Objectives for Basic Chemistry:

1. Explain why it is important to have a basic understanding of chemistry.
2. Draw an atom and label its subatomic particles.
3. Determine the charges on the subatomic particles.
4. Determine if an atom is stable and what an atom can do to become stable.
5. Describe how a gain or loss of electrons affects the overall charge of the atom.
6. Model atoms found in living organisms.

BASIC CHEMISTRY

Directions: Read book pages 51-53 then answer the following questions.

1. Define **matter**: ANYTHING THAT HAS MASS AND TAKES UP SPACE (VOLUME).

2. Define **atom**: SMALLEST UNIT OF MATTER THAT CANNOT BE BROKEN DOWN BY CHEMICAL MEANS

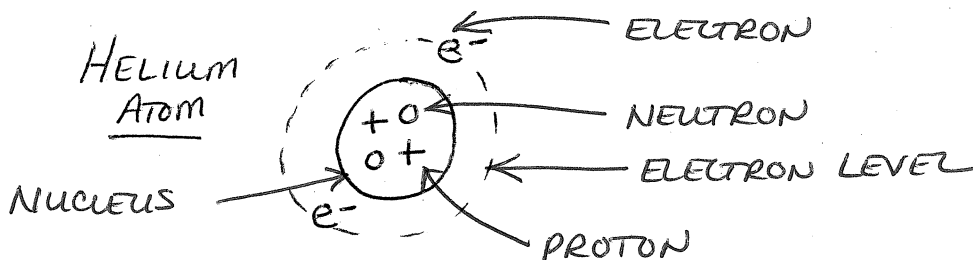
3. For each part of the atom (subatomic particle) determine its charge.

Protons (+) have a POSITIVE charge.

Electrons (-) have a NEGATIVE charge.

Neutrons (o) have NO charge.

4. Use your answer for number 3 to label the protons, neutrons, and electrons in the drawing below.



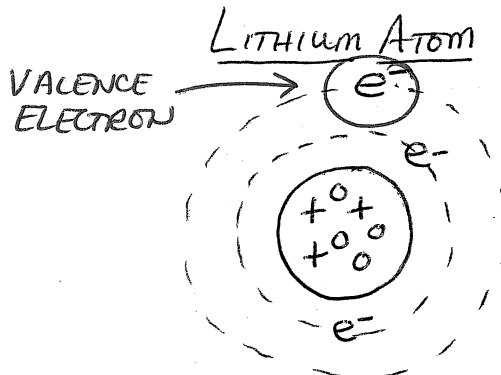
5. Define **element**:

A SUBSTANCE MADE UP OF ATOMS THAT HAVE THE SAME NUMBER OF PROTONS; CARBON ELEMENT IS MADE OF ONLY CARBON ATOMS.

6. **Isotopes** are atoms with different numbers of NEUTRONS.

7. Refer to Figure 1. What atoms are found in the graphite of a pencil? CARBON

8. Define **valence electrons**: ELECTRONS IN THE OUTERMOST ENERGY LEVEL

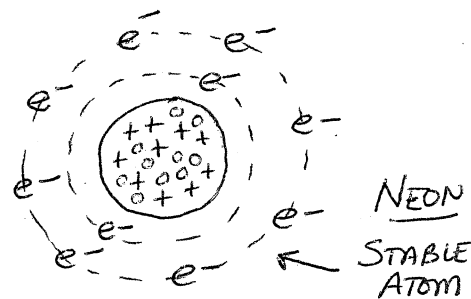


9. Refer to the drawing to the right to answer the following questions.

- How energy levels are going around the nucleus of the atom? 2
- How many valence electrons are in this level? 1

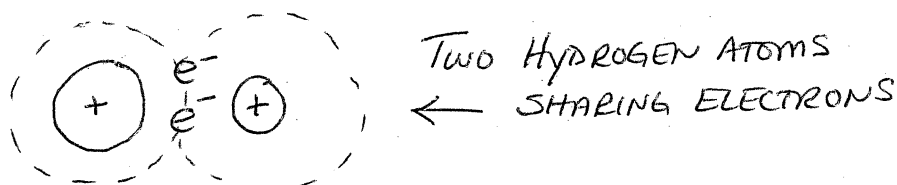
Name: _____ Date: _____ Class Period: _____

10. Chemical bonds form between groups of atoms because most atoms become stable when they have 8 electrons in the valence shell (outermost energy level).



11. Define **compound**: A SUBSTANCE MADE OF THE BONDED ATOMS OF TWO OR MORE DIFFERENT ELEMENTS.

12. A covalent bond is formed when atoms bond by SHARING valence electrons.

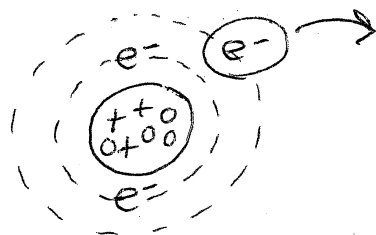


13. Define **molecule**: A GROUP OF ATOMS HELD TOGETHER BY COVALENT BONDS.

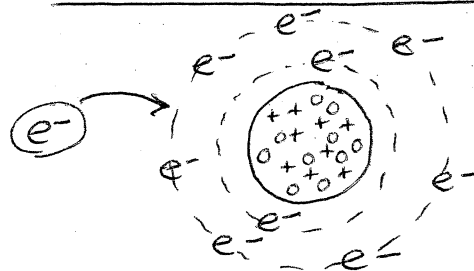
14. Give an example of a molecule. H₂O, CO₂

15. Atoms can achieve a stable valence level in another way – by LOSING or GAINING electrons.

LITHIUM ATOM LOSING AN ELECTRON



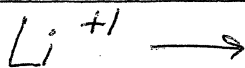
FLUORINE ATOM GAINING AN ELECTRON



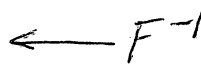
16. Define **ion**: AN ATOM THAT HAS AN ELECTRIC CHARGE BECAUSE IT HAS GAINED OR LOST ELECTRONS.

17. The attractive force between oppositely charged ions is called an IONIC bond.

LITHIUM LOSING AN ELECTRON BECOMES MORE POSITIVE BY 1.



FLUORINE GAINING AN ELECTRON BECOMES MORE NEGATIVE BY 1.



OPPOSITE CHARGES
ATTRACT
 LiF

18. Give an example of an ionic compound. NaCl - TABLE SALT
(SODIUM CHLORIDE)