

ACTIVITY QUESTION SHEET: MODELING ATOMS, IONS, AND ISOTOPES

Student or
Group Name _____

NOTE: To be used with Student Activity Direction Sheet (p. 8)

MODELING ATOMS

- (1) On the lines below write a description of the structure of the hydrogen atom you modeled. Next, draw a diagram of the atom in the box at right.

- (2) Describe and diagram the helium atom you modeled.

- (3) Describe and diagram the lithium atom you modeled.

- (4) A. Describe and diagram the beryllium atom you modeled.

- B. What is the major difference between the beryllium atom and the first three atoms you modeled?

(5) Describe and diagram the boron atom you modeled.

(6) A. Describe and diagram the carbon atom you modeled.

B. Is the L shell of the atom filled up? _____ How many electrons can it hold? _____

(7) Describe and diagram the nitrogen atom you modeled.

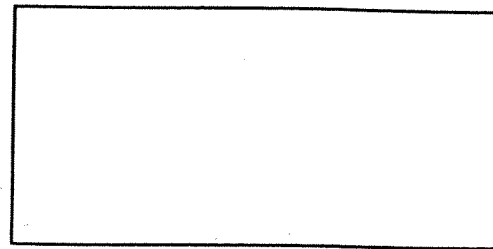
(8) A. Describe and diagram the oxygen atom you modeled.

B. Oxygen and nitrogen are gases, but boron and carbon are solids. What makes them so different from each other? _____

(9) A. Describe and diagram the fluorine atom you modeled.

B. Would you predict fluorine to be a gas, a liquid, or a solid? _____

(10) A. Describe and diagram the neon atom you modeled.



B. Study the model and diagram. What is noticeable about its electron levels or shells?

(11) Each element is different in its chemical and physical properties. To what could these differences in appearance and behavior be attributed? _____

MODELING IONS

1. If an atom of sodium (Na) had an atomic number 11, and it lost an electron, what would you have?

2. If an atom of chlorine (Cl) had an atomic number 17, and it gained an electron, what would you have? _____

3. What would happen if you had an ion of sodium (Na) with a 1+ charge and an atom of chlorine (Cl) with a 1- charge and they got near each other? _____

4. ALL salts are formed by ions. What does this tell us about the elements they are made of?

CONTINUE ON TO THE NEXT PAGE, AS INSTRUCTED BY YOUR TEACHER

Group or Student
Name _____

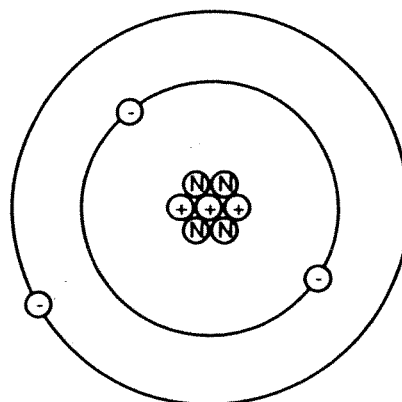
MODELING ISOTOPES

1. Strontium 87 is non-radioactive. Strontium 90 is very radioactive and combines easily with calcium in bones, causing cancer of the bone. To what could the radioactivity of Strontium 90 be attributed?

2. If an element has an atomic number of 8 and an atomic mass number of 18, would it be an isotope? _____ Why or why not? _____

3. Is the diagram at right a model of an isotope?

Explain your answer.



YOU ARE NOW READY TO COMPLETE "QUICKIE QUIZ" I, AT THE DIRECTION OF YOUR TEACHER