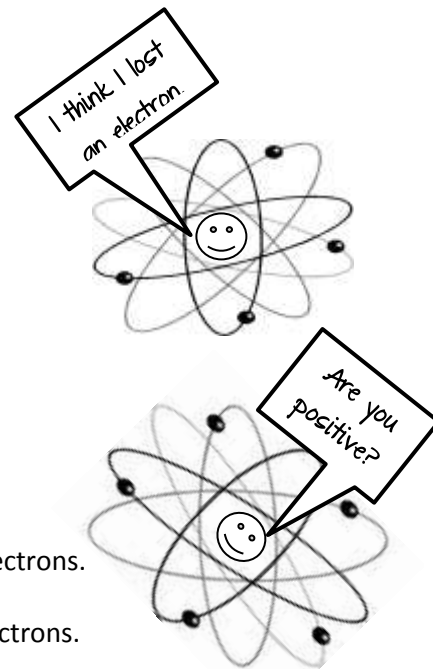


Why Atoms Combine? Reinforcement Worksheet

Part I

Directions: Each statement below contains a pair of terms or phrases in parentheses.
Circle the term or phrase that makes each statement true.

1. Most of the matter around you is in the form of (*elements, compounds*).
2. The properties of a compound are (*the same as, different from*) the properties of the elements that make up the compound.
3. Na and Cl are (*chemical symbols, chemical formulas*).
4. In the formula H₂O, the number 2 is a (*subscript, superscript*).
5. In the formula HCl, the ratio of hydrogen atoms to chlorine atoms is (*1:1, 2:1*).
6. The number 2 in the formula H₂O tell you that each unit of this compound contains (*2 hydrogen atoms, 2 oxygen atoms*).
7. If a symbol in a chemical formula does not have a subscript after it, a unit of that compound contains (*0 atoms, 1 atom*) of that element.
8. In the formula Fe₂O₃, the ratio of iron atoms to oxygen atoms is (*3:2, 2:3*).
9. An atom is chemically stable if its outer energy level (*is filled with, contains no*) electrons.
10. For atoms of most elements, the outer energy level is filled when it has (*2, 8*) electrons.
11. The noble gases do not readily form compounds because they (*are, are not*) chemically stable.
12. A chemical bond is a (*force, chemical*) that holds together the atoms in a compound.
13. A metal tends to (*gain, lose*) electrons.
14. An atom with a charge is an (*element, ion*).
15. Atoms combining by sharing electrons form a/an (*ionic, covalent*) bond.
16. A (*monatomic, polyatomic*) ion contains two or more different atoms.
17. When writing chemical formulas, the oxidation numbers are added so that the sum is equal to (*zero, ten*).
18. In the compound Fe₂O₃, iron is a (*cation, anion*).
19. In the compound CaH₂, hydrogen is a (*cation, anion*).
20. Two nonmetals tends to (*transfer, share*) electrons when forming a bond.



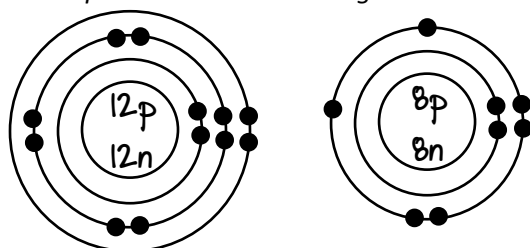
Part 2

Directions: Complete the table below by using the formula of each compound to identify the elements that each compound contains and the ratios of those elements.
The first one has been done for you as an example.

Formula	Elements in compound	Ratio
H ₂ O	hydrogen, oxygen	2 : 1
NaOH		
NH ₃		
H ₂ SO ₄		
SiO ₂		

Part 3

Directions: Answer the questions about the diagram shown below.



- How many electrons will magnesium lose? _____
- How many electrons will oxygen gain? _____
- What will be the oxidation number of magnesium? _____ Explain. _____

- What will be the oxidation number of oxygen? _____ Explain. _____

- What will be the total charge of the compound formed? _____
- What type of bond will form? _____

Part 4

Directions: Below are two atoms and a compound they form.
Based on the types of atoms, identify whether each set will form an ionic bond or a covalent bond.

- sodium and chlorine, NaCl _____
- gold and oxygen, AuO _____
- iron and oxygen, Fe₂O₃ _____
- silicon and fluorine, SiF₄ _____
- hydrogen and oxygen, H₂O _____