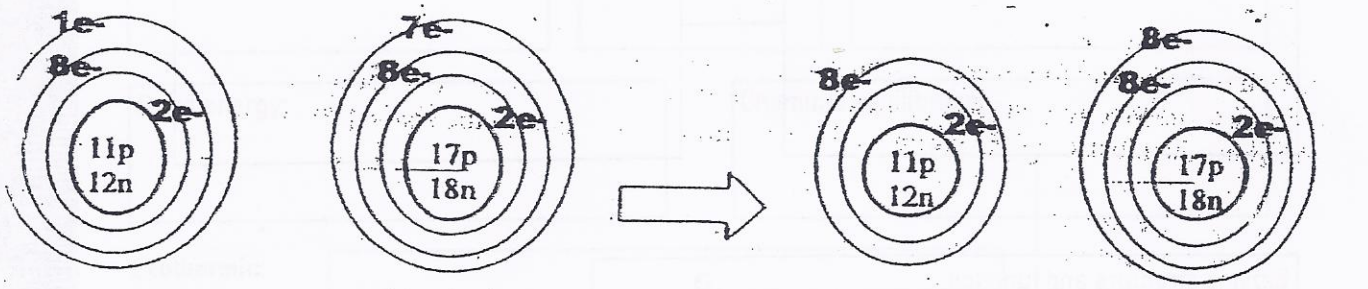
Use p. 38 to help you.

Ionic and Covalent Bonding 2-1 WKSht Name: _____ #71

Whether an atom combines with another atom depends on the number of electrons in its outermost shell or orbit. These electrons are known as valence electrons. Some elements do not combine or react to other elements because their energy shells contain the maximum number of electrons that they can hold. Thus, they do not need to gain, lose or share electrons to become stable. For this reason it is important to identify the number of valence electrons in an atom of an element to understand its ability to combine with other elements to make compounds.

The bond below creates NaCl (sodium chloride) which is table salt.



Na- Sodium
Valence Electrons _____
Total Electrons _____
Protons _____
Neutrons _____

Cl – Chlorine
Valence Electrons _____
Total Electrons _____
Proton _____
Neutrons _____

Na- Sodium
Valence Electrons _____
Total Electrons _____
Protons _____
Neutrons _____

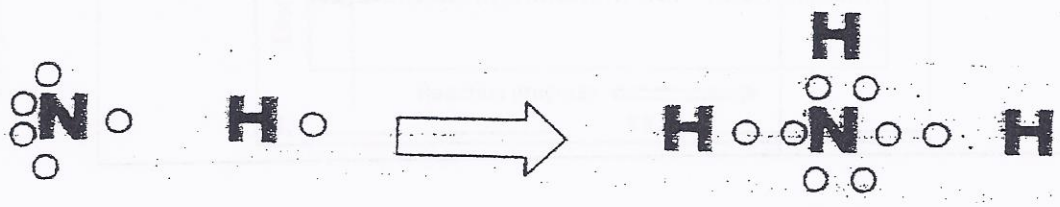
Cl – Chlorine
Valence Electrons _____
Total Electrons _____
Protons _____
Neutrons _____

1. How many electrons does each element have available to produce a bond?
   Sodium _____ Chlorine _____
2. Which element has lost electron(s)? _____
3. The element that has lost an electron is now considered a(n) _____ ion. **WHY?**

Which element has gained electron(s)? _____
The element that has gained an electron is now considered a(n) _____ ion. **WHY?**

What type of bond has been formed in the picture above? _____

The bond below creates NH_3 which is Ammonia.



7. How many valence electrons are available in one atom of each element above?
   Hydrogen _____ Nitrogen _____
8. Why does it take 3 hydrogen to bond with one nitrogen?