

Group member names _____

Date _____ hour _____

Creating molecules and compounds out of atoms activity

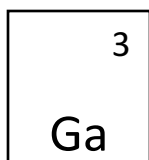
Procedure:

1. Cut some index cards, colored paper, or cardstock to create 14 small cards about 2" wide and 2" long.
2. Write the chemical symbol for each atom below onto one of your cards. There are 14 different atoms, put one on each card so you have 14 different cards.

H	B	P	Al	Ne
Cl	Br	F	O	He
Ca	K	Mg	S	

3. Use the periodic table to determine how many valence electrons each atom has in its valence shell and write this number on the appropriate card.

For example: Gallium has 3 valence electrons so the card would look like this



4. Spread the cards out on the table so each member of your group can see them. Use your knowledge of valence electrons to create molecules and compounds from your cards. Remember, atoms are stable (i.e. happy) when either of the following things occur:
 - A. Their valence shell has the appropriate number of electrons it is supposed to have (follow $2n^2$ equation for each energy level but remember 3rd energy level is also happy if it has 8 electrons in it)
 - B. OR the atom has 8 electrons in its valence shell. This is called the **Octet Rule**.

Overall, atoms that already have full valence shells or have 8 electrons in the valence shell are stable and generally non-reactive.

5. Record all the molecules and compounds your group could make on the data sheet.
Hint: If you are bonding a metal with a non-metal, the symbol for the metal goes first.
For example: potassium bonded with bromine would be written KBr because potassium is the metal. Give it a try!

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Data table – record your answers here.

1. Molecules and compounds we created:
2. How many molecules or compounds could your group make? _____
3. Which of the atoms do NOT make bonds with other atoms? Why are they non-reactive?