

# Valence Electrons

- An atom's behavior is based on the number of valence electrons it has
  - Valence electrons are the electrons farthest from the nucleus
- Atoms in groups 1,2 and 13-18 all have the same number of valence electrons
- To find the number of Valence Electrons:
  - Look at the group number-
    - If it is less than 10, the group number is equal to the number of valence electrons
      - Elements in Group 1 (Alkali Metals) have 1 valence electron
      - Elements in Group 2 (Alkaline Earth Metals) have 2 valence electrons
    - If it is more than 10, subtract 10 from the group number to find the number of valence electrons
      - Elements in group 13 have... $13-10=3$  valence electrons
      - Elements in group 17 have... $17-10=7$  valence electrons

# Lewis Dot Diagrams

- Dot diagrams are a way of showing how many valence electrons an atom has
- To draw a dot diagram:
  - **Step 1**-Write the atomic symbol
  - **Step 2**-Determine how many valence electrons the atom has
  - **Step 3**-Draw a dot for each valence electron
  - For example, a dot diagram of Carbon would look like this:

6
C
12

**Step 1**

C

**Step 2**- Carbon is in group 14.  $14-10=4$  so carbon has 4 valence electrons

**Step 3**

