

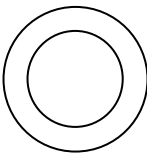

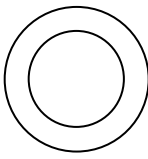

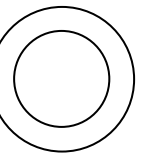

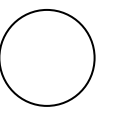

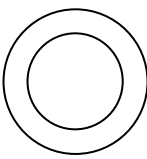

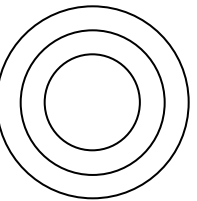

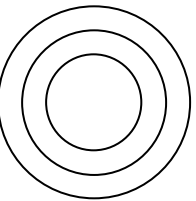

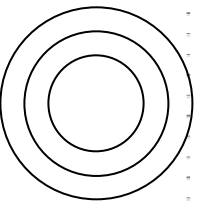

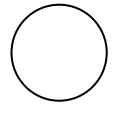

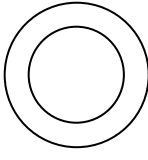

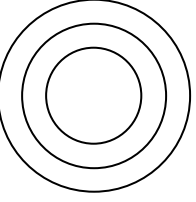

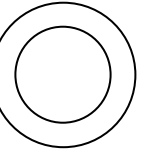

# ATOM AND PERIODIC TABLE BASICS

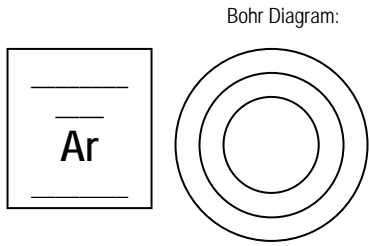
**Step 1:** Complete the squares for each element by adding the name, atomic number, and atomic mass from your Periodic Table handout.

**Step 2:** Determine the number of protons (P), neutrons (N), and electrons (E) in each element.

**Step 3:** Create a Bohr Diagram for each element.

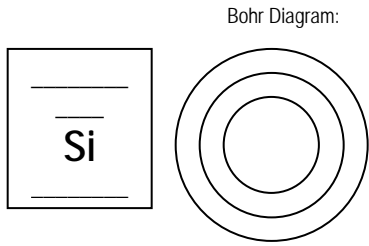
**Step 4:** Draw the Lewis Dot Diagram for each element.

<p>Bohr Diagram:</p>  <p>P _____</p> <p>N _____</p> <p>E _____</p> <p>Lewis Dot Diagram:</p> 	<p>Bohr Diagram:</p>  <p>P _____</p> <p>N _____</p> <p>E _____</p> <p>Lewis Dot Diagram:</p> 	<p>Bohr Diagram:</p>  <p>P _____</p> <p>N _____</p> <p>E _____</p> <p>Lewis Dot Diagram:</p> 	<p>Bohr Diagram:</p>  <p>P _____</p> <p>N _____</p> <p>E _____</p> <p>Lewis Dot Diagram:</p> 
<p>Bohr Diagram:</p>  <p>P _____</p> <p>N _____</p> <p>E _____</p> <p>Lewis Dot Diagram:</p> 	<p>Bohr Diagram:</p>  <p>P _____</p> <p>N _____</p> <p>E _____</p> <p>Lewis Dot Diagram:</p> 	<p>Bohr Diagram:</p>  <p>P _____</p> <p>N _____</p> <p>E _____</p> <p>Lewis Dot Diagram:</p> 	<p>Bohr Diagram:</p>  <p>P _____</p> <p>N _____</p> <p>E _____</p> <p>Lewis Dot Diagram:</p> 
<p>Bohr Diagram:</p>  <p>P _____</p> <p>N _____</p> <p>E _____</p> <p>Lewis Dot Diagram:</p> 	<p>Bohr Diagram:</p>  <p>P _____</p> <p>N _____</p> <p>E _____</p> <p>Lewis Dot Diagram:</p> 	<p>Bohr Diagram:</p>  <p>P _____</p> <p>N _____</p> <p>E _____</p> <p>Lewis Dot Diagram:</p> 	<p>Bohr Diagram:</p>  <p>P _____</p> <p>N _____</p> <p>E _____</p> <p>Lewis Dot Diagram:</p> 



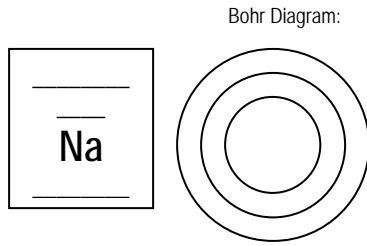
P \_\_\_\_\_  
N \_\_\_\_\_  
E \_\_\_\_\_

Lewis Dot Diagram:  
**Ar**



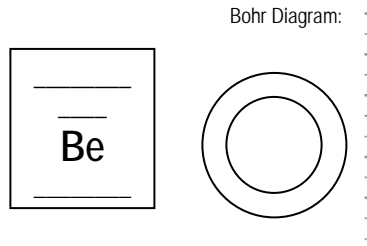
P \_\_\_\_\_  
N \_\_\_\_\_  
E \_\_\_\_\_

Lewis Dot Diagram:  
**Si**



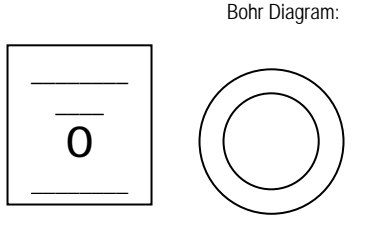
P \_\_\_\_\_  
N \_\_\_\_\_  
E \_\_\_\_\_

Lewis Dot Diagram:  
**Na**



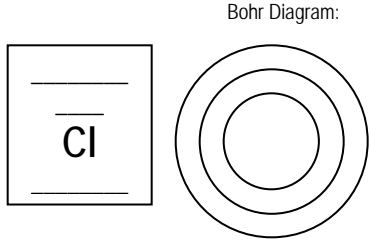
P \_\_\_\_\_  
N \_\_\_\_\_  
E \_\_\_\_\_

Lewis Dot Diagram:  
**Be**



P \_\_\_\_\_  
N \_\_\_\_\_  
E \_\_\_\_\_

Lewis Dot Diagram:  
**O**

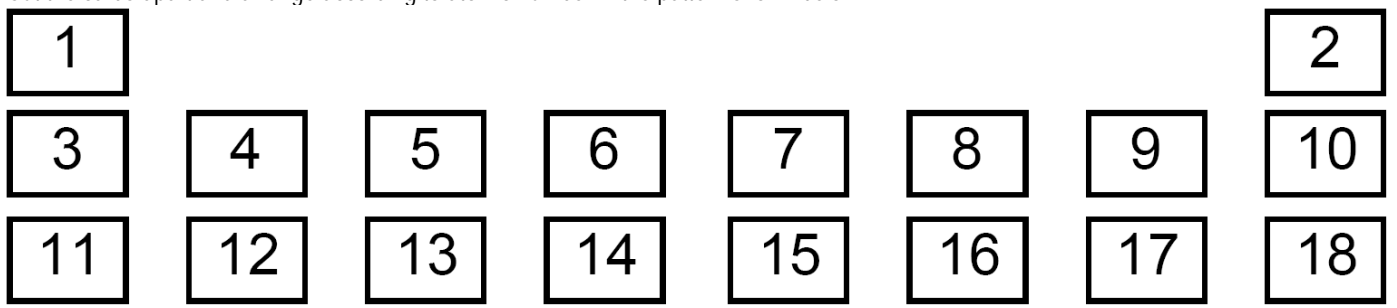


P \_\_\_\_\_  
N \_\_\_\_\_  
E \_\_\_\_\_

Lewis Dot Diagram:  
**Cl**

**Step 5:** Use the following colors to shade in the square for each element. Only color in the small square in the upper left-hand corner and NOT the entire card.  
*Red* = Li, Na    *Purple* = O, S    *Orange* = Be, Mg    *Brown* = F, Cl    *Yellow* = B, Al    *Green* = C, Si    *Blue* = N, P    *Gray* = He, Ne, Ar

**Step 6:** Cut the cards apart and arrange according to atomic number in the pattern shown below.



Once you have the cards arranged in the correct order, glue them in landscape orientation to a large sheet of paper provided by the teacher.

**ATOM AND PERIODIC TABLE BASICS**

**Step 7:** Answer the questions below using the information on your Periodic Table.

- 1) Which elements had complete outer shells? Give the name and symbol for each.
- 2) What do you notice about the location of the elements in # 1)?
- 3) Which elements had only one valence electron?
- 4) What do you notice about the location of the elements in # 3)?
- 5) What do you notice about the number of valence electrons as you move from left to right across a row or period in the periodic table?
- 6) What do you notice about the number of energy levels or shells as you move down a group or column in the periodic table? (H Li Na)

Elements are organized into families according to their physical and chemical properties. Identify the elements that you used in Step 5 that belong to each family based on the number of valence electrons. Give the name and symbol for each element.

- 7) Alkali Metals: 1 valence electron
- 8) Alkaline Earth Metals: 2 valence electrons
- 9) Boron Family: 3 valence electrons
- 10) Carbon Family: 4 valence electrons
- 11) Nitrogen Family: 5 valence electrons
- 12) Oxygen Family: 6 valence electrons
- 13) Halides: 7 valence electrons
- 14) Noble Gases: Complete outermost shell
- 15) What do you notice about the location of the elements in each family?
- 16) How would you classify hydrogen? Why?
- 17) Predict the number of valence electrons for each element based on its location in the Periodic Table of Elements handout provided to you.  
Barium = \_\_\_\_\_ Lead = \_\_\_\_\_ Xenon = \_\_\_\_\_ Potassium = \_\_\_\_\_ Bromine = \_\_\_\_\_ Rubidium = \_\_\_\_\_ Tin = \_\_\_\_\_ Polonium = \_\_\_\_\_