

Name: \_\_\_\_\_  
 Period: \_\_\_\_\_

# Build Your Own Periodic Table

Lab

## Lewis Dot Diagrams

Dot Diagrams (sometimes known as Lewis dot diagrams) are a depiction of an atom's valence electrons. They are a powerful tool in helping you understand, see, and even predict molecular bonding.

Steps for drawing Lewis Dot Diagrams:

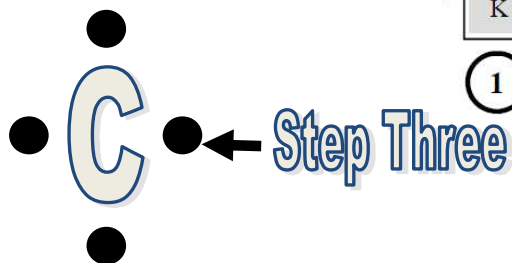
1. Find the element on the periodic table.
2. Determine the number of valence electrons the element has by looking at the group the element is in.
3. Draw only the valence electrons around the element's chemical symbol, starting at the top and moving clockwise.

Example:  
 Draw the Lewis Diagram for Carbon

Step One-Find Carbon on Periodic Table

Step Two-Find the group that Carbon is in. Carbon has 4 Valence Electrons.

Step Three-Draw Carbon's 4 Valence Electrons around Carbon's chemical symbol.



	1 ← Valence Electrons									8
	1A	2 ← 2		3	4	5	6	7	18A	
→ 1	1 H	2A ← Groups		5 B	6 C	7 N	8 O	9 F	10 Ne	← Exception: Helium only has 2 valence electrons!
→ 2	3 Li	4 Be		13A ← Groups	14A	15A	16A	17A	18A	
→ 3	11 Na	12 Mg		13 Al	14 Si	15 P	16 S	17 Cl	18 Ar	
→ 4	19 K	20 Ca	Divides metals and non-metals	Transition Metals (valence electrons vary)		31 Ga	32 Ge	33 As	34 Se	35 Br
	1	2		3	4	5	6	7	8	
	← Metals				→ Non-metals					

Step One

Step Two

Draw the Lewis Dot Diagrams for the Following Elements

A) Hydrogen

B) Phosphorus

C) Calcium

D) Argon

E) Chlorine

F) Aluminum

## Build Your Own Periodic Table

In this lab, you will be building your own periodic table by organizing elements based on your knowledge of the structure of the atom. You will also be giving information about the elements by filing out the tiles of the first eighteen elements in the periodic table. Organizing the elements according to groups and periods, you will identify the groups or families of the elements that you learned about in class. To conclude, you will write three paragraphs about the periodic table using your academic vocabulary.

### Poster Requirements

- Title (1 Point)-Give your periodic table a title
  - Element Tiles (5 Points)
    - For each tile, you will need to provide the following information.
      1. Atomic Number
      2. Chemical Name
      3. Atomic Mass
      4. Number of Subatomic Particles in the element.
      5. A Bohr Diagram of the element.
      6. The Lewis Structure of the element.
  - Key (2 points)-A key for your periodic table that identifies the following:
    1. Atomic Number
    2. Chemical Symbol
    3. Chemical Name
    4. Atomic Mass
  - Organization (5 Points)-You will need to organize the tiles of the elements in the same manner the periodic table is organized, by groups and periods. Number the groups accordingly at the top of each column of your periodic table.
  - Family Names (2 Point)- Of the tiles that you have been given, identify the Group (Family) names by using a different color for each Group (Family). Create a key for your Group (Family) identification on your poster.
  - Concluding Paragraphs (10 Points)-On the half sheet provided you, write a concluding paragraph (3-5 sentences long) for the following Academic Vocabulary words:
    1. Atomic Number
    2. Valence Electrons
    3. Subatomic Particles
- Glue your Concluding Paragraphs to the back of your poster.

