



The Electron Cloud

Content Objectives:

I can express the arrangement of electrons in atoms through electron configurations and Lewis valence electron dot structures.

Criteria for Success:

I can use the periodic table to determine how many valence electrons an element has.

I can use a Lewis dot diagram to identify an element.

I can use the periodic table to draw the Lewis valence electron dot structure for an element.

Lewis Valence Electron Dot Structures

A. Lewis _____ electron dot structures show the symbol of an element and its number of _____ electrons.

- _____ electrons are those electrons in the _____ energy level of an atom.
- _____ electrons are integral in determining how the atom will _____ react with other atoms.

B. Use the following steps to draw a Lewis valence electron dot structure.

- Write the element _____.
- Determine the _____ number for the element.
 - The _____ number indicates the number of _____ electrons.
- Start on the _____ of your element symbol and, moving counter-clockwise, put a _____ every 90° until the number of valence electrons present in the atom is achieved.

Outer Electron Configurations of Elements 1–18

1A	2A	3A	4A	5A	6A	7A	8A
1 H $1s^1$							2 He $1s^2$
3 Li $2s^1$	4 Be $2s^2$	5 B $2s^2 2p^1$	6 C $2s^2 2p^2$	7 N $2s^2 2p^3$	8 O $2s^2 2p^4$	9 F $2s^2 2p^5$	10 Ne $2s^2 2p^6$
11 Na $3s^1$	12 Mg $3s^2$	13 Al $3s^2 3p^1$	14 Si $3s^2 3p^2$	15 P $3s^2 3p^3$	16 S $3s^2 3p^4$	17 Cl $3s^2 3p^5$	18 Ar $3s^2 3p^6$

Independent Practice:

Element Symbol	Group Number	Number of Valence Electrons	Lewis Valence Electron Dot Structure
Si	4a	4	
Br	7a	7	
H	1a	1	
B	3a	3	
Ca	2a	2	
Xe	8a	8	



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6	2	
3	Xe	1
7		5
8	4	

Examples:



He								He
Li	Be	B	C	N	O	F	Ne	
Na	Mg	Al	Si	P	S	Cl	Ar	
K	Ca							