

CONCEPT: LEWIS DOT SYMBOLS

● **Lewis Dot Symbols** (Electron Dot Diagrams) are diagrams that represent the _____ electrons of an atom or ion.

- ☐ For Main Group Elements, number of *valence electrons* = _____.
- ☐ For Transition Metals, number of valence electrons = _____ + _____ electrons.

EXAMPLE: Which element will possess the most valence electrons?

- a) S b) Al c) Ca d) H e) Br

Drawing Lewis Dot Symbols

- Element Symbol = the nucleus and _____ electrons
- Surrounding Dots = the _____ electrons.

	1A (1)	2A (2)											3A (13)	4A (14)	5A (15)	6A (16)	7A (17)	8A (18)
1	H																	He
2	Li	Be	3B	4B	5B	6B	7B	8B			1B	2B	B	C	N	O	F	Ne
3	Na	Mg	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Al	Si	P	S	Cl	Ar
4	K	Ca	Sc 4s ² 3d ¹	Ti 4s ² 3d ²	V 4s ² 3d ³	Cr 4s ¹ 3d ⁵	Mn 4s ² 3d ⁵	Fe 4s ² 3d ⁶	Co 4s ² 3d ⁷	Ni 4s ² 3d ⁸	Cu 4s ¹ 3d ¹⁰	Zn 4s ² 3d ¹⁰	Ga	Ge	As	Se	Br	Kr

EXAMPLE: Draw the Lewis Dot Symbol for the following element: Te

STEP 0: Identify if the element is a Main Group Element or Transition Metal.

STEP 1: Place one valence electron at a time on the four sides of the element.

- ☐ Start from the _____ of the element and move clockwise.

STEP 2: Continue adding electrons, pairing them up until you have reached the appropriate number of valence electrons.

STEP 3: If you are given an ion, place it in brackets and put its charge on the upper right corner.

- ☐ For a cation, remove electrons.
- ☐ For an anion, add electrons.

CONCEPT: LEWIS DOT SYMBOLS

PRACTICE: Draw the Lewis Dot symbol for the following ion: Co^+

PRACTICE: Draw the Lewis Dot symbol for the following ion: Cd^{2+}

PRACTICE: Draw the electron-dot symbol for the following ion: P^{3-}