

Lewis Structures

1. Recognizing Trends ... in each group of atoms, circle the atom with the ...

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|-------------------------------|----|-----------|-----------|----|
| a. Largest atomic radius | Li | Be | <u>Na</u> | Mg |
| b. Largest ionization energy | C | <u>N</u> | Al | Si |
| c. Smallest atomic radius | S | <u>Cl</u> | Se | Br |
| d. Smallest ionization energy | Cl | Ar | <u>Br</u> | Kr |

2. Use the following KEY to answer these questions (more than one answer may be correct):

KEY: H = hydrogen

AM = Alkali Metals

AEM = Alkali Earth Metals

Halo = Halogens

NG = Noble gases

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|---|--|
| <u>AEM</u> 1. form +2 ions | <u>NG</u> 6. highest ionization energy |
| <u>H/Halo</u> 2. all are diatomic | <u>AM</u> 7. lowest ionization energies |
| <u>NG</u> 3. have full valence orbitals | <u>Halo</u> 8. gain 1 electron when forming ions |
| <u>AM</u> 4. react quickly with water | <u>H</u> 9. family only has one member |
| <u>Halo</u> 5. form -1 ions | <u>Halo</u> 10. members include (s), (l), & (g) |

3. For each pair, circle the LARGER one (size, not mass)

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|---------------------------------|-----------------------------------|
| a. <u>N</u> F | b. Ne <u>Ar</u> |
| c. <u>Mg</u> Mg^{+2} | d. Br <u>Br^{-1}</u> |
| e. <u>K</u> Ca | f. <u>Si</u> O |
| g. O <u>O^{-2}</u> | h. <u>Al</u> Al^{+3} |
| i. <u>S</u> Ar | j. <u>Na</u> F |

4. Complete the following tables:

	O^{-2}	F^{-1}	Ne	Na^{+1}	Mg^{+2}
# protons	8	9	10	11	12
# electrons	10	10	10	10	10

	S^{-2}	Cl^{-1}	Ar	K^{+1}	Ca^{+2}
# protons	16	17	18	19	20
# electrons	18	18	18	18	18

Al^{+3} has the same number of electrons as the noble gas, Ne.

I^{-1} has the same number of electrons as the noble gas, Xe.