

# Ionization Energy Worksheet – Accel. Chemistry

Name: \_\_\_\_\_ Pd: \_\_\_\_\_

Use the periodic table to answer the following questions:

- Which element has the largest first ionization energy? \_\_\_\_\_
- Which element has the smallest first ionization energy? \_\_\_\_\_
- Does first ionization energy generally increase or decrease across (L to R) a period? \_\_\_\_\_
- Does first ionization energy generally increase or decrease down a group? \_\_\_\_\_
- Circle the member of each pair below that has the **higher** first ionization energy.
  - Mg                      Na                      b. S                      O                      c. Ca                      Ba
- Circle the member of each pair below that has the **lower** first ionization energy.
  - Be                      Ca                      b. F                      I                      c. Na                      Si
- Put the following elements in order of **increasing (smallest to largest)** first ionization energy.
  - P, Cl, Br                      \_\_\_\_\_                      b. Mg, Li, Ca                      \_\_\_\_\_
- Put the following elements in order of **decreasing (largest to smallest)** first ionization energy.
  - B, F, Al                      \_\_\_\_\_                      b. Sb, In, Pb                      \_\_\_\_\_

Use your notes and book to answer the following questions: Give the tendency for each trend across a period and down a group. Then explain why we see each trend.

- Ionization Energy (pg. 191-193 Chemistry Book)

	Trend	Why?
Period		
Group		

- For each of the following pairs, circle which atom has the **higher** first ionization energy.
  - He                      Kr                      b. Ge                      C                      c. Cl                      I                      d. Na                      Al
- For each of the following pairs, circle which atom forms a positive ion *more* easily, meaning which atom has the **lowest** first ionization energy.
  - Sr                      Sb                      b. N                      As                      c. Na                      K                      d. Cl                      Al
- Put the following elements in order of **increasing (smallest to largest)** first ionization energy.
  - O, F, Br                      \_\_\_\_\_                      b. Cs, Tl, K                      \_\_\_\_\_
- For each of the following elements, state whether it is more likely to gain or lose electrons to form a stable octet and how many electrons will be gained or lost.

Element	Gains or loses electrons?	Number of electrons gained or lost	Charge?	Element	Gains or loses electrons?	Number of electrons gained or lost	Charge?
K	Loses	1	+1	Mg			
Br				Al			
O				I			
Ar				N			

## Extension Problem:

- Explain why it takes more energy to remove the second electron from a lithium atom than it does to remove the fourth electron from a carbon atom.

# Electronegativity Worksheet - Accel. Chemistry

Name: \_\_\_\_\_ Pd: \_\_\_\_\_

Use the periodic table to answer the following questions:

- Which element has the largest electronegativity? \_\_\_\_\_
- Which element has the smallest electronegativity? \_\_\_\_\_
- Does electronegativity generally increase or decrease across (L to R) a period? \_\_\_\_\_
- Does electronegativity generally increase or decrease down a group? \_\_\_\_\_
- Circle the member of each pair below that has the **higher** electronegativity.
 

d. Mg	Na	e. Na	Al	f. Cl	I
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- Circle the member of each pair below that has the **lower** electronegativity.
 

a. Se	Br	b. Ca	Ba	c. S	O
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- Put the following elements in order of **increasing (smallest to largest)** electronegativity.
 

a. P, Cl, Br _____	b. Mg, Li, Ca _____
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- Put the following elements in order of **decreasing (largest to smallest)** electronegativity.
 

a. B, F, Al _____	b. Sb, In, Pb _____
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Use your notes and book to answer the following questions: Give the tendency for each trend across a period and down a group. Then explain why we see each trend.

7. Electronegativity (pg. 194 Chemistry Book)

	Trend	Why?
Period		
Group		

- For each of the following pairs, circle which atom has the **higher** electronegativity.
 

a. Mg	Na	b. Na	K	c. B	Ga
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- For each of the following pairs, circle which atom has the **smaller** electronegativity.
 

a. Be	Ca	b. F	I	c. Na	Si
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- Put the following elements in order of **increasing (smallest to largest)** electronegativity.
 

a. Ca, Sr, Rb _____	b. In, Al, Sb _____
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- Put the following elements in order of **decreasing (largest to smallest)** electronegativity.
 

a. Se, P, Te _____	b. Mg, Na, S _____
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- For each of the following properties, indicate whether fluorine or bromine has a **larger** value.
 

a. Electronegativity _____	b. Ionization Energy _____
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