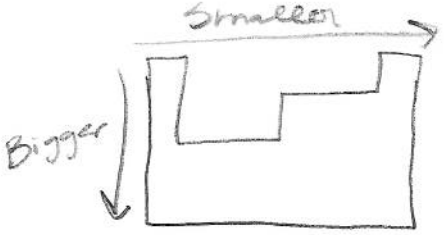
Periodicity Practice

Match each element in Column A with the best matching description from Column B. Each Column A element may match more than one description from Column B.

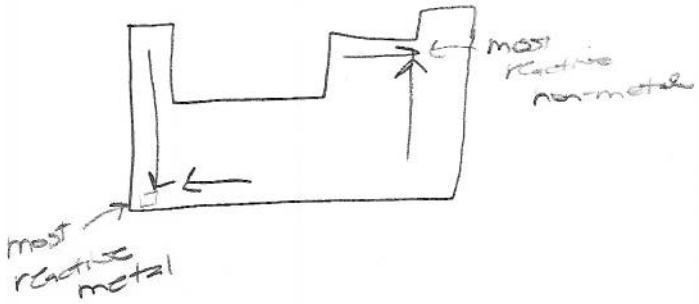
★ Outline metalloids on periodic Table

Column A		Column B
1) strontium (38)	C, F	a) halogen
2) chromium (24)	G	b) noble gas
3) iodine (53)	A, F	c) alkaline earth metal
4) nitrogen (7)	F	d) metalloid
5) argon (18)	B, F	e) alkali metal
6) rubidium (37)	E, F	f) representative element
7) silicon (14)	D, F	g) transition element

8) Sketch a diagram that indicates the **atomic radius trends** in the periodic table.



9) Sketch a diagram that indicates the **reactivity trends** in the periodic table.



10) Use the periodic table to answer the following questions.

Element	# of Valence Electrons	Energy Level of Valence e⁻
a) Magnesium	2	3
b) Selenium	6	4
c) Tin	4	5
d) Arsenic	5	4
e) Iodine	7	5

11) For each of the following pairs, predict which atom is larger.

a) Mg or Sr (more shells) b) Sr (less +/- attraction) or Sn c) Ge or Sn (more shells) d) Ge (less +/- attraction) or Br e) Cr or W (more shells)

12) For each of the following pairs, predict which atom or ion is larger.

a) Mg or Mg^{2+} (less shells) b) S or S^{2-} (like charges repel) c) Ca^{2+} or Ba^{2+} (more shells)

d) Cl^- or I^- (more shells) e) Na^+ or Al^{3+} ($11p^+$ 10e⁻ vs $13p^+$ 10e⁻, more +/- attractions so smaller) f) Mg^{2+} or S^{2-} (Level 2 [Ne] vs Level 3 [Ar], more shells)

13) Identify each of the following elements.

a) an electron configuration of $[Kr]5s^2 4d^{10} 5p^2$ Sn Tin

b) five valence electrons in the sixth energy level Bi Bismuth

c) two valence electrons in the first energy level He Helium

d) three fewer electrons in the fourth energy level than krypton As Arsenic

e) an electron configuration ending in $4p^2$ Ge Germanium

f) the alkaline earth metal in the sixth period Ba Barium

g) the halogen in the third period Cl Chlorine

h) the group 14 element in the third period Si Silicon

i) the group 5 element in the fourth period V Vanadium

j) the group 1 element in the fifth period Rb Rubidium

14) Identify the column numbers for the following. ☆ Add Column #'s to Periodic Table

a) What family of elements is given the name alkaline earth metals? II A

b) What family of elements is given the name noble gases? VIII A

c) What family of elements reacts with Br_2 to produce compounds with the general formula MBr_3? $M^{+3}Br_3^{-3}$ III A

15) Circle the most reactive in each group of three: metals want to lose e^- non-metals want to gain e^-

a) (Mg) B C - Biggest - easier to lose e^-

b) Al Mg (Na) - Biggest + easier to lose e^- - only need to lose 1 e^-

c) (Rb) Sr In - Biggest - easiest to lose e^- - only need to lose 1 e^-