Name: _____ Section: _____

Workshop 14 – Trends on the Periodic Table

Exercise I

This chart represents the main group (representative elements) portion of the periodic table.

A. Several trends are listed to the sides and below the chart. Use a periodic table with proper values to determine the direction of these trends. Convert the underlines into arrows by adding heads (i. e. → or ←) to each underline to indicate the direction of each trend.

B. In each box, write the electronic configuration of the valence electrons of that element. See the box containing element 84 (polonium) as an example.

Atomic Radii Increase

Metallic Properties Increase

IA	IIA	IIIA	IVA	VA	VIA	VIIA	VIIIA or 0
3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18
19	20	31	32	33	34	35	36
37	38	49	50	51	52	53	54
55	56	81	82	83	84 $6s^2 6p^4$	85	86
87	88						

Ionization Energy Increase

Electronegativity Increase

Nonmetallic Properties Increase

Atomic Radii Increase

Ionization Energy Increase

Electronegativity Increase

Exercise II

Fill in the blank spaces.

Group Number	IA	IIA	IIIA	IVA	VA	VIA	VIIA	VIIIA
Number of valence electrons				4				
Electronic configuration of valence electrons. Omit principle quantum number.				s^2p^2				
Common oxidation states				±4				

Name: _____ Section: _____

Exercise III

Fill in all the boxes on this periodic table with the atomic numbers of the elements and the electronic configurations of the last ground state electron to be added to the element.

1 $1s^1$																	
3	4 $2s^2$											5 $2p^1$					
															$3p^4$		
			$3d^2$														
$5s^1$													$5p^2$				
	56	57	72					$5d^7$									
	88	89	104														

58													
90										$5f^{10}$			