Na	ıme	e: Period:	Date:_				
		Trends in the Perio	dic Table	<u>e</u>			
Read the notes in the back of this paper before beginning this activity.							
1.	Dr	Draw a line in the middle of a piece of graph					
1.	paj boi end	per, separating the page into top and ttom. On the top, plot a graph of ionization ergy (y-axis) vs. atomic number (x-axis).	Atomic Number	Element Symbol	First Ionization energy (kJ/mol)	Atomic Radius (pm)	
	radius vs. atomic number. For each graph		1	Н	1312	32	
		nnect successive dots with straight lines.	2	Не	2372	31	
		so, endure that identical atomic numbers are	3	Li	520	123	
		otted on the same vertical position on the	4	Be	899	90	
	_	eet (i.e. atomic number 1 in the top graph	5	В	801	82	
		ould be on the same line as atomic number 1	6	С	1086	77	
	in the bottom graph.)		7	N	1402	75	
			8	0	1314	73	
2.	Examine your graph of ionization energy (IE)		9	F	1681	72	
	vs.	vs. atomic number.		Ne	2081	71	
	a.	Which elements are found at the main	11	Na	496	154	
	_	peaks on your graph (there should be 3)? What do these elements have in common?	12	Mg	738	136	
			13	Al	578	118	
			14	Si	786	111	
	b.	Which elements are found at the main	15	P	1012	106	
		valleys on your graph (there should be 3)?	16	S	1000	102	
		What do these elements have in common?	17	Cl	1251	99	
2	D	amina yayan ananh af atamia na diya yanasa	18	Ar	1521	98	
3.		amine your graph of atomic radius verses	19	K	419	203	
		Which elements are found at the peaks on	20	Ca	590	174	
	your graph? What do theses elements have in common?						
4.	How are atomic radii and ionization energy related (i.e. as atomic radius increases, what happens to the ionization energy)?						
5.	Generally, as you go from left to right across a period on the periodic table, what happens to atomic radius? What about IE?						
6.	Ge	Generally, as you go down a group in the periodic table, what happens to atomic radius and IE?					
7.	and gen	When Na forms an ion it loses its outer electron to become Na ⁺¹ . Draw B-R diagrams for Na and Na ⁺¹ . What element does Na+ resemble (with respect to its electron arrangement)? In general, which group's electrons configuration do the alkali metals resemble when they form ions (i.e. lose an outer electron)?					

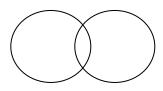
8. Why does radius increases as you go down a group (hint: think of B-R diagrams)? Why would an increase in radius make it easier to lose an outer electron (i.e. five a lower ionization energy)? 9. What happens to the number of protons in the nucleus as you go across a period? _____ Use this to explain the trends in atomic radius and ionization energy across a period. 10. There is one group that is usually ignored because it does not follow these trends. Which group is usually ignored? _____

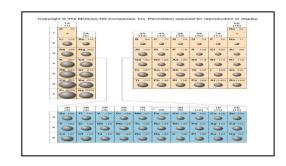
11. Define Electronegativity:

Where on the periodic table is its highest?

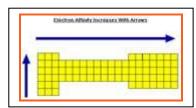
Notes on Periodic Table Trends

Atomic Radius (atom size): a length equal to half the distance between the nuclei of two covalently bonded atoms.





As you go down the periodic table, energy shell is added therefore the atomic radius increases. On the other hand, as you go across the table (away from H), proton is added which pulls electron closer therefore the atomic radius decreases.



Ionization Energy (IE): The amount of energy required to remove an electron from an atom, forming a cation.

Electronegativity: Ability of an atom to attract electron to itself.

