CONCEPT: PERIODIC TREND: IONIZATION ENERGY (SIMPLIFIED)

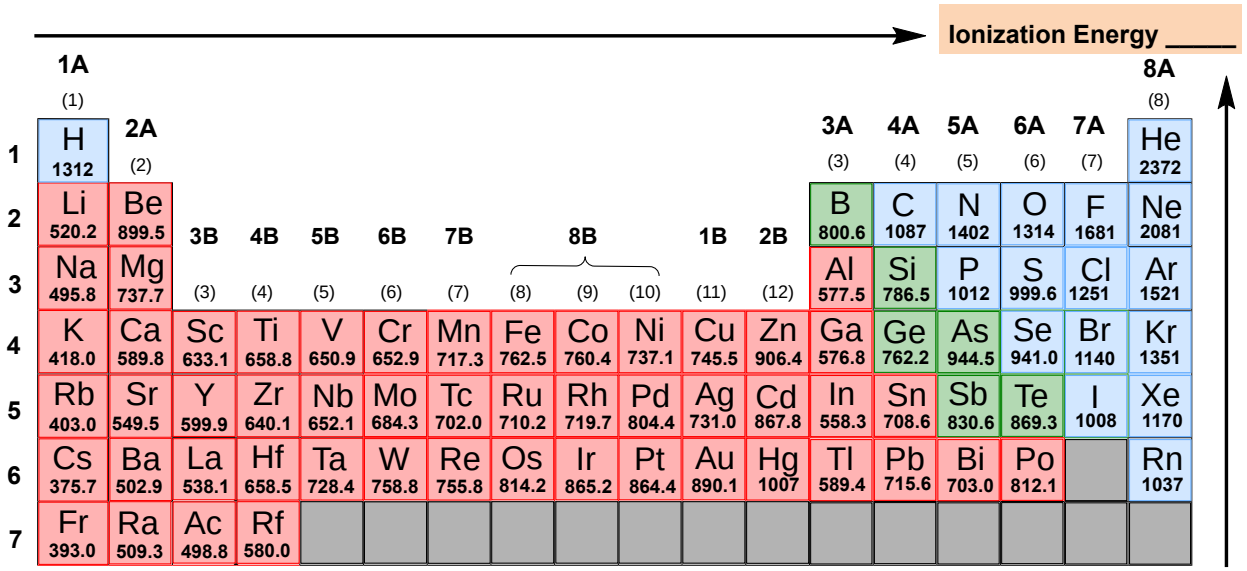
● **Ionization Energy (IE)**: Energy required to remove an electron from a gaseous atom or ion based on position in _____.

Ionization Energy + N (g) ⟶ _____ + _____

□ **Periodic Trend:** Ionization Energy _____ moving from left to right across a period and going up a group.

□ _____ IE: Electron is easily lost. □ _____ IE: Electron is not easily lost.

□ Noble Gases possess _____ IE due to their stable electron configurations (arrangements).



	1A (1)	2A (2)	3B (3)	4B (4)	5B (5)	6B (6)	7B (7)	8B (8)	8B (9)	8B (10)	1B (11)	2B (12)	3A (3)	4A (4)	5A (5)	6A (6)	7A (7)	8A (8)
1	H 1312																	He 2372
2	Li 520.2	Be 899.5											B 800.6	C 1087	N 1402	O 1314	F 1681	Ne 2081
3	Na 495.8	Mg 737.7											Al 577.5	Si 786.5	P 1012	S 999.6	Cl 1251	Ar 1521
4	K 418.0	Ca 589.8	Sc 633.1	Ti 658.8	V 650.9	Cr 652.9	Mn 717.3	Fe 762.5	Co 760.4	Ni 737.1	Cu 745.5	Zn 906.4	Ga 576.8	Ge 762.2	As 944.5	Se 941.0	Br 1140	Kr 1351
5	Rb 403.0	Sr 549.5	Y 599.9	Zr 640.1	Nb 652.1	Mo 684.3	Tc 702.0	Ru 710.2	Rh 719.7	Pd 804.4	Ag 731.0	Cd 867.8	In 558.3	Sn 708.6	Sb 830.6	Te 869.3	I 1008	Xe 1170
6	Cs 375.7	Ba 502.9	La 538.1	Hf 658.5	Ta 728.4	W 758.8	Re 755.8	Os 814.2	Ir 865.2	Pt 864.4	Au 890.1	Hg 1007	Tl 589.4	Pb 715.6	Bi 703.0	Po 812.1		Rn 1037
7	Fr 393.0	Ra 509.3	Ac 498.8	Rf 580.0														

EXAMPLE: Which of the following atoms has the smallest ionization energy?

a) P b) F c) K d) Cr e) Br

PRACTICE: Rank the following elements in order of increasing ionization energy: Br, F, Ga, K and Se.

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PRACTICE: Which of the following elements would lose an electron the easiest?

a) Ar b) Li c) Zn d) Br e) B

PRACTICE: Which element from Group 7A has lowest ionization energy.

a) I b) Br c) Cl d) F e) Ne

PRACTICE: Which of the following has the highest ionization energy?

a) Ar b) Na^+ c) Na d) Mg e) Kr