

ASSIGNMENT(Read carefully): Construct three graphs. Graph each of the following periodic trends (see key, below) versus the atomic number of the respective element. Label the axes AND each peak and valley. (This might be a good opportunity to learn to graph with MS Excel, if you do not already know how to do so.) What general statements can you make about each trend individually AND all three trends in relation to one another?

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|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|--|
| H 37 1312 2.1 | | | | | | |
| Li 152 520 1.0 | Be 112 900 1.5 | B 80 801 2.0 | C 77 1086 2.5 | N 71 1402 3.0 | O 66 1314 3.5 | F 64 1681 4.0 |
| Na 186 496 0.9 | Mg 160 738 1.2 | Al 143 578 1.5 | Si 118 786 1.8 | P 109 1012 2.1 | S 103 1000 2.5 | Cl 99 1251 3.0 |
| K 227 419 0.8 | Ca 197 599 1.0 | Ga 122 579 1.6 | Ge 123 762 1.8 | As 121 947 2.0 | Se 117 941 2.4 | Br 114 1140 2.8 |
| Rb 244 403 0.8 | Sr 215 550 1.0 | In 167 558 1.7 | Sn 141 709 1.8 | Sb 141 834 1.9 | Te 138 869 2.1 | I 138 1008 2.5 |
| Cs 262 377 0.7 | Ba 222 503 0.9 | Tl 170 589 1.8 | Pb 175 715 1.9 | Bi 151 703 1.9 | Po 164 812 1.9 | At 145 890 2.2 |

Key: H = symbol; 37 = atomic radius (pm) ; **1312** = 1st ionization energy (kJ/mol); **2.1** = electronegativity

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