

Successive Ionization Energies

SCH3UE_09-10

1. Plot a graph of and explain the shape of the graph obtained for the successive ionisation energies of sodium using a logarithmic scale for the ionization energy on the y– axis against the number of electrons removed on the x– axis.

I. E.	1	2	3	4	5	6	7	8	9	10	11
I. E. (kJ mol ⁻¹)	500	4600	8900	9500	13400	16600	20100	25500	28900	141000	158700

2.
 - (i) Explain why successive ionization energies of an element increase.
 - (ii) Explain how successive ionization energies account for the existence of three main energy levels in the sodium atom.
3. If you had plotted the successive ionization energies of potassium, predict what pattern in the electronic structure would have been observed for potassium.