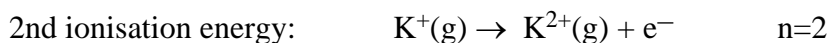
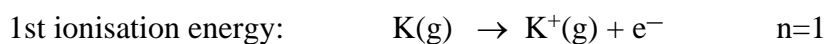


## Electron Arrangement

### Successive ionisation energies for potassium

Ionisation energy is the energy needed to remove one mole of electrons from one mole of atoms or ions in the gaseous state, i.e. for potassium:



#### Your task

1. Complete the table below for the successive ionisation energies for potassium (proton number 19).
2. Plot a graph of  $\log_{10}(\text{ionisation energy})$  against  $n$  (the number of the ionisation energy).
3. Describe the graph and explain it.

| n  | ionisation energy<br>(kJ mol <sup>-1</sup> ) | $\log_{10}(\text{ionisation energy})$ |
|----|--|---------------------------------------|
| 1  | 419  |                                       |
| 2  | 3051   |                                       |
| 3  | 4412   |                                       |
| 4  | 5877   |                                       |
| 5  | 7975   |                                       |
| 6  | 9649   |                                       |
| 7  | 11343  |                                       |
| 8  | 14942  |                                       |
| 9  | 16964  |                                       |
| 10 | 48577  |                                       |
| 11 | 54433  |                                       |
| 12 | 60701  |                                       |
| 13 | 68896  |                                       |
| 14 | 75950  |                                       |
| 15 | 83152  |                                       |
| 16 | 93403  |                                       |
| 17 | 99771  |                                       |
| 18 | 444911                                       |                                       |
| 19 | 476075                                       |                                       |