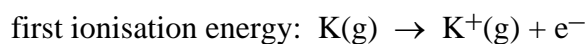


## Electron Arrangement

### Ionisation Energies in Group I and Period 2

The first ionisation energy is the energy needed to remove one mole of the outermost electrons from one mole of gaseous atoms of an element, i.e. for potassium:



#### Your task

1. Complete Tables 1 and 2 below.
2. Plot a graph of first ionisation energy against the proton number,  $Z$ , using the data for group I (Table 1).

Element	Proton number $Z$	first ionisation energy (kJ mol <sup>-1</sup> )
Li		520
Na		496
K		419
Rb		403
Cs		376

Table 1 First ionisation energies for the elements in Group I (Li–Cs).

3. Describe and explain your graph.
4. Plot a graph of first ionisation energy against the proton number,  $Z$ , using the data for the period Li–Ne (Table 2).

Element	Proton number $Z$	first ionisation energy (kJ mol <sup>-1</sup> )
Li		520
Be		900
B		801
C		1086
N		1402
O		1314
F		1681
Ne		2081

Table 2 First ionisation energies for the elements in period 2 (Li–Ne).

5. Describe and explain your graph.