

Electrons and Light

-- we have been writing configurations for electrons in their **ground state**

-- electrons do not always stay in their **ground state** (**lowest energy level**)

-- electrons can move to a **higher energy** level which we call an **excited state**

Electrons and Light

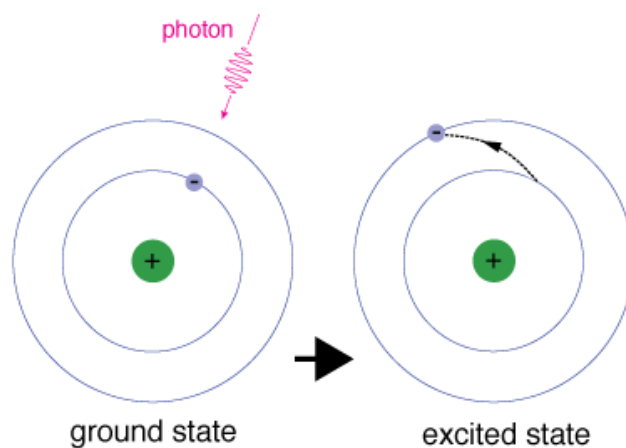
-- when electrons move from their **ground state** to an **excited state**, they **absorb energy**

-- they do not stay in the **excited state** forever, they will move back down to their **ground state**

-- when electrons move back down to their **ground state**, they release a **particle of light** called a **photon**

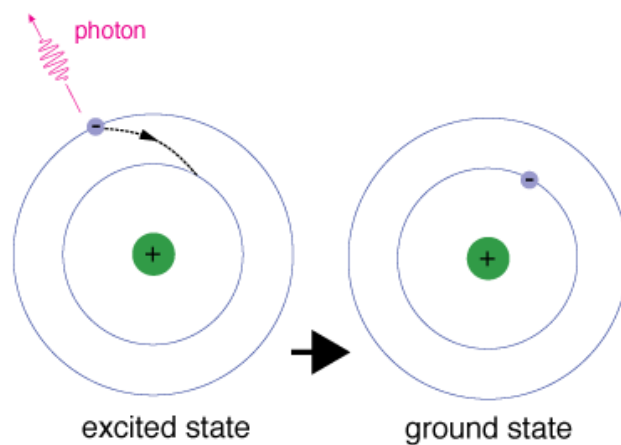
Electrons and Light

electron **absorbing** energy and moving from the **ground state** to an **excited state** -- lower energy level to a high energy level



Electrons and Light

electron **releasing** energy (a **photon**) and moving from the **excited state** to the **ground state** -- higher energy level to a lower energy level



Emission Spectra

- each element produces its own **spectra** based on the **electrons** in the atom
- we can **identify** elements in stars far away by the emission **spectra** it gives off

Types of Spectra's:

Continuous Spectrum



Absorption Spectrum

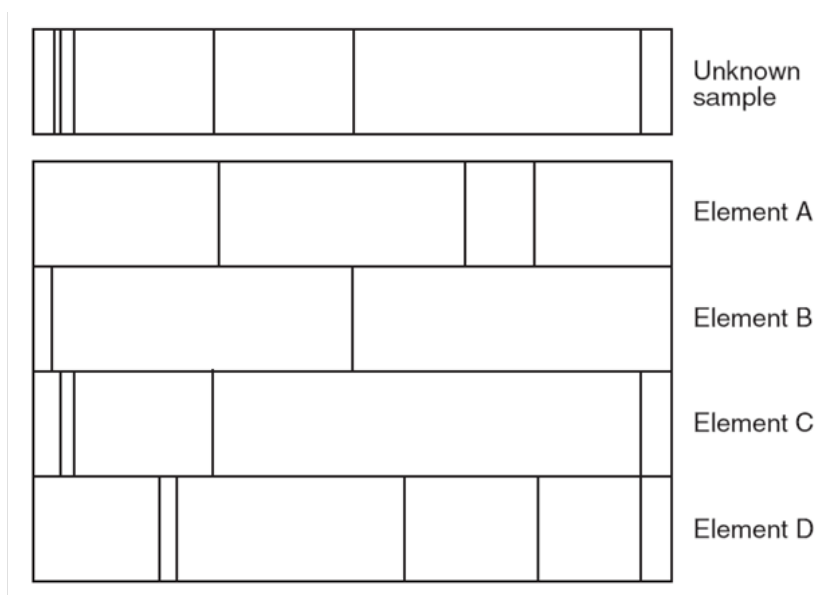


Emission Spectrum



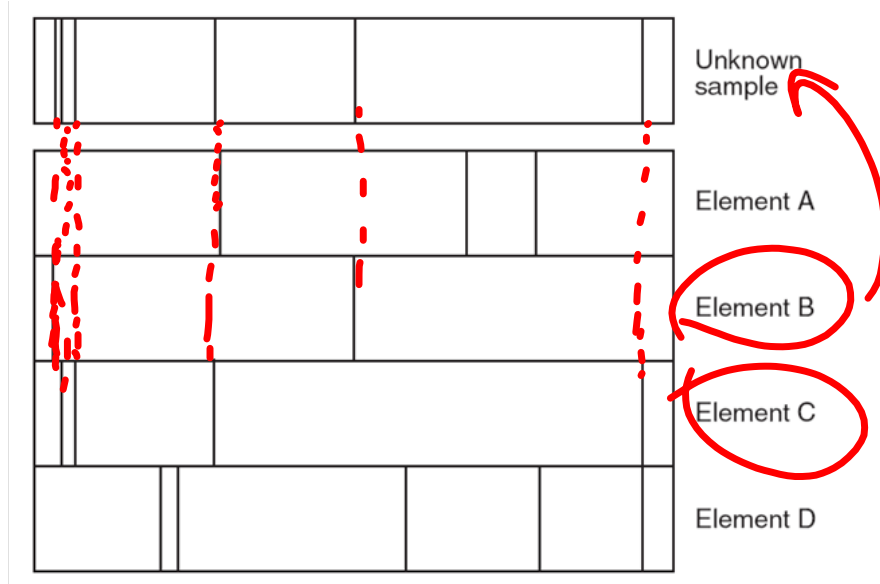
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Which elements are in the unknown sample?



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ANSWER: Elements B & C because all their lines are present in the unknown sample