Electron Structure

The key areas of study in this topic are:

- Atomic orbitals, sub-shells, shells and energy levels
- Electron configurations

By the end of this topic I should be able to:	Start	End
State the number of electrons that can fill the first four shells		
Define an atomic orbital as a region around the nucleus that can hold up to two electrons, with opposite spins		
State the shapes of s- and p-orbitals		
State the number of orbitals making up s-, p- and d-sub-shells, and the number of electrons that can fill s-, p- and d-sub-shells		
Understand the filling of orbitals, including 'electrons in boxes' representations: • for the first three shells and the 4s and 4p orbitals in order of increasing energy • for orbitals with the same energy, occupation singly before pairing		
Deduce the electron configurations of: • atoms, given the atomic number, up to Z = 36 • ions, given the atomic number and ionic charge, limited to s- and p-blocks up to Z = 36		

In all topic areas you should be able to demonstrate and apply your knowledge and understanding.