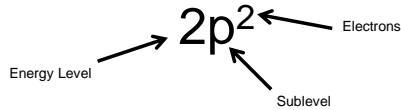


Electron Configurations

- The **electron configuration** of an atom is a shorthand method of writing the location of electrons by sublevel.
- The sublevel is written followed by a superscript with the number of electrons in the sublevel.
 - If the $2p$ sublevel contains 2 electrons, it is written $2p^2$



Practicing electron configurations

- Be
- Cl
- Ne
- O

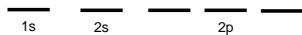
Orbital Notations

Remember:

Sublevel	Number of Orbitals	Max Number of Electrons
s	1	2
p	3	6
d	5	10
f	7	14

So rather than writing $1s^2 2s^2 2p^6$ for Ne

We would write:



Notice now arrows represent electrons

RULES AND PRINCIPLES

HEISENBERG'S UNCERTAINTY PRINCIPLE

"You cannot determine the position and momentum of an electron at the same time."
This means that you cannot say *exactly* where an electron is. It put paid to the idea of electrons orbiting the nucleus in rings and introduced the idea of orbitals.

THE AFBAU PRINCIPLE

"Electrons enter the lowest available energy level."

PAULI'S EXCLUSION PRINCIPLE

"No two electrons can have the same four quantum numbers."
Two electrons can go in each orbital, providing they are of opposite spin.

HUND'S RULE OF MAXIMUM MULTIPLICITY

"When in orbitals of equal energy, electrons will try to remain unpaired."
Placing two electrons in one orbital means that, as they are both negatively charged, there will be some electrostatic repulsion between them. Placing each electron in a separate orbital reduces the repulsion and the system is more stable. It can be described as the "SITTING ON A BUS RULE!"

Practicing Orbital Notation

- Be
- Cl
- Ne
- O