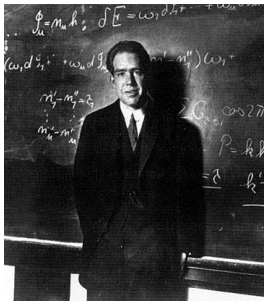
-The Bohr Model
-The Quantum Mechanical Model

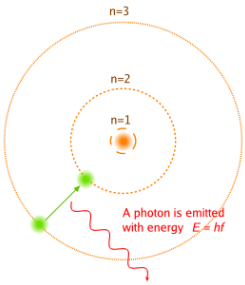
Niels Bohr
(Born in Denmark 1885-1962)

- Student of Rutherford



Niels Bohr's Model (1913)

- Electrons orbit the nucleus in circular paths of fixed energy (energy levels).



Niels Bohr's Atom Cont'd

- Electrons can jump from energy level to energy level.
- Electrons absorb or emit light energy when they jump from one energy level to another.

Rules for Energy Levels

1. Level 1 (closest to the nucleus) can hold a maximum of **2e**.
2. Level 2 can hold a max of **8e**.
3. Level 3 can hold a max of **18e**.
4. Level 4 can hold a max of **32e**.

You must fill <u>one level</u> before going on to draw the next level!

Quantum

- A quantum of energy is the amount of energy required to move an electron from one energy level to another.

Photons

- Photons are bundles of light energy that is emitted by electrons as they go from higher energy levels to lower levels.

Excited State and Ground State

- Ground state: the lowest possible energy level an electron be at.
- Excited state: an energy level higher than the ground state.

Quantum Mechanical Model

- Electrons are located in specific energy levels.
- There is no exact path around the nucleus.
- The model estimates the probability of finding an electron in a certain position.

Atomic Orbital:

A region in space in which there is high probability of finding an electron.

Quantum Numbers:

specify the properties of atomic orbitals and their electrons.

Four Quantum Numbers

1. Principal Quantum Number
2. Orbital Quantum Number
3. Magnetic Quantum Number
4. Spin Quantum Number