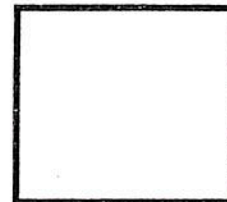


Evolution of the Atomic Model Exercise

Directions: Carefully read the description of each atomic model and place the picture that best fits the description in the box next to it.

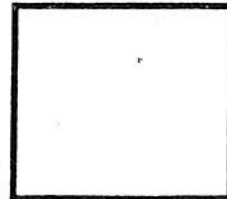
I. Dalton's Model
Hard, solid sphere.

1803



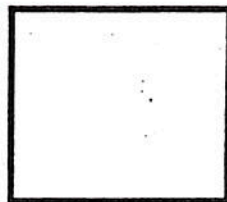
II. Thompson's Model
"Plum pudding model", the negatively charged electrons were embedded in a sphere of positive charge so the charges were balanced.

1897



III. Rutherford's Model
Used the Gold Foil Experiment to propose that most of the atom is empty space and that it contains a dense, positive center (Nucleus) and negatively charged electrons around the outside of the nucleus.

1909



IV. Bohr's Model
Proposed that the electrons moved in distinct orbits around the nucleus. The distance from the nucleus (energy level) was proportional to the energy of the electron. The higher the energy level, the more energy the electron had. The GROUND STATE is the lowest energy level an electron can occupy. Electrons may gain energy and move to a higher level known as an EXCITED STATE. The excited state does not last forever and when the electron drops back down energy is released in the form of a photon of light. This bundle of energy is called a QUANTUM.

1913



V. The Electron Cloud Model
Also known as The Quantum Mechanical Model.
We now know that electrons do not travel in little orbits, but rather in a cloud with a predictable energy based on the distance from the nucleus. Instead of actual locations of electrons, we speak in terms of the probability of finding an electron in a given region of space. These areas are described by their energy level, sub level, and orbital. Two important scientists linked with this model are Schrödinger and Heisenberg.

1920's

