

# How Rutherford discovered that atom has a nucleus located at the center of atom?

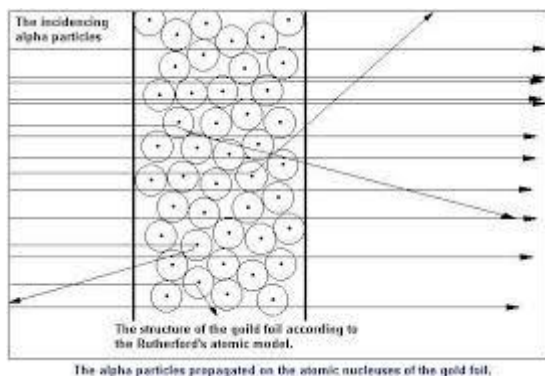
**Answer:**

Rutherford performed an experiment and as a result of that experiment he discovered that nucleus is located at the center of an atom. The experiment is known as Rutherford's Atomic Model.

## Rutherford's Atomic Model:

Rutherford performed the "Gold Foil" experiment. He took "0.00004" thick gold foil and bombarded "alpha particles" on the foil. These alpha particles are helium nuclei ( $\text{He}^{++}$ ) and emitted from radioactive elements i.e. radium and polonium. Alpha particles can penetrate through some extent.

He observed the effect of  $\alpha$ -particles on a photographic plate.



You see in the diagram when we pass a positive charge through an atom, some charges are reflected from the center of the atom, which shows that a positive charge is present in the center of the atom.

## Result about Nucleus in Atom:

Rutherford concluded about the nucleus that

1. The deflection of a few particles proved that there is a "center of +ve charge" in an atom, which is called nucleus.
2. The complete re-bounce of a few particles shows that the nucleus is very dense and hard.
3. Since a few particles were deflected, it shows the size of the nucleus is very small.
4. Except electrons, all other particles within the nucleus are known as nucleons.