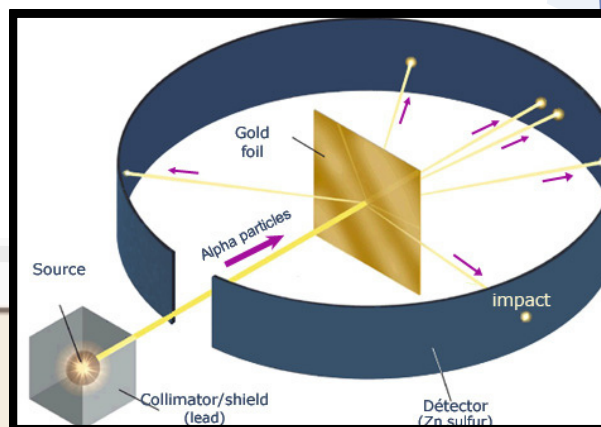


# **RUTHERFORD'S EXPERIMENT**



**3rd January, 1919**



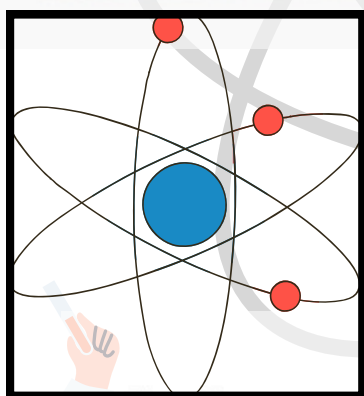
## **Experiment :**

Rutherford bombarded a thin sheet of gold with  $\alpha$ -particles and then studied the trajectory of these particles after their interaction with the gold foil. In order to study the deflection caused to the  $\alpha$ -particles, he placed a fluorescent zinc sulphide screen around the thin gold foil. Rutherford made certain observations that contradicted Thomson's atomic model.

## **$\alpha$ - scattering experiment**

### **Observation :**

1. Most of the space inside the atom is empty because most of the  $\alpha$ -particles passed through the gold foil without getting deflected.
2. Very few particles were deflected from their path, indicating that the positive charge of the atom occupies very little space.
3. A very small fraction of  $\alpha$ -particles were deflected by very large angles, indicating that all the positive charge and mass of the gold atom were concentrated in a very small volume within the atom.



*'it was quite the most incredible event that ever happened in my life... it was about as incredible as if you fired a 15-inch shell at a piece of tissue paper and it came back and hit you.'*



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