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ALPHA- PARTICLE SCATTERING EXPERIMENT, RUTHERFORD'S MODEL OF ATOM

XII- SCIENCE

SUBJECT : (PHYSICS)
CHAPTER NUMBER:12
CHAPTER NAME :ATOMS

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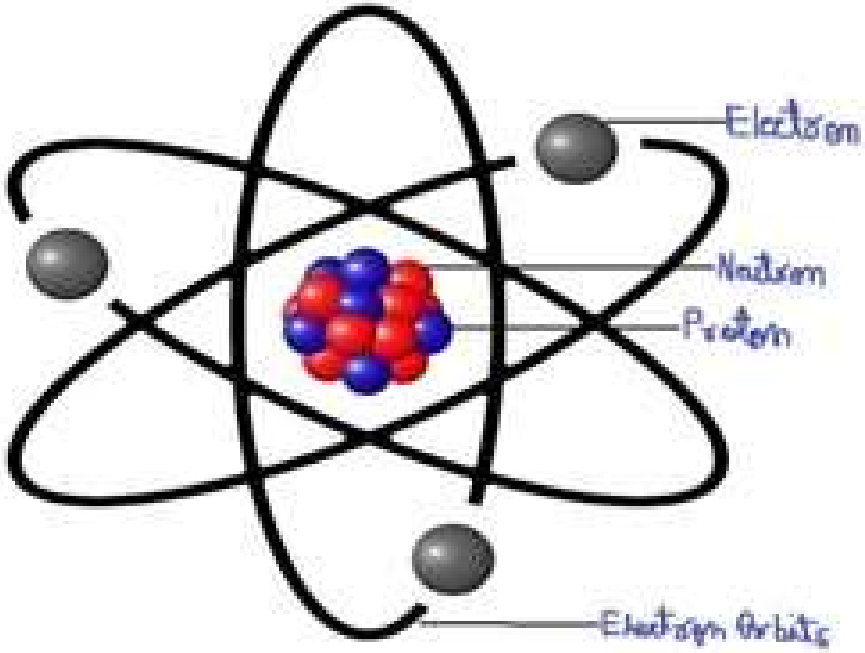
INTRODUCTION:

Atom is the fundamental building block of matter having a confined positively charged nucleus at the centre, surrounded by negatively charged electrons. Every inorganic, organic, or even synthetic object is made up of atoms.



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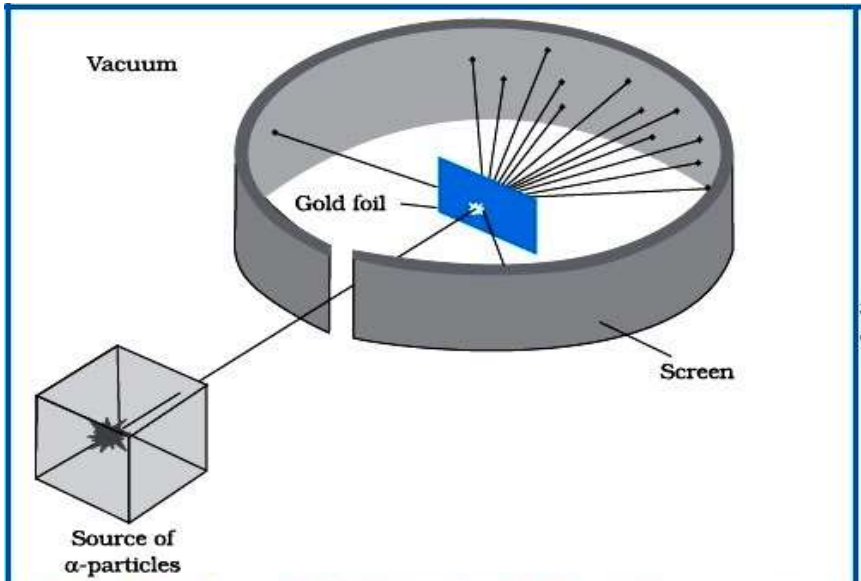
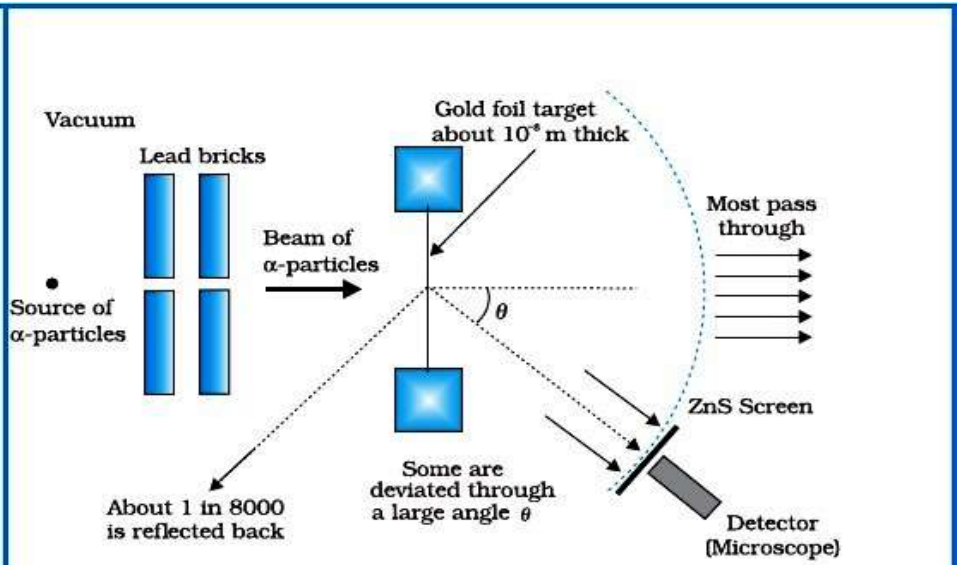
Slide 2

1	@Format for content and slide heading is missing? Just like you have mentioned in DOC., We need to specify, for each slide's heading and text content, wha font style +amanrouniyar@odmegroup.org _Assigned to you_ -Swoyan Satyendu , 17-06-2020

ALPHA-PARTICLE SCATTERING EXPERIMENT



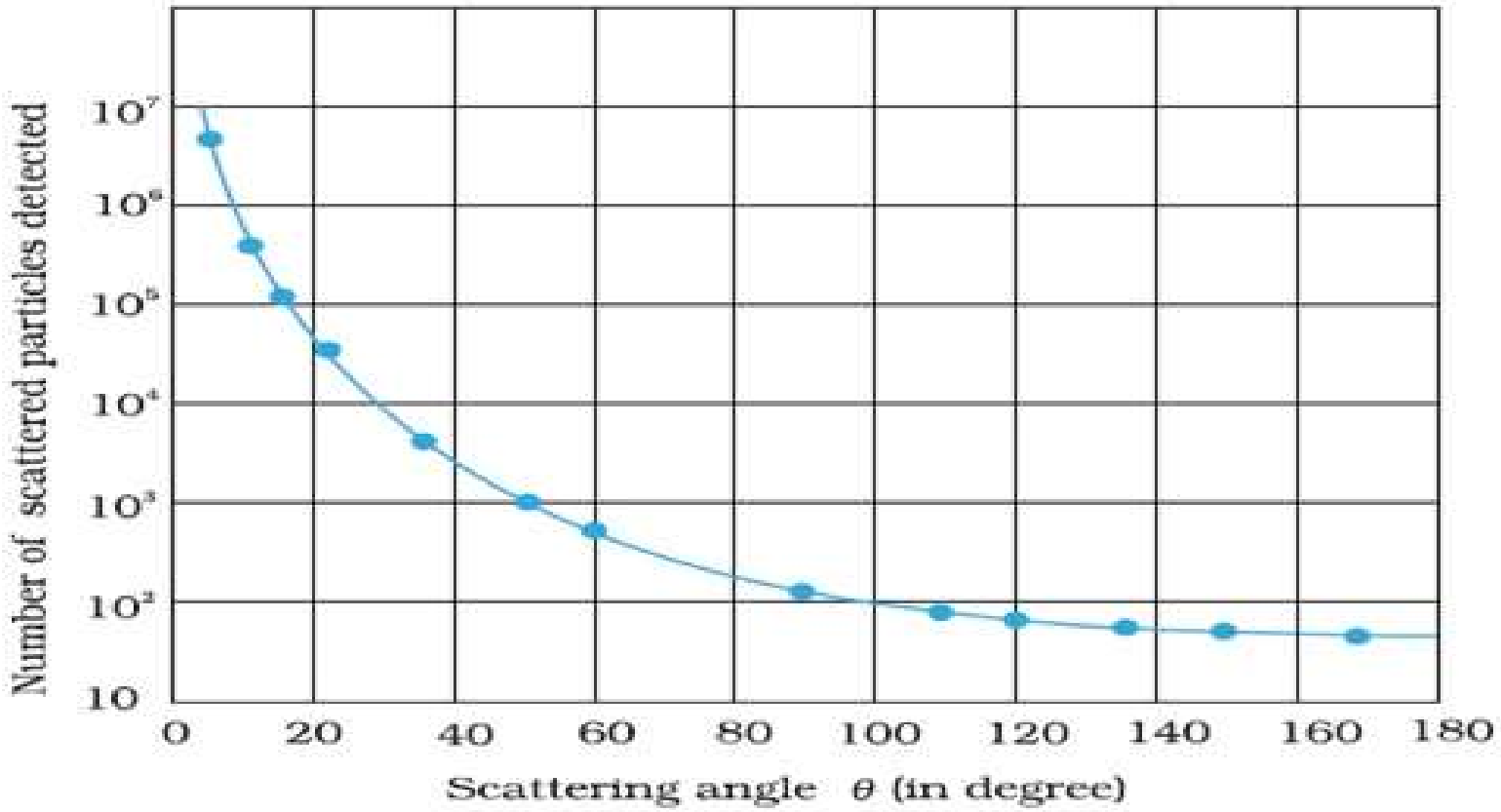
Geiger-Marsden scattering experiment. The entire apparatus is placed in a vacuum chamber (not shown in this figure).



Schematic arrangement of the Geiger-Marsden experiment.

RESULTS FROM ALPHA- PARTICLE SCATTERING EXPERIMENT

- Scattered α-particle plotted as a graph



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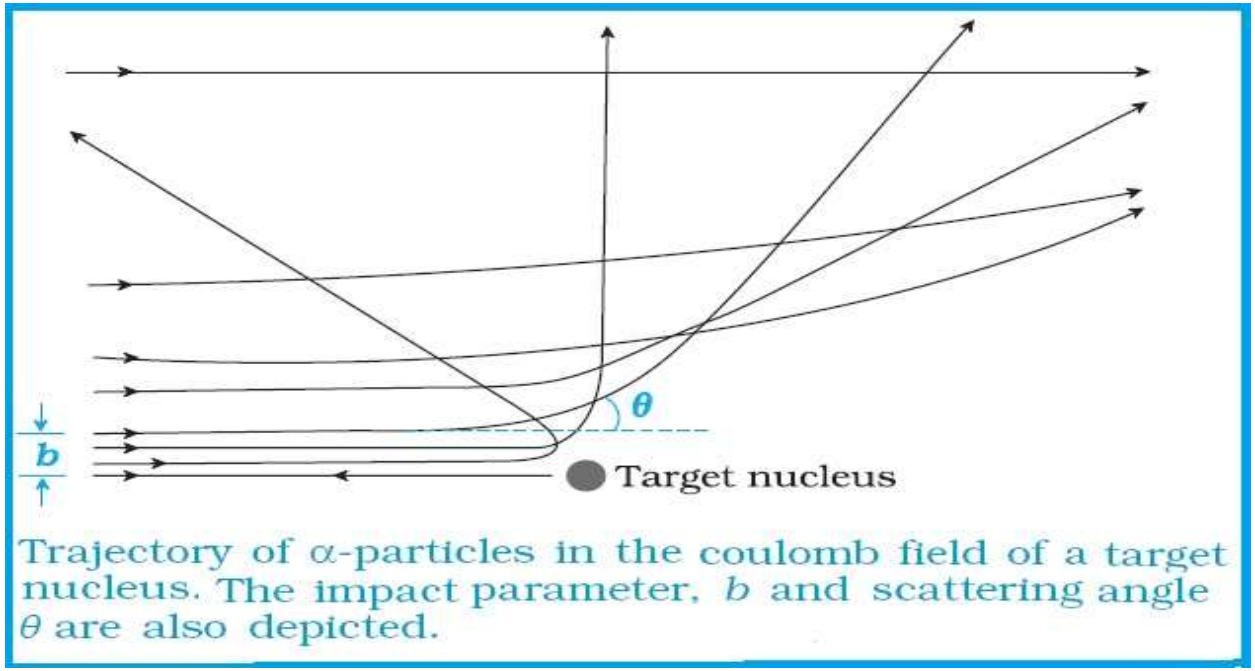
Impact-Parameter

It is the perpendicular distance of the velocity vector of the α particle from the central line of the nucleus when the particle is far away from the nucleus of the atom.



Trajectory of α-particles in the coulomb field of a target nucleus. The impact parameter, b and scattering angle θ are also depicted.

CONCLUSION FROM ALPHA (A) SCATTERING EXPERIMENT

1. Scattering of alpha particles is due to Columbus force between the positive charge of α particle and positive charge of an atom.
2. Rutherford's experiments suggested the size of the nucleus to be about 10^{-15} m to 10^{-14} m.
3. The electrons are present at a distance of about 10,000 to 100,000 times the size of the nucleus itself.
4. Atom has a lot of space and the entire mass of the atom is confined to the very small central core also known as the nucleus.
5. Almost all of the α-particles passed through the gold foil undeflected, and the infinitesimally small number of α-particles got deflected.

THANKING YOU

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