

Investigating the atom

Activity 2: Resource card 1

Geiger & Marsden experiment - conclusions

In 1913, H. Geiger and E. Marsden published the article *The Laws Of Reflexion Of α Particles Through Large Angles*.^[1] This article describes an experiment in which they observed the scattering of alpha particles by targets with different atomic numbers. Some of the conclusions presented are:

- A. the number of α particles emerging from a scattering foil at an angle ϕ with the original beam varies as $1/\sin^4(\phi/2)$ when counted over a definite area at a constant distance from the foil; and
- B. the number of elementary electric charges composing the central charge of the gold atom is about half the atomic weight.

References

[1] Geiger H, Marsden E (1913) [The Laws of Deflexion of \$\alpha\$ Particles Through Large Angles](#). *The London, Edinburgh and Dublin Philosophical Magazine and Journal of Science* **25**: 604–623. doi: 10.1080/14786440408634197