30TH AUGUST – ERNEST RUTHERFORD’S BIRTHDAY

ERNEST RUTHERFORD

<table>
<thead>
<tr>
<th>BORN</th>
<th>30 August 1871</th>
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<td>DIED</td>
<td>19 October 1937</td>
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Awarded the Nobel Prize in Chemistry for work on radioactivity, and named alpha and beta radiation. Also developed the Rutherford model of the atom from his famous gold foil experiment.

GOLD FOIL EXPERIMENT

In this famous experiment, carried out by Hans Geiger and Ernest Marsden between 1908 and 1913, alpha particles were fired at thin metal foils. Most of the alpha particles passed straight through the foil, but a small number were deflected back at a large angle.

Most particles show little or no deflection
7999/8000

Small no. of particles show large deflection
1/8000

This experiment showed that, contrary to previous models, positive charges (protons) are not spread evenly throughout the atom, but are concentrated in a small, dense centre: the nucleus. A cloud of negative charges (electrons) surround this nucleus. Alpha particles that collided with the nucleus were repelled.