

Rutherford Gold Foil Experiment Analysis

<https://gemini.google.com/app/3f959bfb535d191c>

Response: Both statements in this assertion-reason type question are **true**, and statement 2 is the **correct explanation** for statement 1.

Statement Breakdown

- **Statement 1:** *In the gold foil experiment, large number of alpha rays travel through the gold foil without any deflection.*
 - **Status:** True. Most α -particles pass straight through the gold foil because they do not encounter any concentrated positive charge or dense obstacle.
- **Statement 2:** *In the gold foil there is a large empty space without any positive charge.*
 - **Status:** True. Rutherford concluded from the experiment that the positive charge and nearly all the mass of an atom are concentrated in an extremely small region (the nucleus), leaving most of the atom as empty space occupied only by electrons.

Since the presence of vast empty space within the atoms explains why the positively charged α -particles pass through uninterrupted without experiencing electrostatic repulsion, Statement 2 correctly explains Statement 1.
