

**38** In the  $\alpha$ -particle scattering experiment, a beam of  $\alpha$ -particles is aimed at a thin gold foil. Most of the  $\alpha$ -particles go straight through or are deflected by a small angle. A very small proportion are deflected by more than  $90^\circ$ , effectively rebounding towards the source of the  $\alpha$ -particles.

Which conclusion about the structure of atoms **cannot** be drawn from this experiment alone?

- A** Most of the atom is empty space.
- B** Most of the mass of an atom is concentrated in the nucleus.
- C** The nucleus contains both protons and neutrons.
- D** The nucleus is charged.