

0	1
---	---

In the early 20th century, the plum pudding model of the atom was replaced by the Rutherford model.

0	1
---	---

 .

1

Describe the plum pudding model of the atom.

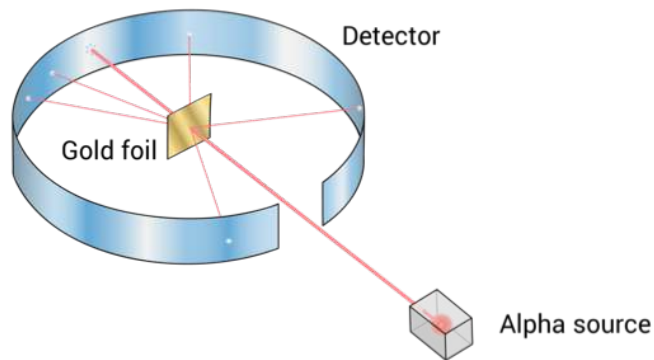
[2 marks]

0	1
---	---

 .

2

The experimental setup which was used by Rutherford and his team in their alpha scattering experiment was as shown in the below diagram.



Why was it important that the experiment was carried out under vacuum (rather than in air)?

[2 marks]

0	1
---	---

 .

3

Describe the main observations from this experiment.

[3 marks]

0 1 . 4

What did Rutherford and his team learn about the structure of the atom from these observations?

[3 marks]

0 1 . 5

Before Rutherford conducted this experiment, most scientists believed the plum pudding model to be correct. Once they learned about the results of his experiment however, they changed their minds.

How did the results of the Rutherford experiment prove that the plum pudding model was incorrect?

[2 marks]

0 1 . 6

The below diagram shows the paths of three alpha particles as they approach a gold nucleus. Complete the path of each of the alpha particles to show how their directions change as they travel closer to the gold nucleus.

**[3 marks]**

0 1 . 7

Explain why alpha particle 3 follows the path you have drawn in the above diagram.

[2 marks]