

Name: _____ Period: _____ Due Date: _____

Models of the Atom Homework - Answers

Use the link below to answer the following questions:

<http://www.universetoday.com/38326/plum-pudding-model/>

1. Who proposed the plum pudding model?
2. In the plum pudding model of the atom, what do the plums represent?
3. In this model, what does the dough represent?
4. What major step does the plum pudding model represent in terms of atomic research?
5. How is this model different from modern models of the atom?
6. Briefly describe the apparatus Thomson used in his experiments.
7. Describe what Thomson observed during his experiments.
8. Thomson named the particles he discovered during his experimentation 'corpuscles'. What do we now know these particles as?
9. What awards did Thomson receive for his work on the atom?

Name: _____ Period: _____ Due Date: _____

Models of the Atom Homework - Answers

10. Which model replaced Thomson's?
11. What is the 'Thomson Problem'?
12. How did Geiger and Marsden contribute to the model of the atom?
13. What are alpha particles?
14. What role did Rutherford play in the modelling of the atom?
15. Why are models useful in Science?

Models of the Atom Homework - Answers

Use the link below to answer the following questions:

<http://www.universetoday.com/38326/plum-pudding-model/>

1. Who proposed the plum pudding model?
J.J Thomson
2. In the plum pudding model of the atom, what do the plums represent?
Electrons
3. In this model, what does the dough represent?
The sea of positive charge surrounding the electrons
4. What major step does the plum pudding model represent in terms of atomic research?
It suggested that atoms were in fact divisible and provided the first evidence of subatomic particles, namely the electron.
5. How is this model different from modern models of the atom?
Electrons are distributed throughout the atom, while in later models they are in orbitals. Thomson's atom contains no nucleus and instead has a sea of positive charge, rather than a central positive charge.
6. Briefly describe the apparatus Thomson used in his experiments.
The cathode ray tube is a sealed glass container with two electrodes that are separated by a vacuum. When voltage is applied across the electrodes, cathode rays are generated.
7. Describe what Thomson observed during his experiments.
The cathode rays were deflected by electric and magnetic fields.
8. Thomson named the particles he discovered during his experimentation 'corpuscles'. What do we now know these particles as?
Electrons
9. What awards did Thomson receive for his work on the atom?
Nobel prize

Models of the Atom Homework - Answers

10. Which model replaced Thomson's?

The Rutherford model

11. What is the 'Thomson Problem'?

The Thomson problem was that he was unable to prove that the atom possessed a "the sea" of positive background charge.

12. How did Geiger and Marsden contribute to the model of the atom?

By measuring the scattering patterns of alpha particles with a fluorescent screen, they were able to observe the variety of angles the particles were deflected at.

13. What are alpha particles?

Helium nuclei

14. What role did Rutherford play in the modelling of the atom?

Rutherford was responsible for interpreting Geiger and Marsden's experiments, establishing proof for a positive nucleus and the rest of the atom being empty space.

15. Why are models useful in Science?

Models allow us to represent ideas which we cannot experience firsthand. They help scientists to communicate their ideas and support explanations of scientific phenomena.