

Developing Models of Matter (Pgs. 82-91)

Please answer all questions with full sentences on loose-leaf.

1. What were the four "elements" proposed by Empedocles? When did this happen? Draw a picture showing his model.
2. How did Empedocles justify how things like rust and volcanic rock were made?
3. What would Empedocles say about air? Is it 'nothing'?
4. Democritus suggested that matter was made of what? What did he call them? Draw pictures of what he thought they looked like.
5. What is an alchemist?
6. What did alchemists try to do?
7. Other than Empedocles, who else believed in the four element model?
8. What is the modern definition of an element? Who came up with the idea?
9. Priestly, Lavoisier, and Cavendish all experimented with air and water. What did they try to do? What did they discover?
10. What did Dalton's atomic model state (list all 4 points)?
11. How did Faraday's version of the atomic model differ from Dalton's?
12. J.J. Thomson then revised Faraday's model to explain electrons. What did he say about them?
13. What experiment did Rutherford do in Montreal? (Look at figure 8 for help)
14. What was the nuclear model described by Rutherford as a result of his experiment?
15. What are the 3 subatomic particles? Which one is the lightest? What is its weight relative to a proton?
16. Give an example of an element with proper standard atomic notation. Which number goes on the top? Which goes on the bottom?
17. How are neutrons calculated?
18. Neils Bohr proposed a 'planetary' model of the atom. What points did he suggest?
19. What is the difference between excited state and ground state?
20. Using Bohr's planetary model of the atom, explain how we see different colors of light. Draw a picture or use Figure 6 on page 91 to help.