

CP Chemistry Group Project Assignment

Unit 4 Introduction

Background:

In this unit, you will learn about the development of the atomic theory. We will begin with the early Greeks and expand through the early 1900s. Atomic theory describes the development of the model of the atom over time. Keep in mind that we are looking at how the model has changed with time. We will learn in the next chapter about the newest and most up to date model. But for now, you will need to focus on the history of the atomic theory.

Premise:

You have been hired by the Salisbury High School Chemistry Company to construct a high quality Powerpoint presentation for high school students describing the development of the atomic theory. A list of key points to be addressed is outlined below. You will work in groups. As in any company, group collaboration is encouraged. Each of us brings different strengths to a group and it is important that our strengths blend together into the success of the project. Because the project is vast in magnitude, everyone must contribute if the project is to be successful. At the conclusion of the project, each team will present to the class. As your project manager, I will be there along the way to guide and assist you; however, your group is ultimately responsible for what is presented and accomplished. This project will serve as a replacement for the notes that I would generally give.

Evaluation:

Your project will be evaluated based on the criteria below.

Criteria:	Point Value:
Creativity – keep in mind that audience is high school students; however, your presentation should allow them to focus on what is important and not be too “flashy.”	10 points
Completion of Task – did you address the required topics below?	40 points
Group Evaluation – you will evaluate your fellow group members based on their performance	20 points
Individual Evaluation – you will evaluate your own performance	10 points
Teacher Evaluation – I will evaluate each of you based on my observations of how your group works together and the final presentation.	10 points
Presentation – did your presentation make a meaningful impact on the students? Class members will evaluate the overall effectiveness of your Powerpoint and presentation.	10 points

This project will be worth 100 points and count as a test grade. Keep in mind that I know each of you is capable of producing high quality work. I hope that this will be a presentation that you will take pride in and do an outstanding job!!!

“None of us is as smart as all of us” – Edward C. Register

Tools Available:

You will have access to various textbooks, videos, CDs, and the internet as well as computers. I will be more than happy to try to accommodate requests for other various tools that may not be in the classroom such as scanners, cameras, and anything else you can think of.

Key Players in Atomic Theory Development:

Democritus (Greek Philosopher)

Aristotle (Greek Philosopher)

John Dalton (British Scientist)

JJ Thomson (British Physicist)

Robert Millikan (American Physicist)

Ernest Rutherford (British Scientist)

James Chadwick (British Physicist)

Niels Bohr (Danish Physicist)

Key Points to Address:

- 1.) What did Democritus say about the atom?
- 2.) What did Aristotle believe about the atom?
- 3.) Why was Aristotle considered correct over Democritus based on their time period?
- 4.) Explain the parts of Dalton's Atomic Theory.
- 5.) What was significant about Dalton's Atomic Theory as opposed to what Democritus or Aristotle supported?
- 6.) Which portions of Dalton's Atomic Theory are still considered correct?
- 7.) What are cathode rays?
- 8.) Describe JJ Thomson's Cathode Ray Experiment.
- 9.) In the cathode ray experiment, why did the rays bend toward the positive plate?
- 10.) What particle did Thomson discover?
- 11.) Describe Thomson's "Plum Pudding" Model of the atom.
- 12.) Describe Robert Millikan's Oil Drop Experiment.
- 13.) What did Robert Millikan discover about the electron?
- 14.) Which subatomic particle did James Chadwick discover? (You only need to tell what he discovered. Do not give any additional details about Chadwick)
- 15.) Describe Ernest Rutherford's Gold Foil Experiment.
- 16.) What are alpha particles?
- 17.) What did Rutherford hypothesize would occur in his gold foil experiment?
- 18.) Describe Rutherford's results from the gold foil experiment.
- 19.) Describe Rutherford's model of the atom.
- 20.) Describe Bohr's model of the atom?
- 21.) Explain why Bohr's model of the atom is sometimes called the planetary model.
- 22.) Explain why electrons orbit around the nucleus.
- 23.) What is the law of electrostatics in the atom?
- 24.) Where are electrons found in the atom?
- 25.) Where are protons found in the atom?
- 26.) Where are neutrons found in the atom?

"Collaboration: a mutually beneficial and well-defined relationship entered into by two or more ... to achieve common goals" - Amerst H. Wilder Foundation