

History of the Atom Project

The atomic theory of matter is an excellent illustration of the process of science. Our understanding of the world around us is reshaped and refined with each scientific experiment. The first recorded idea of the atom comes from the ancient Greeks in the 400's B.C. Over the millennia, scientific experimentation has added to our knowledge of the atom, redefining what it is and what its structure is like. In this project, your goal will be to learn about some of the highlights in the history of atomic theory to gain an appreciation of how we know what we know about atoms. Step one of this process involves research. Listed below are 14 scientists who all contributed to our current understanding of the atom. You need to find out who these people were and what they contributed to atomic theory.

- ☐ Democritus
- ☐ Antoine Lavoisier
- ☐ John Dalton
- ☐ J. J. Thomson
- ☐ Ernest Rutherford
- ☐ Robert Millikan
- ☐ Marie Curie
- ☐ James Chadwick
- ☐ Max Planck
- ☐ Albert Einstein
- ☐ Niels Bohr
- ☐ Louis De Broglie
- ☐ Erwin Schrodinger
- ☐ Werner Heisenberg

Questions to answer about each scientist

- 1) When did they live? Where did they live?
- 2) What new information did they contribute to the understanding of the atom?
- 3) How did they find this new information? (What experiments did they do?)
- 4) Interesting facts – other accomplishments, personal information, famous historical events at the time, etc.

Step 2 of this project is turning your research into an interesting and informative project. This is the part where you use the information, making sure to avoid plagiarism by putting things into your own words.

The type of project you will complete is called a RAFT (R = role, A = audience, F = Format, T = Topic). You choose one horizontal row from the choices below to complete. If you don't see any options that appeal to you, talk to your teacher about designing your own. (A self-designed option must be approved by your teacher.)

Role	Audience	Format	Topic
Science Writer at the New York Times	Reader of the New York Times Science Section	Series of Newspaper Articles	The Ongoing discovery of the atom
Science Historian	Students studying atomic history	Detailed Timeline	Important Figures and Events in the History of Atomic Structure
Author	Students in your high school chemistry class	Graphic Novel	Adventures of the Scientists listed above that includes their contribution to atomic development
Video-Game Developer	Head Game Developers of Nintendo or Sony	Illustrated proposal for a new video game (don't forget to name your game)	A video game that will teach high school students about atomic theory

Read the rubric carefully to understand what content needs to be included in your project and how your project will be graded.

Newspaper articles – You could write one article per scientist, but it might be better to write fewer articles, each one focusing on a different time period. Make sure your writing is interesting; your reader shouldn't want to put the newspaper down after the first few sentences. Make sure to use newspaper article format and be creative.

Timelines – Your timeline should be visually attractive and include pictures of each scientist as well as descriptions of their contributions to atomic theory. Organization and attractive layout are key.

Graphic Novel – You should write an illustrated story. Don't forget a cover with the title of your novel. Remember, you need to make an interesting narrative that students would like to read that still includes all the required content. Turn your research into a story!

Video Game Proposal – Imagine you have to pitch a new video game to Nintendo or Sony. This is the proposal you would bring with you. It should outline the type of game, the objective of the game, and describe how the game is played. It should include some illustrated frames of what the game will look like on screen. Be creative about how you can incorporate learning atomic theory into a game! Remember, your proposal should make Nintendo or Sony want to make and sell your game.

*****Reminder: No matter what project you choose, it must answer all four questions about each of the 14 scientists listed***

HISTORY OF THE ATOM PROJECT RUBRIC – Please attach your RAFT to this rubric

	Poor	Needs Improving	Good	Excellent
Content: <i>You have included information about each research question for all the scientists</i>	<i>Student answers only 1 (or 0) questions about the given scientist</i>	<i>Student answers only 2 questions about the given scientist</i>	<i>Student answers only 3 questions about the given scientist</i>	<i>Student answers all 4 questions about the given scientist</i>
Democritus	1	2	3	4
Antoine Lavoisier	1	2	3	4
John Dalton	1	2	3	4
J. J. Thomson	1	2	3	4
Ernest Rutherford	1	2	3	4
Robert Millikan	1	2	3	4
Marie Curie	1	2	3	4
James Chadwick	1	2	3	4
Max Planck	1	2	3	4
Albert Einstein	1	2	3	4
Niels Bohr	1	2	3	4
Louis De Broglie	1	2	3	4
Erwin Schrodinger	1	2	3	4
Werner Heisenberg	1	2	3	4
Accuracy	The information provided in the RAFT is very incomplete. (4)	The information provided in the RAFT has some missing or inaccurate concepts. (6)	The information provided in the RAFT is accurate but could use more support or specific details related to the concepts. (8)	Information & details in the RAFT are accurate and properly reflect ideas related to the concepts. (10)