

DUE DATE: _____ Name: _____

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 in your research

- 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.

Cite Your Sources!

You must hand in a bibliography with your project. This must be in proper works cited/bibliography format. (See the example shown below.) There are lots of websites that can help you make a correctly formatted citation. One good one is <http://www.easybib.com/>

Sample Citation (for an online source):

"A Science Odyssey: You Try It: Atom Builder." PBS. PBS, 1998. Web. 04 Nov. 2009.
<<http://www.pbs.org/wgbh/aso/tryit/atom/>>.

Research Tips

Some of these scientists did experiments not related to atomic theory as well. If you search on the web for information, you might include searches about history of atomic theory, or "Niels Bohr atomic theory" to help get less broad results. You can of course get good information by searching each name as well, but don't forget to find out about contributions to atomic theory. Your textbook also has useful information about some of these scientists.

Here are a few useful websites to get things going.

<http://www.pbs.org/wgbh/aso/tryit/atom/> - scroll down to the bottom for links to scientists
<http://www.usetute.com.au/atomichist.html>
<http://chemistry.learnhub.com/lesson/3663-history-of-the-atomic-theory-i-ancient-times>
<http://chemistry.learnhub.com/lesson/3687-history-of-the-atomic-theory-part-3>
http://www.visionlearning.com/library/module_viewer.php?mid=50

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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

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 2 or more 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
Actors putting on a performance for the scientists at Fermilab	Scientists in the research community who are currently doing research on subatomic particles	Role-Playing	You will take on the persona of at least two to the scientists who contributed to the development of the atom

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. (Read a science article perhaps for a better understanding of this.)

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.

Role Playing – Take on the persona of the scientists. You will give your performance to the scientists in our class. Be creative and fully take on the role of the scientists you have chosen. Limit the performance to 3-5 minutes and turn in a bibliography with the sources you used to research your scientist(s).

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RAFT Scoring Guide: Please attach this rubric to your RAFT.

	Exceptional	Good	Acceptable	Needs Work	No Evidence
Content: <i>You have clearly and reasonably addressed:</i> You have included as part of your project information about each research question for all the scientists.	4	3	2	1	0
Coverage of Your Specific Format/Topic Your work is creative and shows good incorporation of facts in your given format. Your project meets all the requirements for your chosen RAFT.	4	3	2	1	0
RAFT Presentation Your RAFT is neat, organized, has limited G.U.M. errors. It shows your best possible effort and is quality work.	4	3	2	1	0
Bibliography <ul style="list-style-type: none">• Citations are properly formatted• Multiple sources are used.• Source selection is good, internet sites are reliable/well-chosen	4	3	2	1	0

Average score: 4 = 100

3.5 = 88

3 = 80

2.5 = 75

2 = 70

1.5 = 65

Less than 1.5 = No credit yet (back to the drawing board)

Score: /32

Various Graphic Novel Websites

<http://www.collectionscanada.gc.ca/comics/027002-6000-e.html>

<http://www.getgraphic.org>

<http://www.video.aol.com/video-detail/pixton-presentation-on-the-showroom-floor/107411>

<http://www.toondoo.com>

<http://www.pixton.com>

<http://getgraphic.org>

<http://www.wikihow.com/create-a-graphic-novel>

<http://comic-book-and-strip-service.com/creating-comics-2.html>

<http://www.graphicnovels.brodart.com/links.htm>

http://blogs.sun.com/martinhardee/entry/design_comics_templates_1_0

<http://www.cincinnati.library.org/spotlight/sp200601/websites.html>