Atomic History Project

Background:
If you were asked to draw the structure of an atom, what would you draw? Throughout history, scientists have accepted five major different atomic models. Our perception of the atom has changed from the early Greek model because of clues or evidence that have been gathered through scientific experiments. As more evidence was gathered, old models were discarded or improved upon. Your task is to trace the atomic theory through history.

Task:
1. You will create a **timeline of the history of the atomic model** that includes all of the following components:
   A. **Names** of 15 of the 21 scientists listed below
   B. The **year** of each scientist's discovery that relates to the structure of the atom
   C. 1-2 sentences describing the **importance** of the discovery that relates to the structure of the atom

Scientists for the timeline:
*required to be included

- Empedocles
- Democritus*
- Aristotle
- Evangelista Torricelli
- Daniel Bernoulli
- Joseph Priestly
- Antoine Lavoisier*
- Joseph Louis Proust
- John Dalton*
- J.J. Thomson*
- Robert Millikan
- Ernest Rutherford*
- Niels Bohr*
- Louis DeBroglie*
- Ernest Schrodinger
- Marie & Pierre Curie
- James Chadwick*
- Henri Becquerel
- Albert Einstein
- Max Planck
- Michael Faraday

Checklist for the timeline:

- Timeline is in chronological order (earliest date to most recent date)
- Equal space is devoted to each year (as on a number line)
- The eight (8) *starred scientists are included with correct dates of their discoveries
- An additional seven (7) scientists of your choice (from the list) are included with correct dates of their discoveries
- Sufficiently explains of the contribution of each discovery to the development of the atomic model
- Importance of each scientist's discovery is limited to 2 sentences
- Timeline is done/pasted on construction or poster paper
- Timeline is drawn/pasted neatly
- Writing is typed and pasted onto timeline
- Only professional sources should be used: No "Wikipedia" or "Yahoo Answers"

This project is modified from Susan Schmidt's "A Webquest for High School Chemistry."
http://faculty.trivecca.edu/jbivens/Schmidtatom.html

2. You will **draw** the five historical **models of the atom.**

Atomic Models Required for Drawings

- Dalton
- Thomson
- Rutherford
- Bohr
- DeBroglie/ Schrodinger

Checklist for drawings of atomic models:

- Each model is drawn by hand, and with color.
- Each model is correctly labeled with the name of the scientist who proposed it
- Drawing accurately reflects the required scientific models of the atom
- Each model that has subatomic particles and/or regions includes a color-coded key that correctly indicates these regions and subatomic particles and their charges
- Each drawing takes up a half-sheet of notebook paper
- Atoms are pasted onto the timeline in chronological order with correct scientist

Helpful websites and resources to get you started:

Your textbook

http://library.thinkquest.org/19662/low/eng/index.html
http://www.lbl.gov/abc/wallchart/chapters/02/1.html
http://www.neoam.cc.ok.us/~rjones/Pages/online1014/chemistry/chapter_8/pages/history_of_atom.html
http://atomictimeline.net/index.php
http://www.delicious.com/kdrummond.kate/atoms

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Evaluation Rubric

	Exemplary	Proficient	Developing	Insufficient
Inclusion of Scientists	- 15 scientists (including the 8 required) are listed 7.5 points	- 12- 14 scientists are listed OR - 15 scientists are listed but missing 1- 2 of the 8 required 7- 6 points	- 9- 11 scientists are listed 5.5- 4.5 points	- 8 or fewer scientists listed 4- 0 points
Chronology of Dates	- All dates are correct and in chronological order 7.5 points	- 1- 3 scientists have incorrect dates or are out of order 7- 5 points	- 4- 6 scientists have incorrect dates or are out of order 5.5- 4.5 points	- 7 or more scientists have incorrect dates or are out of order 4- 0 points
Contribution to Atomic Theory	- All 15 scientists' discoveries are listed and sufficiently explain contribution to atomic theory 15 points	- 1- 3 scientists' discoveries have errors or do not sufficiently explain contribution to atomic theory 14- 12 points	- 4- 6 scientists' discoveries have errors or do not sufficiently explain contribution to atomic theory 11- 9 points	- 7 or more scientists' discoveries have errors or do not sufficiently explain contribution to atomic theory 8- 0 points
Models of Atoms	All of the following are included: - All 6 models are included - All 6 models are correctly named - Models are correctly drawn with subatomic particles labeled 15 points	- One of the 6 models are not included **and/or** - One of the 6 models are not correctly named **and/or** - One of the models are not correctly drawn with subatomic particles labeled 14- 12 points	- Two of the 6 models are not included **and/or** - Two of the 6 models are not correctly named **and/or** - Two of the models are not correctly drawn with subatomic particles labeled 11- 9 points	- More than two of the 6 models are not included **and/or** - More than two of the 6 models are not correctly named **and/or** - More than two of the models are not correctly drawn with subatomic particles labeled 8- 0 points
Professionalism	Timeline and models have neat and legible layout, writing, and appropriate use of color. 5 points	Missing one of the following: - legible layout - legible writing - appropriate use of color 4- 3 points	Missing two of the following: - legible layout - legible writing - appropriate use of color 2- 1 points	Includes none of the following: - legible layout - legible writing - appropriate use of color 0 points

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