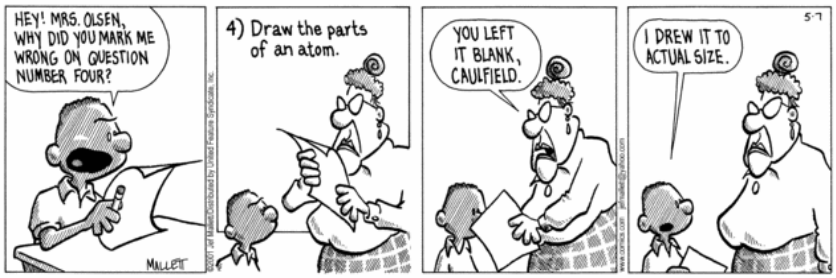
Names: _____

_____




# Make an Atomic Theory Timeline!

**Directions:**

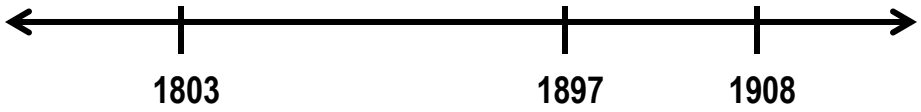
1) Read the information about the scientists and theories that have developed over time about matter and the atom in the Atomic Theory packet.

2) Cut out all of the scientists' names, information boxes, scientist pictures, atomic models, and analogies and organize them by date/theory.

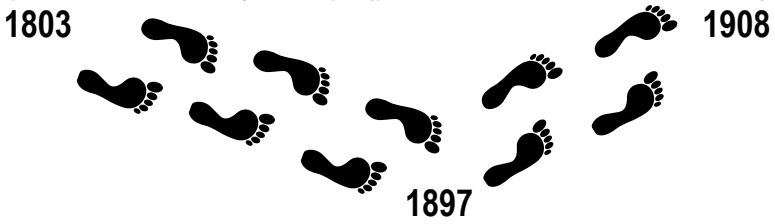
3) On a separate sheet of paper, design a timeline that includes these dates:

**400 B.C., 300 B.C. to Early 1800s, 1803, 1897, 1908, 1913, 2000**

Your timeline may be straight like this:




Or it may be more like a "journey" (you can be creative with this):




4) For each of the seven dates, arrange and glue the correct scientist name and picture, atomic model, analogy and additional information (there are two or three information boxes per theory).

5) Make your timeline look great! Give it a title, use crayons or colored pencils to decorate the dates and/or names, and maybe add boxes or bubbles around the information for each date.

6) Answer the questions on the back of this sheet and look over the rubric to see how this will be graded.

# Atomic Theory Timeline Questions and Rubric

Names _____ Period ____

Please choose the correct answer to the following questions. Then, tape this page to the back of your timeline.

1) Who discovered the electron?
- Dalton
- Thomson
- Rutherford
- Bohr

2) What did Rutherford discover in his experiment?
- nucleus
- electrons
- neutrons

3) n which model are atoms are imagined as tiny balls?
- Dalton
- Thomson
- Rutherford
- Bohr

4) Who proposed a model with electrons moving in specific layers?
- Dalton
- Thomson
- Rutherford
- Bohr

5) What does <u>atom</u> mean?
- small
- visible
- indivisible
- particle

6) Who is "responsible" for the 2000-year "Death of Chemistry"?
- Aristotle
- Democritus
- Thomsen
- Dalton

7) Rutherford's "gold-foil" experiment using alpha particle scattering concluded that
- the center of the atom is empty
- atomic mass is spread over the whole atom
- the center of the atom has a negative charge
- most of the atom is empty

8) In which model are atoms are imagined as the solar system?
- Dalton
- Thomson
- Rutherford
- Bohr
- Cloud Model

# Rubric

| | |
|---|---|
| Timeline has a title | **2 points** _____ |
| Organization of events is neat, clear and chronological | **6 points** _____ |
| All pictures, atomic models and analogies of the atom are included and accurate | **6 points** _____ |
| Correct matching of information boxes with the responsible scientist(s) | **6 points** _____ |
| Poster looks aesthetically pleasing (color, outlining, easy to read and interpret, creative) | **4 points** _____ |
| Class time is used wisely | **2 points** _____ |
| Questions #1-8 (1/2 point each) | **4 points** _____ |
| **Total Points Earned:** | _____**/ 30** |

# Everything You Need to Make an Atomic Theory Timeline!

**Democritus**

**Dalton**

**Bohr**

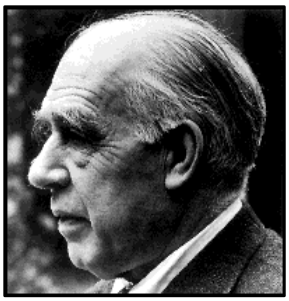
**Aristotle**

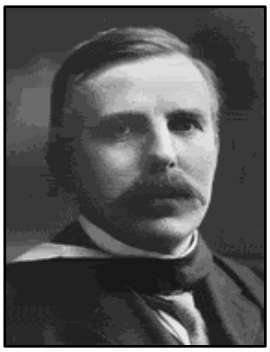
**Thomson**

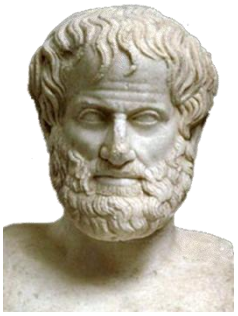
**Rutherford**

**Schrodinger, Heisenberg, Einstein and other scientists**

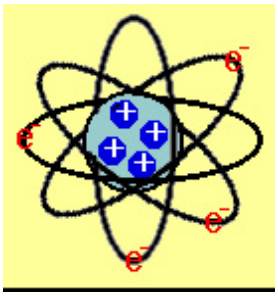
| | | |
|---|---|---|
| Most of an atom's mass is in the nucleus. | Electrons move around the nucleus billions of times in one second. | There are small, negatively charged particles inside an atom called electrons. |
| "Atomos" means "not to be cut," which refers to the smallest piece of matter. | All matter is made up of four elements: fire, air, water and earth. | Atoms contain mostly empty space. |
| Electrons' locations depend upon how much energy they have. | Electrons travel in paths called energy levels. | Atoms are "uncuttable". |
| Atoms are made of a single material that is formed into different shapes and sizes. | Atoms of the same element are exactly alike. | Electrons are found in electron clouds, not in paths. |
| Electrons are scattered around the nucleus at a distance. | This theory led to the "plum pudding" model, in which negative particles are stuck in a positively charged substance. | Matter has four properties: hot, cold, dry, and wet. |
| Atoms of different elements are different. | Energy levels are located certain distances from the nucleus. | There is a small, dense, positively charged nucleus. |

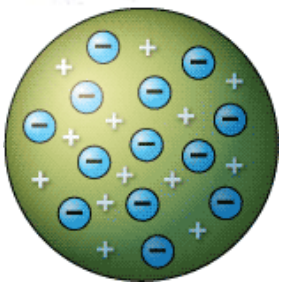




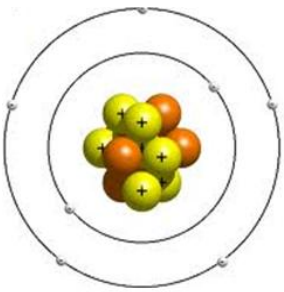


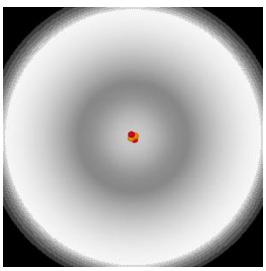
## Scientists' Pictures



## Atomic Models





## Model Analogies




Solar System