KeyNotes: A Brief History of Atomic Theory

Mr. Gilliland - Physical Science @SHS

*Name*_____ *Period*___

- *Democritus* -

1. The Greek philosopher Democritus proposed all matter was composed of _____,

_____ particles called _____ which means_____.

He used the analogy of a _____ to support his theory. Explain:_____

_____

2. Democritus was a philosopher. Explain how it differs from a scientist._____

_____.

Democritus proposed the _____ of the atoms determined the properties of a substance.

Three examples:_____

_____

3. Aristotle, whose' idea was accepted for ____ centuries, believed matter was made of the 4 elements:

_____, _____. _____ and _____.

- *John Dalton* -

4. In 1809 Dalton revived the atomist view and proposed that:

a. _____

b. _____

c. _____

d. _____

e. _____

- *J. J. Thomson* -

5. Briefly describe and draw a Crooke's Tube.

Description:_____

Drawing:

6. Three properties of electrical charges are:

a. _____

b. _____

c. _____

7. Thomson placed two plates in the Crooke's tube to test the ray. When they were charged the ray was always attracted to the _____ plate and repelled by the _____ plate.

Draw and label Thomson's Cathode Ray tube showing the charged plates and the deflected ray.

8. In 1897 Thomson concluded that because the ray was always attracted to the _____ plate and repelled by the _____ plate, the ray must be charged _____. Since atoms are _____ he proposed that atoms had _____ _____ particles embedded in a _____ cloud. He called these _____ charged particles _____. He called his model the _____ _____ model.

Draw Thomson's model of the atom.

- Ernest Rutherford -

9. One type of radioactivity is when an atom throws out a _____ _____ particle from the nucleus. This particle is called an _____ abbreviated with the symbol _____.

Rutherford used the element _____ to produce these particles and used a _____ container to produce a _____ of _____ particles. He shot these particles at a thin sheet of _____ . If Thomson's model was correct the particles should _____.

Draw and label Rutherford's Gold Foil experiment below.

In 1911 Rutherford concluded the atom had a _____ _____ core composed of _____ charged _____ and that _____ charged _____ orbited the _____. He called his model the _____ _____ of the atom.

Draw and label it.

- Niels Bohr -

In 1913, Bohr discovered that _____ are arranged in up to _____ specific energy levels. The arrangement of electrons determines the _____ and _____ properties of the elements. (We will study his model in depth.)

- James Chadwick-

In 1932, Chadwick discovered the 3rd subatomic particle and called it a _____ because it was _____. Draw a model of the atom showing all 3 particles.