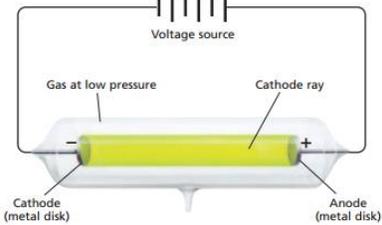
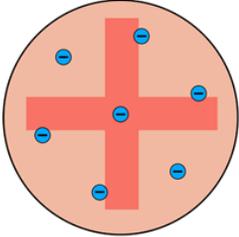
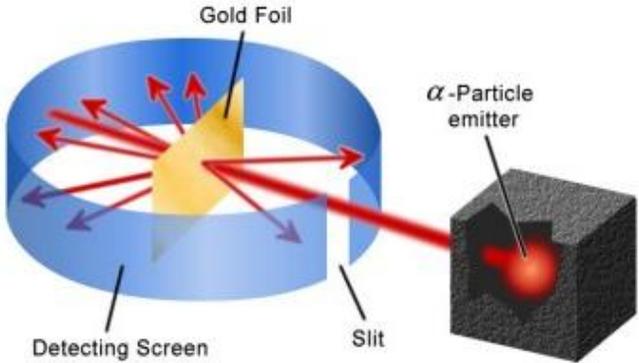
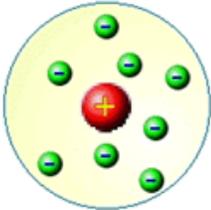
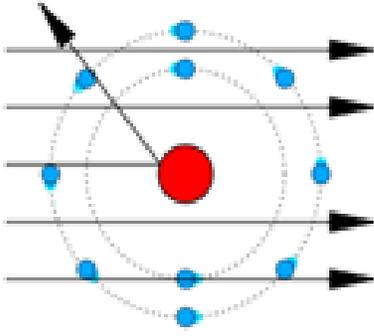
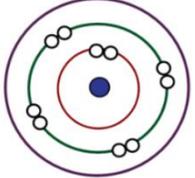
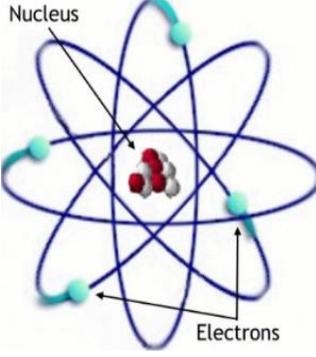
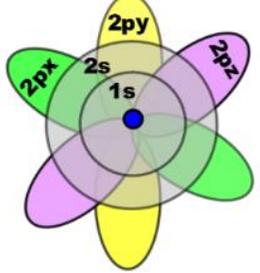


Evolution of the Atom

Model (Picture) with Description	
<p>Democritus Model of Atom</p> 	<p>Democritus was a philosopher in 400 B.C. (not a scientist) that stated :</p> <p style="text-align: center;">Atoms are indivisible particles</p>
<p>Dalton Model of Atom</p> 	<p><u>1808 The First Atomic Theory (experimented & concluded)</u></p> <ol style="list-style-type: none"> 1. All matter is composed of extremely small particles called atoms. 2. Atoms cannot be subdivided, created, or destroyed. 3. Atoms of the same element are identical; whereas, different element's atoms are different from each other in size, mass, & other properties. 4. Atoms of different elements combine in whole-number ratios to form compounds. 5. Chemical reactions are when atoms combined, separated, or rearranged.
<p>Cathode ray experiment:</p>	<ul style="list-style-type: none"> • The electric current (cathode rays) passed through gases in a glass tube.  <ul style="list-style-type: none"> • Cathode rays were repelled from the negative (-) cathode and attracted to the positive (+) anode. <p><u>Thomson in 1897 concluded that:</u></p> <ol style="list-style-type: none"> 1. That there was something smaller than an atom 2. <i>Cathode rays</i> are composed of identical negatively charged particles, called electrons
<p>Millikan</p>	<p>Millikan in 1909 measured the charge of an electron through the oil drop experiment.</p>
<p>Thomson Model of the Atom</p> 	<ul style="list-style-type: none"> • Thomson called his model of the atom the plum pudding model. • The negative electrons were spread randomly throughout the positive charge of the rest of the atom. • Similar to seeds in a watermelon where the seeds are spread throughout. (Seeds = electrons flesh of fruit = positive mass)
<p>Gold Foil Experiment Performed in 1911 by: Rutherford</p>	 <ul style="list-style-type: none"> • Alpha particles have a positive charge. • Positive Alpha particles were expected to pass through the atom without being deflected, most did. • But some alpha particles were deflected, this was unexpected.

<p>Rutherford's Model of Atom</p> 	<p>deflection</p>  <ul style="list-style-type: none"> • A small number of positive alpha particles that were deflected proves that the nucleus is tiny and positive. • Most of the particles passed through undisturbed proves the atom is mostly empty space. <p><u>Conclusion to the Goldfoil Experiment:</u></p> <ul style="list-style-type: none"> • Each atom contains a small, dense, positively charged nucleus surrounded by electrons
<p>Bohr's Model of Atom (1913)</p>  <p>Planetary Model</p>	 <ul style="list-style-type: none"> • Electrons move around the nucleus in set paths called orbits. • Electron in its lowest energy is when it orbits closet to the nucleus. • Energy of the electron is higher when it orbits farther away. • Electron orbit is also called the atomic energy level.
<p>Schrodinger's Quantum Mechanical Model of Atom</p> 	<ul style="list-style-type: none"> •Schrodinger in 1926 concluded through math that electrons move in waves of specific energy. • Electrons exist in certain regions called orbitals or electron cloud. • Orbitals indicate the probable location of an electron and have different shapes and sizes.
<p>Heisenberg's Uncertainty Principle (1927)</p>	<p>It's impossible to know simultaneously both the location and the speed of an electron.</p>

Scientist Foldable

DUE NEXT CLASS

- Create a tab for each scientist.
- Write scientist name on outside
- Write date and discovery/contribution on inside.
- Draw proposed atomic model for names with a star

•Democritus	•Bohr*
•Dalton	•de Broglie
•Thomson*	•Schrodinger
•Millikan	•Heisenberg
•Rutherford*	•Quantum*

Scientist Foldable

DUE NEXT CLASS

- You will be graded on the following criteria:
 - Accuracy
 - Neatness
 - Colorfulness

•Democritus	•Bohr*
•Dalton	•de Broglie
•Thomson*	•Schrodinger
•Millikan	•Heisenberg
•Rutherford*	•Quantum