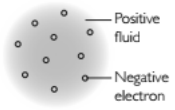
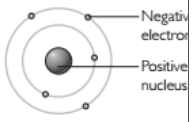
Atomic Theory Notes Name:_____

General Chemistry Date:_____Hour_____

Objective: I can describe and draw an atomic model and explain the evidence that supports the existence of atomic structures.

Who?	When ?	Drawing of model	Major contribution(s) to understanding the atom:	Additional info:
Democritus	**465 BC**	**A sphere.**	**He made up the word atom and was the first to propose an atomic theory!**	**He had no evidence to support his claim ...that's BAD science.**
John Dalton	**1808**	H_2O CO $C_6H_{12}O_6$ No drawing for this one.	The Law of Definite Proportions **Atoms join together to make compounds.** - **Compound = like a compound word. Two or more atoms of DIFFERENT elements bonded together to create a new substance.** **All atoms of a given element were exactly alike.** ***We will discover that this isn't entirely true! Stay tuned!**	**Def Prop says that substances will ALWAYs have the same number of atoms in them. H_2O will always have 1 O and 2 H**
Thompson	**1897**		**Discovered that there are negatively charged particles inside atoms.** **DISCOVERED THE ELECTRON!**	**Used a negatively charged cathode ray tube to repel a stream of atoms.**
Rutherford	**1911**	**Nuclear model**	**DISCOVERED THE NUCLEUS!**	Used the gold foil experiment. **Some particles went through the foil and some bounced back. The nucleus was making them bounce back.**
Bohr	**1913**		**DISCOVERED THAT ELECTRONS FOLLOW SPECIFIC ENERGY LEVELS (ORBITS)**	**Meh...**
Chadwick	**1932**		**DISCOVERED THE NEUTRON.** **So, this disproves John Dalton's claim that all atoms of the same element are the same...they aren't b/c of neutrons.**	**His model doesn't exist...but it would be the proton model BC he discovered that there were two types of subatomic particles in the nucleus: proton and Neutron.**

How are the smallest bits of matter described?

- With **subatomic** particles.

What does the word "subatomic" mean?

- Sub - **under**
- Atomic - **atom**

Create your own definition of the term "subatomic particle".

Under the atom….not quite correct, but it works. Within the atom, is better.

Subatomic particles are small, but they still have **mass**. We measure this using the unit amu.

- amu = **Atomic Mass Units**

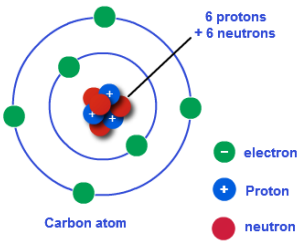
  Why do we use amu and not grams?

They are too small to measure in grams. 1 amu = 1.6605×10^{-21} mg THAT IS SMALL!

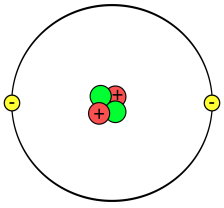
Subatomic Particle	Proton	Neutron	Electron
Charge	**+1**	**0**	**-1**
Location	**Nucleus**	**Nucleus**	**OUTSIDE Nucleus**
Mass	**1 amu**	**1 amu**	**0 amu** ***technically has mass, but it's too small!**
Symbol	Green ⊕	Blue ⊙	Red ⊖

Using the symbols in the table above, draw a picture of a carbon atom and a helium atom. A carbon atom has 6 protons, 6 neutrons, and 6 electrons. A helium atom has 2 protons, 2 neutrons, and 2 electrons.

Carbon (C)



Helium (He)



What is the mass of the carbon atom?

12 amu

What is the mass of the helium atom?

4 amu