

Matter and Atom notes

Matter

- Anything that has _____ and takes up _____ (has volume)
- Made up of different kinds of atoms
- Includes all things that can be _____.
- Does not include heat, sound, or light
- _____ Matter

Models

- Models are often used for things that are _____ or that are too difficult to be understood easily
- In the case of atoms, scientists use large models to explain something that is _____
- _____ were used to explain data or facts that were gathered experimentally.
- So, these models are also _____.

Early models of the Atom **Democritus-400 BC**

- Universe was made of _____ and tiny bits of stuff
- Called these tiny bits of stuff) _____
- Atomos-Greek for 'indivisible'
- Atoms could not be divided

Early models of the Atom **Dalton-1803**

- All elements are composed of _____.
- Atoms of the same element are _____.
- Atoms of different elements are _____.
- _____ consisted of atoms of different elements combined together

Early models of the Atom **Thompson-1897**

- Plum pudding model
- Atom made of _____ material with the _____ electrons scattered through it.

Early Models of the Atom **Rutherford-1908**

- Mostly _____.
- Small, positive _____.
- Contained protons
- Negative electrons scattered around the outside

Early Models of the Atom **Bohr-1913**

- Electrons move in _____ around the nucleus

Early Models of the Atom **Chadwick-1935**

- Discovered the _____.

The Wave Model Schrödinger ??

- Electrons do not move in a _____. The _____ location of an electron is based on how much energy it has. The more energy an electron has, the farther from the nucleus. The small, positively charged nucleus is surrounded by a large space in which there are enough electrons to make the atom neutral

Atoms

- The _____ into which an _____ can be divided and still have the _____.

Structure of the Atom

- Regions in the Atom
 - Nucleus
 - The _____ of an atom
 - It contains 99.9% of the _____ of an atom
 - It is 100,000 times smaller than the size of the entire atom
 - Electron Cloud
 - This is where _____ are located
 - Electrons pop around like popcorn in a region around the nucleus
 - It is mostly _____

Subatomic Particles

- _____
- _____
- _____

Protons

- The _____ located in the nucleus of an atom
- Every atom must have at least _____.
- Atoms do not lose or gain protons in normal chemical reactions.
- They are about the same size and mass _____.

Neutrons

- The _____ particles located in the nucleus of an atom.
- They are found in every atom's nucleus except for _____.
- Atoms do not gain or lose _____ in normal chemical reactions.
- The function of the neutron is to stabilize the nucleus.
- They are about the same size and mass _____.

Electrons

- The _____ particles found outside the nucleus in the _____.
- Electrons move very fast (about 13,000 km/h)
- Electrons are very tiny- _____
- They are not included in the formula for mass because _____.

Formulas

- Atomic # = Protons ($A\# = P$)
- Protons = Electrons ($P = E$)
- $A = P = E$
- Protons + Neutrons = Mass ($P + N = M$)
- Mass - Protons = Neutrons ($M - P = N$)
 - Or Mass - A# = Neutrons ($M - A\# = N$)
- Mass - Neutrons = Protons
- Remember APE MAN