

NAME:

PERIOD:

DATE:

Atomic Structure Notes

Matter - is the atoms or parts of atoms that make up all the solids, liquids, gases, and plasmas around us.

Everything that is not **Energy** is made up of matter, and therefore, made up of atoms or parts of atoms.

What are atoms?

If you took a brick of gold and cut it in half, and then in half again... and again, over and over until there was only one particle left that was still gold. That last particle would be one atom of gold.

Atoms – are the building blocks of matter.

What can atoms do?

Atoms can join together with other atoms to form substances. For instance H_2O (water) is formed when two atoms of Hydrogen join together with an Oxygen atom.

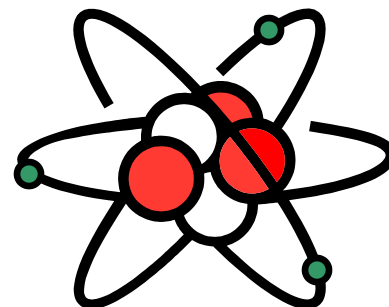
Atoms can split apart into smaller pieces. Sometimes this causes a dangerous amount of energy, like an atomic bomb, other times is beneficial and controllable such as when electrons leave an atom for electricity.

What are the smaller parts of atoms? (The sub-atomic particles)

Electrons – are tiny negatively charged particles which are part of an atom
are the smallest part of an atom ($1/2000^{th}$ the mass of a proton or neutron)
are the only part that can leave the atom (without changing the atom)
are found in the outer part of the atom (called the electron cloud)

Neutrons - are particles with no charge which are part of an atom
are approximately the same mass as a proton
are found in the center of an atom (called the nucleus)
tell you what isotope an atom is

Proton - are positively charged particles which are part of an atom
are approximately the same mass as a neutron
are found in the center of an atom (called the nucleus)
tell you what element an atom is



What are the locations in an atom?

Electron Cloud – the outer part of an atom, where the electrons travel

Nucleus – the central area of an atom, where the neutrons and protons are found

Think of an atom as a beehive with a cloud of angry bees swarming around it. The inner part, where the hive is not moving and massive, is like the nucleus of an atom. The outer part is a fast-moving cloud of particles like the electron cloud of an atom.

What is the Kinetic Theory of Matter?

Kinetic Theory of Matter – all matter is made of tiny particles which are constantly in motion