**ATOMS**

A **pure substance** is a substance that is made up of only **\_\_\_\_\_\_\_\_** kind of matter. Gold, water, and oxygen are all pure substances. There are two kinds of pure substances:

* 1. An **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is a pure substance that cannot be broken down or separated into simpler substances.
		+ *Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_*
		+ An **\_\_\_\_\_\_\_\_\_\_\_\_\_** is the smallest particle of an element that retains the properties of the element
	2. A **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is a pure substance composed of at least two elements combined in a specific way.
		+ *Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a compound that is made up of the elements hydrogen and oxygen.*

Atoms are made up of smaller, **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** particles



 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_

**Electric Charge**



\_\_\_\_\_\_\_\_\_

The charge on the proton (+) and electron (-) are exactly

the same \_\_\_\_\_\_\_\_\_\_\_\_\_ but \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, so

\_\_\_\_\_\_\_\_\_

they are attracted to each other

This is what holds the atom together

**The Nucleus**

* Tiny region at the \_\_\_\_\_\_\_\_\_\_\_\_ of the atom
	+ It would take 10 000 nuclei lined up side-by-side to stretch across the diameter of a typical atom!
	+ MOST OF THE atom is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Protons & neutrons cannot leave nucleus (held together by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the only atom that has **\_\_\_\_\_** neutrons in its nucleus. A hydrogen atom has one proton and one electron orbiting it

**Protons**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_ charged particles in the nucleus of the atom.
* The number of protons in an atom’s nucleus is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the element on the periodic table.

**Neutrons**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charged particles (\_\_\_\_ charge) in the nucleus of an atom
* Has about the same mass as a proton
* For the atoms of the first 20 elements, the # of neutrons is either equal to or slightly greater than the # of protons.

So the **NUCLEUS** Has an overall (\_\_\_\_\_) charge because of the protons

**Electrons**

* \_\_\_\_\_\_\_\_\_\_\_ charged particles that occupy special regions called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or shells, which surround the nucleus
	+ *The energy levels containing electrons account for \_\_\_\_\_\_\_\_\_\_\_\_\_ of the volume of an atom!*
* The # of electrons = the # of \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The electrons that occupy the outermost shell (those farthest from the nucleus) have the strongest influence on the properties of an atom.
	+ These are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ electrons
* Electrons orbit the nucleus very \_\_\_\_\_\_\_\_\_\_\_\_\_, creating a spread-out negative charge, kind of like a \_\_\_\_\_\_\_\_\_\_\_\_\_
* This is the current model of understanding an atom, called the \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or quantum model
* We use older models like the Bohr model *(stay tuned)* still to understand the probable locations and spacing of electrons, but it is important to understand the cloud model is the most accepted/up-to-date.