

Vocabulary: Atoms & Elements, Part 1

- atom:** The basic particle from which all elements are made. An atom is the smallest particle of an element that still has the properties of that element.
- Atoms are made up of subatomic particles—the three main subatomic particles are the **proton**, the **neutron**, and the **electron**.
 - **Protons** and **neutrons** are located in the center area of the atom, called the **nucleus**.
 - **Protons** and **neutrons** have almost all of the mass of the atom.
 - **Electrons** are located outside the nucleus.
 - Most of the volume of the atom consists of empty space.
- nucleus:** The central core of an atom containing **protons** and usually **neutrons**.
- **Protons** and **neutrons** have almost all of the mass of the atom.
- protons:** Small, positively charged particles in the nucleus of the atom
- neutrons:** Small particles in the nucleus of the atom, with no electrical charge.
- electrons:** Tiny, negatively charged particles that move around the nucleus of an atom.
- Electrons are found in energy levels, or shells, outside the nucleus of the atom.
- element:** A pure substance that cannot be broken down into any other substances by chemical or physical means.
- Elements are the simplest substances.
 - Different elements have different properties because their atoms are different.
- periodic table:** All known elements are arranged systematically in a table called the Periodic Table of the Elements. They are arranged according to their **atomic number** (the number of protons in the nucleus) and grouped according to their chemical properties.
- periods:** Horizontal rows of elements in the periodic table.
- groups:** Elements in the same vertical column of the periodic table; another name for groups is families.
- atomic symbol:** A one- or two-letter representation of an element. The first letter is always capitalized, and if there is a second letter, it is not capitalized.
- The atomic symbol is sometimes called the element symbol, or the chemical symbol.
- atomic number:** The number of protons in the nucleus of an atom.
- atomic mass:** The average mass of all of the isotopes of an element—the average total mass of the protons and neutrons of an atom (the mass of the electrons is so much smaller than the mass of the nucleus, that it is not considered).
- The number of neutrons contained in each element's atomic nucleus is found by subtracting the **atomic number** from the **atomic mass**, and rounding to the nearest whole number.
- valence electrons:** The electrons that are in the highest energy level (or outer shell) of an atom and that are involved in chemical reactions.