ELEMENTS, MIXTURES, AND COMPOUNDS

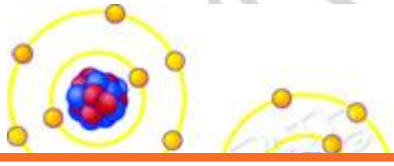
What Are Elements?

Elements are a basic (simple) kind of matter. They can't be broken down into simpler parts and still keep their properties because they are in the simplest form.

What Are Atoms?

Atoms are the smallest particle or component of an element that still has the same properties of that element.

The Make-Up of an Atom

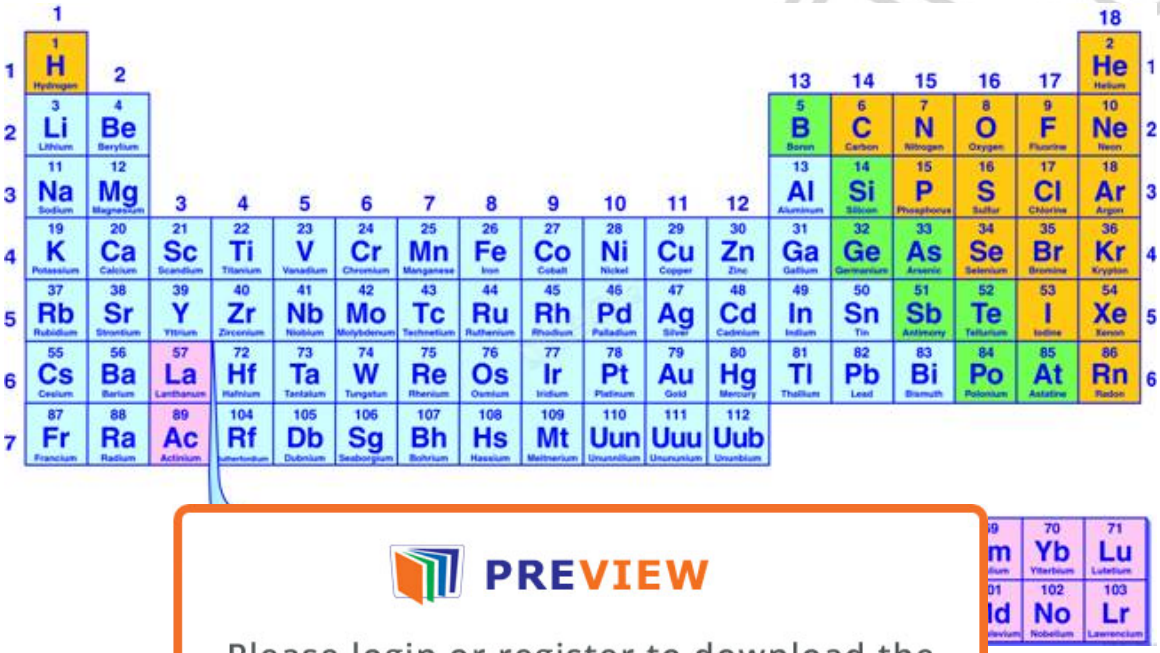


All atoms have a nucleus. The nucleus usually has neutrons and protons. **Neutrons** have no electrical charge and **protons** have a positive charge. An atom is identified by its number of protons, and that number is unique to that atom. For example, sodium has 11 protons, which means NO other atom has 11 protons. Atoms also contain electrons. Electrons have a negative charge, move around the protons and neutrons, and can move from atom to atom.

Lesson Checkpoint: How is an atom identified?

How Are Elements Grouped?

The Periodic Table groups elements in an organized fashion. Each box on the periodic table represents one element. Each element has its own unique symbol.



⇳ The 18 groups to as ... mily are not id...

⇔ The horizontal rows of the periodic table are known as periods. Elements in a period do not have similar characteristics. The first element in a period is usually an active solid and the last element is always an inactive gas. Atomic size decreases from left to right across a period and atomic mass increases from left to right across a period.

What's in the Box?

Each element has its own box on the Periodic Table. Each box contains the element's name, symbol, atomic number, and atomic mass.

Top number is the atomic number. Every element has its own personal atomic number. The atomic number tells how many protons that element contains.

No two elements have the same number of protons. Oxygen = 8 protons

The large l…gen = O

Below the …

Below the … = 16

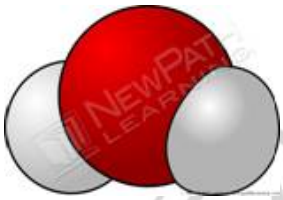
Lesson … toms an element has on the Periodic Table?

Molecules

A **molecule** is the smallest unit of an element and is formed when two or more atoms join together chemically.

Compounds

A **compound** is a molecule that contains two or more different elements. For example, water is made of hydrogen and oxygen atoms, and carbon dioxide is made of carbon and oxygen atoms.



H_20 = two hydrogen atoms and one oxygen atom = water

$1CO_2$ = one carbon atom and 2 oxygen atoms = carbon dioxide

Lesson Checkpoint: What is a molecule?

Mixtures

A **mixture** ials or substances urring. In a mixture, n be separated. s as they did before re is a bowl full o

Solutions and Colloids

A **solution** is when one or more substances are dissolved into another substance. Salt water is an example of a solution: salt is dissolved in water to make salt water.

A **colloid** is a mixture in which very small particles of one substance are dispersed evenly throughout another substance. The particles are not dissolved.

Solutes, Solvents, and Solubility **(try and say that five times fast)**

A **solute** is the substance that is dissolved in the solvent. The **solvent** is what dissolves another substance.

Solubility refers to the ability of one substance to dissolve into another substance.

Lesson Checkpoint: Describe a solute and a solvent.