

Elements vs Compounds

Atoms

- * Atom: The basic unit of a chemical element.

Element

- * An element is a pure substance that cannot be broken down into a simpler substance by physical or chemical means.
- * Elements are listed on the periodic table.
- * Example: Carbon, Sodium, Chlorine

Elements

- * We represent the elements with elemental symbols
- * the first letter is capitalized
- * if there is a second letter, it is lower case
- * Example: Carbon=C, Sodium = Na, Chlorine = Cl

Elements

- * Elements are the building blocks of all substances
- * Elements combine in certain ratios to form compounds

Compounds

- * A compound is a pure substance composed of two or more elements that are chemically joined in fixed proportions

Compounds

- * Can be broken down into simpler substances
- * Example: Water is made of Hydrogen (H) and Oxygen (O). It's chemical formula is H_2O . If an electric current ran through water, the elements would separate into hydrogen gas (H_2) and oxygen (O_2)

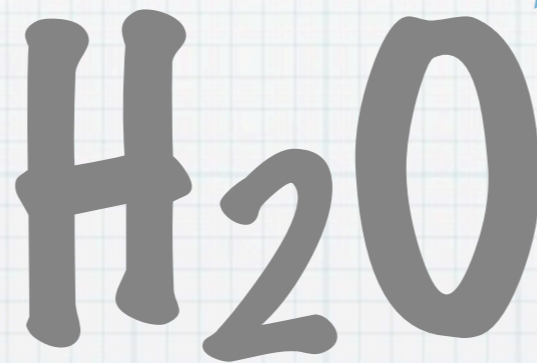
*** Is it an element or a compound?**

Interpreting Compounds

- * A chemical formula uses symbols and numerals to represent the composition of a pure substance (or compound)

Symbol for the
element: Hydrogen

Symbol for the
element: Oxygen



Number means
the number of
hydrogen atoms
(2)

No number means
there is only one
oxygen atom

CaCO_3

Interpreting Compounds

- * Law of definite proportions states that a chemical compound always contains exactly the same proportion of elements by mass.

Interpreting Compounds

- * According to the law of Definitive Proportions water must always contain two atoms of hydrogen for every one atom of oxygen.
- * Based on this, each water molecule contains 3 atoms.