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Editorial

Editorial on Atoms and Elements

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EDITORIAL

What is your body made of? Your first thought could be that it's made from different organs-such as your heart, lungs, and stomach-that work together to stay your body going. Otherwise you might concentrate A level and say that your body is formed from many various sorts of cells. However, at the foremost basic level, your body-and, in fact, all of life, also because the nonliving world—is made from atoms, often organized into larger structures called molecules.

Atoms and molecules follow the principles of chemistry and physics, even when they're a part of a posh, living, breathing being. If you learned in chemistry that some atoms tend to realize or lose electrons or form bonds with one another, those facts remain true even when the atoms or molecules are a part of an animate thing. In fact, simple interactions between atoms-played out repeatedly and in many various combinations, during a single cell or a bigger organism-are what make life possible. One could argue that everything you're, including your consciousness, is that the byproduct of chemical and electrical interactions between a really, very sizable amount of nonliving atoms!

Matter and elements

The term matter refers to anything that occupies space and has mass—in other words, the "stuff" that the universe is formed of. All matter is formed from substances called elements, which have specific chemical and physical properties and can't be weakened into other substances through ordinary chemical reactions. Gold, as an example, is a component, and then is carbon. There are 118 elements, but only 92 occur naturally. The remaining elements have only been made in laboratories and are unstable [1].

Each element is designated by its chemical symbol, which may be a single capital or, when the primary letter is already "taken" by another element, a mixture of two letters. Some elements follow English term for the element, like C for carbon and Ca for calcium. Other elements' chemical symbols come from their Latin names; for instance, the symbol for sodium is Na, which may be a short sort of natrium, the Latin word for sodium.

The four elements common to all or any living organisms are oxygen (O), carbon (C), hydrogen (H), and nitrogen (N), which together structure about 96% of the physical body within the nonliving world, elements are found in several proportions, and a few elements common to living organisms are relatively rare on the world as an entire. All elements and therefore the chemical reactions between them obey an equivalent chemical and physical laws, no matter whether or not they are a neighborhood of the living or nonliving world.

The structure of the atom

An atom is that the smallest unit of matter that retains all of the chemical properties of a component. for instance, a gold coin is just a really sizable amount of gold atoms molded into the form of a coin, with small amounts of other, contaminating elements [2]. Gold atoms can't be weakened into anything smaller while still retaining the properties of gold. A gold atom gets its properties from the small subatomic particles it's made from.

An atom consists of two regions. The primary is that the tiny atomic nucleus, which is within the center of the atom and contains charged particles called protons and neutral, uncharged, particles called neutrons. The second, much larger, region of the atom may be a "cloud" of electrons, charged particles that orbit round the nucleus. The attraction between the charged protons and charged electrons holds the atom together. Most atoms contain all three of those sorts of subatomic particles-protons, electrons, and neutrons. Hydrogen (H) is an exception because it typically has one proton and one electron, but no neutrons.

Structure of an atom

The protons (positive charge) and neutrons (neutral charge) are found together within the tiny nucleus at the middle of the atom. The electrons (negative charge) occupy an outsized, spherical cloud surrounding the nucleus. The atom shown during this image is helium, with two protons, two neutrons, and two electrons.

Since grams aren't a really convenient unit for measuring masses that tiny, scientists chose to define an alternate measure, the Dalton or mass unit (amu). One neutron or proton features a weight very on the brink of 1 amu. Electrons are much smaller in mass than protons, only about 1/1800 of a mass unit, in order that they don't contribute much to an element's overall mass. On the opposite hand, electrons do greatly affect an atom's charge, as

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each electron features a charge adequate to the charge of a proton. In uncharged, neutral atoms, the amount of electrons orbiting the nucleus is adequate to the amount of protons inside the nucleus. The positive and negative charges wipe out, resulting in an atom with no net charge.

Protons, neutrons, and electrons are very small, and most of the quantity of an atom-greater than 99 percent-is empty space. With all this empty space, you would possibly ask why so-called solid objects don't just undergo each other. The solution is that the charged electron clouds of the atoms will repel one another if they get too approximate, leading to our perception of solidity.

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