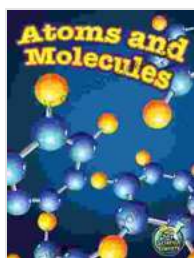


Atoms and Molecules: The Building Blocks of Matter

Atoms and molecules are the most basic units of matter. They are made up of even smaller particles called protons, neutrons, and electrons.



Atoms and Molecules (My Science Library) by Tracy Maurer

★★★★☆ 4.5 out of 5

Language : English

File size : 3259 KB

Screen Reader: Supported

Print length : 24 pages



Atoms are the smallest units of an element that can exist independently. They are made up of a nucleus, which contains protons and neutrons, and electrons, which orbit the nucleus.

Molecules are formed when two or more atoms join together. The properties of atoms and molecules determine the properties of matter.

Atoms

Atoms are the smallest units of matter that retain all the chemical properties of an element. They are made up of a nucleus, which contains protons and neutrons, and electrons, which orbit the nucleus.

The number of protons in an atom's nucleus determines the element to which it belongs. For example, all atoms with one proton are hydrogen

atoms. All atoms with two protons are helium atoms, and so on.

The number of neutrons in an atom's nucleus determines its isotope. Isotopes are atoms of the same element that have the same number of protons but different numbers of neutrons. For example, carbon-12, carbon-13, and carbon-14 are all isotopes of carbon. Carbon-12 has six protons and six neutrons, carbon-13 has six protons and seven neutrons, and carbon-14 has six protons and eight neutrons.

The number of electrons in an atom's orbit determines its charge. Atoms with the same number of protons and electrons are neutral. Atoms with more electrons than protons are negative, and atoms with fewer electrons than protons are positive.

Molecules

Molecules are formed when two or more atoms join together. The properties of molecules depend on the properties of the atoms that make them up.

For example, water is a molecule that is made up of two hydrogen atoms and one oxygen atom. The hydrogen atoms are each bonded to the oxygen atom by a single covalent bond. The covalent bond is a type of chemical bond that is formed when two atoms share electrons.

The properties of water are determined by the properties of the hydrogen and oxygen atoms that make it up. Water is a polar molecule, which means that it has a positive end and a negative end. The positive end of the water molecule is the hydrogen atoms, and the negative end is the oxygen atom.

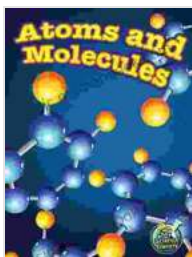
The polarity of water is responsible for many of its properties, such as its high surface tension and its ability to dissolve many different substances.

The Properties of Matter

The properties of matter are determined by the properties of the atoms and molecules that make it up. For example, the density of a substance is determined by the mass of its atoms and molecules. The hardness of a substance is determined by the strength of the bonds between its atoms and molecules. The color of a substance is determined by the way that its atoms and molecules absorb and reflect light.

The properties of matter are also affected by the way that its atoms and molecules are arranged. For example, the same atoms and molecules can be arranged in different ways to create different materials. For example, carbon atoms can be arranged in a diamond or in graphite. Diamond is a hard, transparent material, while graphite is a soft, black material.

Atoms and molecules are the building blocks of matter. The properties of atoms and molecules determine the properties of matter. By understanding the properties of atoms and molecules, we can better understand the world around us.



Atoms and Molecules (My Science Library) by Tracy Maurer

★ ★ ★ ★ ☆ 4.5 out of 5

Language : English

File size : 3259 KB

Screen Reader: Supported

Print length : 24 pages

FREE

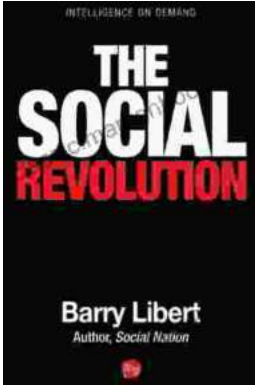
DOWNLOAD E-BOOK





Cello Alternativo: Exploring Contemporary Pizzicato Techniques for Expressive Interpretation

: Embracing the Avant-Garde Within the ever-evolving tapestry of musical expression, the cello has emerged as a vessel for innovation and experimentation. Cello...



The Social Revolution: Barry Libert's Vision for a More Just and Equitable Society

In a world where inequality is rampant and the gap between the rich and the poor is growing wider, Barry Libert's call for a social revolution is...