*Matter and Its Properties: What makes up matter*

video guide

All matter is made up of atoms. An atom is the smallest particle of complete matter. What do helium in a balloon, aluminum in a can and copper in a pipe have in common? They all contain elements. An element is a substance made of only one kind of matter or one kind of atom.

There are over 100 known elements. These are organized in a chart called the Modern Periodic Table. A chemical symbol is one or two letters used to represent the name of an element. You know already oxygen is symbolized by the letter O. Hydrogen is H. Gold is Au. An advantage to writing the chemical symbol is that it’s easier to write one or two letters instead of the whole word.

Sometimes in nature matter exists as a pure substance but more often elements combine with other elements to form substances. For example, glass is made of silicon and oxygen. A compound is matter made up of two or more different elements. In a compound different elements combine to form a new substance. Water is a common substance made of hydrogen and oxygen. Some of the foods we eat such as pasta are made of many elements.

Salt is a compound made up of sodium and chlorine. A molecule of salt is the smallest piece of mater that still has the properties of the original matter. If we were to break the molecule apart we wouldn’t have salt but two separate atoms. Water molecules must have two atoms of hydrogen and one atom of oxygen.

The symbol for the element sodium is Na and the symbol for chlorine is Cl. The chemical formula for salt is NaCl. A chemical formula is a group of symbols for a compound that shows the kind and number of atoms. For water, to show there are two hydrogen atoms, we write the number 2 under the H.

When a compound is made of two or more different elements the new compound is different than the individual elements. Not all compounds combine to form new compounds. Vegetable soup is a mixture. A mixture is matter made up of two or more different substances but substances in a mixture don’t change.

A solution is a mixture in which particles of different substances are mixed evenly.

Video quiz answers

1. 6.

2. 7.

3. 8.

4. 9.

5. 10.