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Science Shorts -6

An Introduction to Compounds

All matter is made of tiny particles called atoms. Atoms, themselves, are made of even smaller particles called protons, neutrons and electrons. Sometimes the atoms join together and combine. When the same kinds of atoms join together, they make an element. Remember, an element is matter made of one kind of atom, so it is a pure substance.

Sometimes different kinds of atoms join together. They form a compound. To make a compound the atoms join in a process called a chemical reaction. A chemical reaction happens anytime there is a chemical change. When atoms join, a new substance is made. This new substance has properties that differ from the properties of the original atoms.

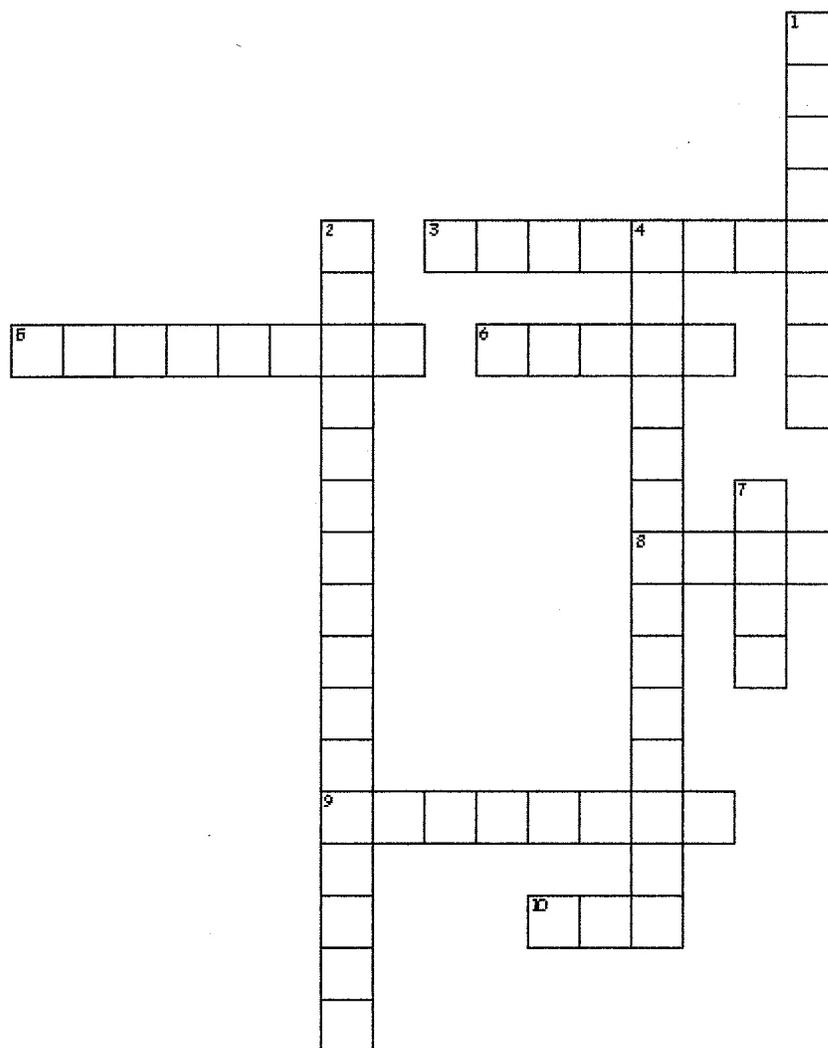
Let's take a look at an example to make things a little easier to understand. Hydrogen is a colorless, odorless gas at room temperature. Oxygen is also a colorless, odorless gas at room temperature. When hydrogen and oxygen are combined in a chemical reaction, they form water. Water is a liquid at room temperature. The properties of the compound water are very different from the properties of the atoms of hydrogen and oxygen.

Elements can be broken down into small parts. The smallest part of an element is an atom. Let's think about an example. Gold is an element. When gold is broken down into smaller and smaller pieces that still have the same properties of gold, it is broken down into gold atoms.

This is not true for a compound. The smallest particle of a compound is a molecule. A molecule is atoms that have been joined in a chemical reaction. If water, a compound, is broken down into smaller and smaller pieces, it will eventually be broken down into a molecule with two atoms of hydrogen and one atom of oxygen. The molecule will still have all the properties of water. So, the smallest part of any compound is a molecule.

A molecule of water can be broken apart into atoms of hydrogen and oxygen, but the atoms will no longer have the same properties as water does. The atoms would then have the properties of hydrogen and oxygen. The properties of oxygen and hydrogen are very different from the properties of water.

An Introduction to Compounds



Across

3. Smallest part of a compound
5. Combines with oxygen to make water
6. An example of a compound
8. Smallest part of an element
9. Different kinds of atom joined together
10. The number of atoms of oxygen in water

Down

1. Matter made of one kind of atom
2. The way to make a compound
4. Happens during a chemical reaction
7. An example of an element