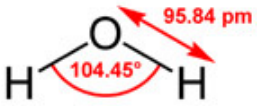
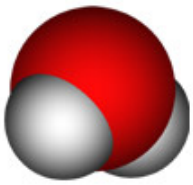
Compounds

By Cindy Grigg

[1] All matter is made up of tiny particles called atoms. When different kinds of atoms join together, they form molecules called chemical compounds. In compounds, atoms of different elements are linked together.



[2] Each group of linked atoms is called a molecule. Compounds may be made of many molecules. Compounds often have physical properties that are very different from the properties of the elements they are made of. For instance, oxygen in the air is in the form of a gas. Hydrogen is also a gas. When oxygen atoms join with hydrogen atoms, they form molecules of liquid water. What would happen if the atoms of elements couldn't join together to form molecules? There would be no such thing as water. The world would be very different if compounds didn't exist.



water molecule

[3] A compound that you probably see every day is sodium chloride or table salt. It is formed when sodium atoms join with chlorine atoms. Sodium is a gray metal, and chlorine is a yellowish poisonous gas. How can these two different substances form a white solid that we can eat?

[4] When sodium and chlorine combine to form salt, they undergo a chemical reaction. In a chemical reaction, atoms or molecules join, break apart, or switch places. In all chemical reactions, the beginning substance or substances undergo change and form new substances with different properties. The beginning substances are called reactants. The final substances are called products.

[5] Each molecule of sodium chloride is made up of one atom of sodium and one atom of chlorine. But other compounds may have more of one kind of atom than of another kind of atom. For example, water is made up of one oxygen atom and two hydrogen atoms. Its chemical symbol is H2O. This is like the "recipe" for water. You must have two hydrogen atoms for every oxygen atom to make water.

[6] There are about ninety naturally occurring elements on Earth. If atoms could not join to form compounds, the world would be a very different place! Everything would be in the form of one of the elements on the periodic table. Plants and photosynthesis wouldn't exist because each involves compounds. We wouldn't have any gasoline or cars because both are made of compounds. There would be no oceans, lakes, or rivers because water is a compound. We wouldn't be able to make plastics anymore because plastics are compounds. Without compounds, life as we know it on Earth could not exist.

Name _____ Science Pd _____

Compounds

1. All matter is made of _____.
   - (A) Atoms
   - (B) Compounds
   - (C) Molecules

2. When different kinds of atoms join together, they make _____.
   - (A) A new element
   - (B) Molecules called polysaccharides
   - (C) Molecules called chemical compounds

3. What is a molecule?
   - (A) A group of the same kind of atoms linked together
   - (B) A group of gases linked together
   - (C) A group of different kinds of atoms linked together

4. Compounds may be made of many molecules.
   - (A) False
   - (B) True

5. Compounds always have the same physical properties as the elements they are made of.
   - (A) False
   - (B) True

6. In a chemical reaction, the beginning substances are called _____.
   - (A) Compounds
   - (B) Molecules
   - (C) Reactants

7. In a chemical reaction, the final substances are called _____.
   - (A) Molecules
   - (B) Products
   - (C) Compounds

8. What is table salt made of?
   - (A) Two atoms of sodium and two atoms of chlorine
   - (B) Two atoms of sodium and one atom of chlorine
   - (C) One atom of sodium and one atom of chlorine