



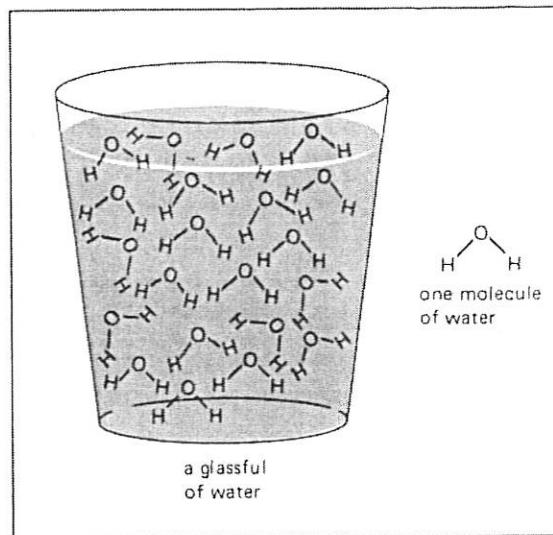
## ABOUT MOLECULES

In the picture to the right, each of the groups labeled  $\begin{array}{c} \text{O} \\ \diagup \quad \diagdown \\ \text{H} \quad \text{H} \end{array}$  stands for one molecule of water.

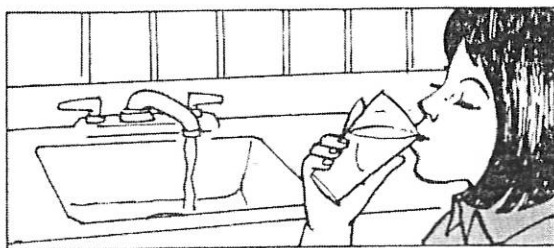
Each molecule is the same. Each molecule has all the properties of water.

The smallest part of a compound is just *one molecule* of that compound.

The molecules of any one compound are exactly alike.



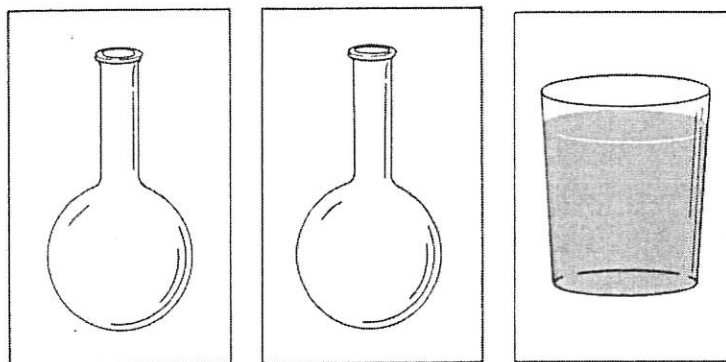
### Three Different Molecules: Water, Salt, and Carbon Dioxide



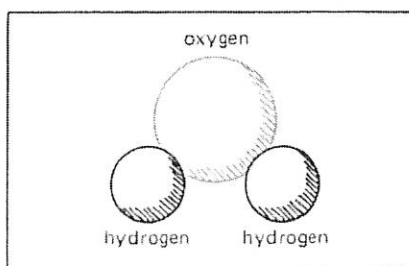
#### 1. Water

Water is a liquid compound. It is made of the elements hydrogen and oxygen.

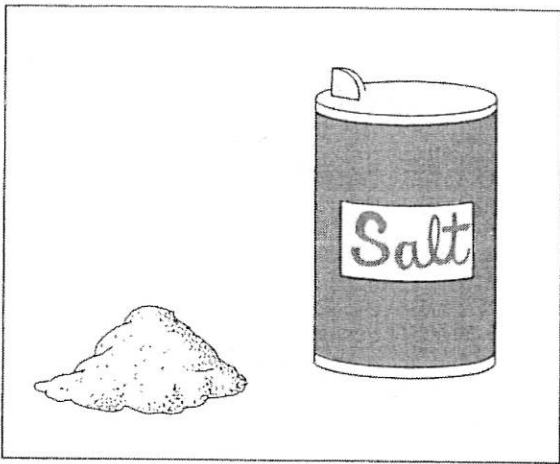
Hydrogen and oxygen are invisible gases. They can link up to make water.



$\underbrace{\text{invisible gas}}_{\substack{\text{hydrogen} \\ \text{element}}} + \underbrace{\text{invisible gas}}_{\substack{\text{oxygen} \\ \text{element}}} \longrightarrow \underbrace{\text{liquid}}_{\substack{\text{water} \\ \text{compound}}}$



A. one molecule of water



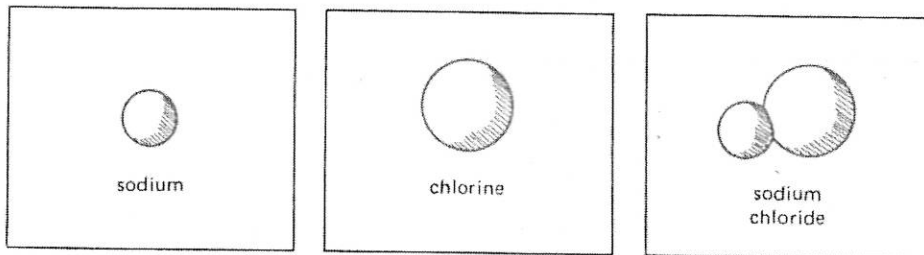
## 2. Salt

Table salt is a compound. It is made up of the elements sodium and chlorine.

Sodium is a dangerous metal. Chlorine is a poisonous gas.

They can link up to form a compound that our bodies need.

The compound is sodium chloride. We call it *salt*.



dangerous solid

deadly gas

white solid needed  
in our diet

sodium  
element

+

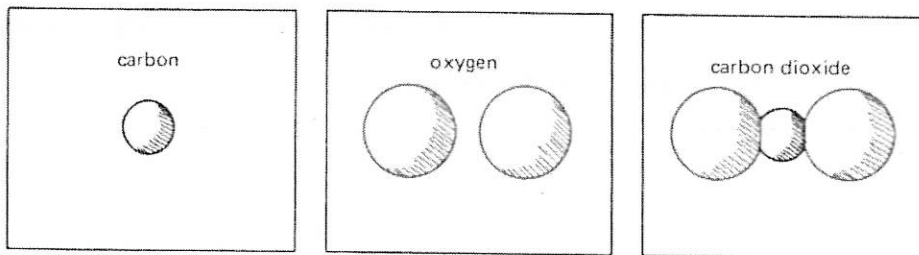
chlorine  
element

→

sodium chloride  
compound

## 3. Carbon Dioxide

*Carbon dioxide* is a gas compound. It is made of the elements carbon and oxygen.



dark solid  
carbon  
element

+

invisible gas  
oxygen  
element

→

invisible gas  
carbon dioxide  
compound

**COMPLETING SENTENCES** Complete the sentences with the choices below.

• one million  
• compounds  
• nonmetal

• millions  
• 106  
• lose

• metal  
elements  
• two

molecule  
linked-up  
molecules

1. There are \_\_\_\_\_ known elements.
2. The number of different known substances is more than \_\_\_\_\_.
3. Elements combine to form \_\_\_\_\_.
4. Elements of a compound \_\_\_\_\_ their properties.
5. A compound has at least \_\_\_\_\_ elements.
6. A compound must have at least one \_\_\_\_\_ atom and one \_\_\_\_\_ atom.
7. The smallest part of a compound is called a \_\_\_\_\_.
8. In a small amount of a compound there may be \_\_\_\_\_ of molecules.
9. A compound is made of \_\_\_\_\_ atoms.
10. All matter is made up of \_\_\_\_\_ or \_\_\_\_\_.

**MATCHING** Match the two lists. Write the correct letter on the line next to each number.

1. \_\_\_\_\_ atom
  2. \_\_\_\_\_ molecule
  3. \_\_\_\_\_ symbol
  4. \_\_\_\_\_ element
  5. \_\_\_\_\_ compound
- a) has one kind of atom
  - b) short way of writing an element
  - c) smallest part of an element
  - d) two or more elements linked together
  - e) smallest part of a compound

**THROW ONE OUT** In each of the following sets of terms, one of the terms does not belong. Circle that term.

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1. oxygen    carbon    element    compound
2. carbon dioxide    water    element    compound
3. chlorine    sodium    compound    element
4. Na    Hg    compound    symbol
5. symbol    rust    compound    Epsom salts

**TRUE OR FALSE** Write T on the line next to the number if the sentence is true.  
Write F if the sentence is false.

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1. \_\_\_\_\_ All matter is made of atoms.
2. \_\_\_\_\_ An element is matter.
3. \_\_\_\_\_ A compound is matter.
4. \_\_\_\_\_ All matter is made of elements or compounds.
5. \_\_\_\_\_ Elements and compounds are made of atoms.
6. \_\_\_\_\_ Compounds link up to make elements.
7. \_\_\_\_\_ A compound can have one element.
8. \_\_\_\_\_ The smallest part of a compound is one atom of that compound.
9. \_\_\_\_\_ A compound must have at least one metal atom and one nonmetal atom.
10. \_\_\_\_\_ There are more elements than compounds.

**REACHING OUT** Why should you always follow instructions carefully when mixing chemicals?

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