# Compounds

KS3 Chemistry · Follows the national curriculum

Name _____ Class _____ Date _____

## 1. Worked example

**Is carbon dioxide ($CO_2$) an element, a compound or a mixture?**

Step 1 · Count the kinds of atom

Carbon and oxygen: two different elements.

Step 2 · Are they joined?

Yes, each molecule has one carbon atom joined to two oxygen atoms.

**Answer: A compound**

Check: Two or more different elements chemically joined = compound.

## 2. Now try one with the steps

**Iron filings and sulfur powder are stirred together. Is this a compound?**

Step 1 · Are the elements joined?

Step 2 · Test

**Answer:**

## 3. Practice

Show your working. The marks tell you how much is expected.

**1.** What is a compound? [1]

**2.** Is water an element or a compound? [1]

**3.** How many different elements are in carbon dioxide? [1]

**4.** Is air an element, a compound or a mixture? [1]

**5.** Name the compound formed when magnesium reacts with oxygen. [1]

**6.** Name the compound formed when iron reacts with sulfur. [1]

**7.** Give TWO differences between a mixture and a compound. [2]

**8.** How could you separate a mixture of iron filings and sulfur? [1]

**9.** Why can't a magnet separate iron from iron sulfide? [2]

**10.** A molecule of methane, $CH_4$, contains how many atoms in total? [1]

**11.** What does the ending '-ide' in a compound's name usually tell you? [1]

**12.** What do the endings '-ate' tell you, copper sulfate? [1]

**13.** Name the elements in calcium carbonate. [1]

**14.** Hydrogen burns and oxygen helps things burn, but water puts fires out. What does this show about compounds? [2]

## 4. Before you hand it in

**"A molecule is always a compound."**
Check the kinds of atom: one kind = element; different kinds joined = compound.

**"Salt water is a compound because salt and water are both there."**
Salt water is a mixture. Salt (sodium chloride) and water are each compounds.

**"A compound keeps the properties of its elements."**

Iron sulfide is not magnetic; salt is not poisonous like chlorine.

**Calling copper sulfate 'copper sulfide'.**

-ide: two elements only. -ate: oxygen is also present.