Atomic structure and the periodic table

Atoms, elements and compounds

The Roman numerals represent the charge on the first ion in the compound.

All substances are made up of particles.

The **atom** is the smallest particle of an element that can take part in a chemical reaction and exist on its own.

There are about 100 naturally occurring **elements** and each element contains only one type of atom.

Each element is represented by its own **chemical symbol** and has its own **atomic number** (proton number), with the symbol A_r.

A **compound** is formed when the atoms of two or more elements are joined by chemical bonds.

Molecular formula or empirical formula are used to show which elements are in a compound and the number of atoms of each element that is present.

WORKIT!

The formula of iron(II) sulfate is $FeSO_4$. Identify the elements present in this compound and determine the number of atoms of each element.

The elements present are iron, sulfur and oxygen. There is 1 atom of iron, 1 atom of sulfur and 4 atoms of oxygen.

CHECKIT!

1 What type of atom would you find in the element sodium?

2 Explain why the chemical formula H_2 represents an element.

3 What type of substance is silver oxide?

4 What type of substance is represented by the following chemical formulae?

   a $CuBr_2$ **b** Mg

5 Name the elements present in the following compounds and give the number of atoms of each element.

   a $AgNO_3$ **b** $Fe(NO_3)_3$