Relative Atomic Mass and Relative Molecular Mass

**Relative Atomic Mass, Ar**

Atoms of different elements have different masses because they have different

numbers of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  and  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

Masses of atoms are very small (~10-24 to 10-22g). Therefore, instead of using actual masses, **relative atomic masses** are used.

**Masses of different atoms** can be **compared using the relative atomic mass scale** which uses the **carbon-12 isotope** as the standard; 1 atom of carbon-12 has a mass of exactly 12 atomic mass units.

So **Relative Atomic Mass, Ar, tells us the mass of an atom compared to 1 atom of carbon.**

**Relative Molecular Mass**, **Mr**

It is equal to the sum of the relative atomic masses of all the atoms in the molecule of the compound. E.g. sulphuric acid, H2SO4

2 atoms of H (Ar = 1)   = 2

1 atom of S (Ar = 32)   = 32

4 atoms of O (Ar = 16) = 64

Total                                      = 98

Therefore, the relative molecular mass of H2SO4 = 98

The term **'relative formula mass'** is used for compounds which contain ions.

NOTE:- RELATIVE MASSES have **NO UNITS**.

Exercise

Work out the relative molecular masses of the following compounds – SHOW YOUR WORKING

1. NaOH
2. KCl
3. Ca(OH)2
4. CuCO3

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