4.2 Relative Atomic Mass and Isotopic Abundance

Definitions:

- Relative atomic mass
- Atomic mass unit (u)
- Isotopic abundance

Relative Atomic Mass

- Dalton originally assigned a mass of 1 to hydrogen and determined the mass of all other elements in relation to hydrogen.
- It was changed to oxygen when oxygen was massed to 16 and determined the mass of all other elements in relation to oxygen.
- This was changed to carbon-12 in 1961 and it was determined that 1 atomic mass unit is equal to 1/12 the mass of carbon. Carbon was used since it is an important element in chemistry and its mass is very close to an integer.

Atomic Mass Unit

- Atomic mass unit (u) is 1/12 the mass of C-12
- $1u = 1.6605402 \times 10^{-27} kg$

Isotopic Abundance

- The weighted average of all the naturally occurring isotopes of an element.
- E.g. chlorine has a mass of approx 35.5

Homework

- Practice Questions: 1,2,3,4,6,7,8,9,10,11
- Section Questions: 1,2,3,4,5