Atomic Mass and the Atomic Mass Unit

Mass Number
The number of particles in an atom that add to the mass of the atom, the protons (p^+) and neutrons (n^o)

Mass # = $p^+ + n^o$

Atomic Mass
The mass of an atom based on the mass of the protons (p^+) and neutrons (n^o) in **atomic mass units** (*amu*) or grams (*g*)

Atomic Mass Unit (amu)
The number of particles in an atom that add to the mass of the atom, the protons (p^+) and neutrons (n^o)

1 amu = 1.67×10^{-24}g

Average Atomic Mass
The mass of all isotopes of an atom averaged together based on the **relative abundance**, the % of all atoms each isotope occupies

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Comparing Atomic Mass (*amu and grams*)

$^{12}_{6}C$: 6p$^+$ and 6n^o (Mass # = 12)

Atomic Mass (amu)

$^{12}_{6}C_{mass}$ = 12 amu

$^{13}_{6}C_{mass}$ = 13 amu

Atomic Mass (g)

1 amu = 1.67×10^{-24} g

$^{12}_{6}C_{mass}$ = 2.004×10^{-23} g

$^{13}_{6}C_{mass}$ = 2.171×10^{-23} g

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Atomic Mass and the Electron

p^+ mass $= 1.67 \times 10^{-24}$ g

n^0 mass $= 1.67 \times 10^{-24}$ g

e^- mass $= 9.11 \times 10^{-28}$ g

$^{12}_{6}C$ $(6p^+, 6e^-, 6n^0)$

With electrons	$6 \cdot 1.67 \times 10^{-24}$ g $6 \cdot 1.67 \times 10^{-24}$ g $6 \cdot 9.11 \times 10^{-28}$ g	2.0043×10^{-24} g
Without electrons	$6 \cdot 1.67 \times 10^{-24}$ g $6 \cdot 1.67 \times 10^{-24}$ g	$= 2.004 \times 10^{-24}$ g

e^- only add mass at ± 0.0003 g

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