

Curiosity: The Decimal on the Periodic Table

Curiosity Reading | CheAI Research Inc.

Packet ID: g09_u03_w11

Connection: space and analytical data

Reading time: 4 minutes

The 35.45 printed for chlorine is a weighted average of naturally occurring isotopes, not a promise that every atom has that mass. This packet freezes its values to the classroom calculation values from audits/atomic_masses_v2024.1.json, derived from CIAAW/IUPAC Standard Atomic Weights 2024 (accessed 2026-07-26): B 10.81, C 12.011, Cl 35.45. CIAAW interval atomic weights are intervals when relevant. A weighted average uses each isotope's fractional abundance, so a common isotope contributes more.

Think like a chemist

1. Why must abundances total 100%?
2. What moves an average closer to one isotope mass?
3. Why is a decimal mass not a fractional atom?

Word	Meaning	Packet
abundance	fraction of a sample that is an isotope	6–12
weighted average	average that uses fractions	8–11, 18–19
isotope	same protons, different neutrons	1–5