

Curiosity: The Units on a Nutrition Label

Curiosity Reading | CheAI Research Inc.

Packet ID: g09_u01_w04

Connection: food and everyday decisions

Reading time: 5 minutes

Accessibility: No visual is required.

A question worth asking

What does 250 mg of sodium on a label actually mean in grams?

The chemistry story

Units are more than decoration. They tell us what a number measures and let us connect quantities honestly. A label that lists 250 mg of sodium can be converted to 0.250 g using the relationship $1000 \text{ mg} = 1 \text{ g}$. The amount has not changed; only its name has changed. A conversion factor is a carefully written version of one: a ratio whose numerator and denominator name equal quantities.

Dimensional analysis makes the logic visible. If milligrams appear in both numerator and denominator, they cancel, leaving grams. If a setup leaves an unwanted unit, it is a warning that the plan is incomplete. For example, 25 mL cannot become grams until density supplies a bridge between volume and mass.

The final digits should also match the evidence. A calculator may show many digits, but a calculation based on 3.4 and 2.15 should be reported with two significant figures: 7.3. The extra digits were useful as guard digits during calculation, not as a claim that the original measurement was more precise than it was.

Think like a chemist

1. Convert 600 mg to grams and show the unit cancellation.
2. Why would converting 600 mg directly to mL be incomplete?
3. Where might squared units appear in an everyday measurement?

Vocabulary bridge

Word	Student-friendly meaning	Where it appears
conversion factor	a ratio of equal quantities that equals one	5–9, 14
dimensional analysis	solving while tracking units	6–9, 13–20
significant figures	digits justified by a measurement	1, 10–11, 19

Word	Student-friendly meaning	Where it appears
density	mass per volume	8, 13, 19