

Competition Corner: Corrosion Evidence Bounds

g10_u06_w24

Use only supplied model/data cards. Apply anode/cathode redox conventions, show rate reasoning, and distinguish a bounded next-test choice from a real-world design or safety recommendation.

1. A model card states Mg is anodic when electrically connected to steel in the stated electrolyte. Predict electron direction and which metal is expected to lose mass in that model.
2. Two 20-day cards show steel loss of 0.80 g without a coating and 0.20 g with an intact coating. Calculate each rate and the percent decrease. State one condition that would need to match for this comparison.
3. Critique: “A battery and corrosion are identical because both are redox.” Give one shared feature and one purpose/evidence distinction.
4. A data card shows lower steel loss with a sacrificial metal but a measurable sacrificial-metal loss. Explain why this is not automatically a contradiction.
5. List two kinds of additional evidence needed before extending a classroom corrosion card into a claim about environmental exposure, a medical device, or a commercial battery design.