Following Calcium Through a Resin

Scoring guide · one credit per question · review written work against each rubric

Following Calcium Through a Resin

Question 1

Choice (1)

Four calcium units are missing from the first water portion. The model places them on the resin while eight sodium units leave.

Question 2

After portion 1 the resin holds four calcium and zero magnesium units. After portion 2 it holds two of each. Two of the initial four calcium units leave in the second water portion. Of the four magnesium units that enter, two stay on the resin and two leave in the water.

Question 3

Two Mg^{2+} units attach as two Ca^{2+} units leave. Both ions have the same +2 charge, so replacing calcium with magnesium can balance charge without releasing any sodium.

Question 4

Both total readings are four. A calcium-specific test would show zero entering and two leaving, or a magnesium-specific test would show four entering and two leaving. Either measurement would reveal a change hidden by the combined total.