Comparing Weathering in a Limestone Model

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

Comparing Weathering in a Limestone Model

Question 1

Choice (1)

J and K start with the same hydrogen ion amount and use the same panel model. Their listed temperatures differ.

Question 2

K at 30 °C releases 0.50 mmol in the same time that J at 20 °C releases 0.30 mmol. K therefore has the larger average release rate over that interval.

Question 3

Each millimole of Ca^{2+} corresponds to two millimoles of H^{+} consumed. The measured 0.85 mmol corresponds to 1.70 mmol H^{+}.

Question 4

K releases calcium faster at first. Both trials start with the same finite amount of hydrogen ions, and that amount limits the final calcium release when calcium carbonate remains.

Question 5

The final amounts match, but K has more calcium at ten minutes under matched starting conditions. The observations support a difference in early average rate even though the final amounts match.