Physical Science: Chemistry

Three calibration cases • Official criteria with hypotheses for anonymous local work

JUNE 2026 / Q15 / 1 credit criterion

Conserve atoms using coefficients

The guide requires the balanced reaction. An equivalent display is checked against the item’s coefficient conditions.

Test this possibility. A student may alter subscripts to balance counts, thereby changing the substances.

Ask: Count atoms on both sides. Which change alters the number of particles without changing their identities?

Exam task Official scoring criterion · PDF p. 5

JUNE 2026 / Q28 / 1 credit criterion

Use comparative evidence for a rate claim

The item requires a refutation supported by numerical evidence about reaction time. A comparison can be shown by two data pairs or appropriate comparative language.

Test this possibility. A temperature value by itself may be accurate but leave reaction time and its direction unstated.

Ask: At the higher temperature, what happened to the time for the same endpoint? Which numbers show it?

Exam task Official scoring criterion · PDF p. 7

JUNE 2026 / Q37 / 1 credit criterion

Compare measured values with a threshold

The guide links its safety judgment about the exam samples to their concentrations relative to the supplied limit. It accepts a supported comparison without requiring both numbers to be recopied.

Test this possibility. A student may repeat the word safe without relating the samples to the criterion.

Ask: What limit did the prompt give, and on which side of it does each sample fall?

Exam task Official scoring criterion · PDF p. 8

Physical Science: Chemistry

Constructed practice responses • Read independently, then compare with the facilitator interpretation.

CHEM_NEW-4 / Interpret a reaction-rate curve

Each gas collector starts at 0 mL and finishes at 40 mL. At 20 seconds a room-temperature trial has 14 mL and a warmer trial has 25 mL. Reactant amounts are equal. Compare initial-interval average rates and explain the difference using collisions.

Focal request

Use the first 20 seconds of both trials to justify a rate comparison.

Response A

The warmer trial made 25 mL. That proves heat speeds it up.

Response B

Both trials started at zero. In the same 20 s the warm trial made 25 mL and the other made 14 mL. Its interval rate was higher, 1.25 versus 0.70 mL/s.

What the pair distinguishes

A cites a valid measurement but supplies no comparator. B controls the interval and compares measurable rates. Neither requires assuming that the instantaneous rate was constant.

A fresh transfer check

Supply 30 mL after 30 s and 28 mL after 20 s. Which first-interval average rate is higher?

Evidence of transfer

Compares quantities per time and identifies 1.4 mL/s as greater than 1.0 mL/s, despite the smaller total volume.