Physical Setting/Chemistry

Released form evidence

MC slots explicitly mapped to the 2011 reference tables averaged 20.5 in January, 22.4 in June and 19.8 in August. In January 2026, students worked with a gas sample, a cooling investigation, electrochemistry and neutralization in written-response sets.

The reference-table tag can accompany a content or process tag. Adding percentages across these tags double counts items. The new chemistry exam uses a different reference resource.

Eligible public forms • January 4 / June 5 / August 5

Worked responses and follow-up questions

1 Use a small reference table

At 85 °C ethanol is gas and water is liquid at equilibrium. Water's higher boiling point is consistent with stronger net intermolecular attractions. The supplied miniature table is an original practice aid.

If either is called solid, compare 85 with both melting temperatures.

2 Use electron accounting

Both have 17 protons and 18 neutrons. Electrons change from 17 to 18. An extra negative charge gives Cl^-. Its nucleus and isotope remain unchanged.

If mass number becomes 36, ask whether an electron changes the nuclear particle count.

3 Track a redox change

$Zn \rightarrow Zn^{2+} + 2e^-$ is oxidation. $Cu^{2+} + 2e^- \rightarrow Cu$ is reduction. Two electrons cancel. Zn is the reducing agent because it supplies the electrons that reduce copper ions.

If the oxidized species is called the oxidizing agent, ask which species supplied electrons to the other.

Average mapped multiple-choice slots per released form

Feature	January	June	August
Reference Tables / 2011 Edition	20.50	22.40	19.80
Standard 4 / Key Idea 3	37.00	36.20	39.20
Standard 4 / Key Idea 5	8.25	7.60	7.60

A dash marks an unavailable month. Rows can overlap. See seasonal_evidence.csv for counts, uncertainty and the full feature set.

Official design or administration guidance

Physical Setting/Chemistry

4 Check a mole ratio

3.0 mol H_2 needs 1.5 mol O_2, so H_2 limits. It produces 3.0 mol H_2O. Remaining O_2 is 0.5 mol. Coefficients compare amounts in moles.

If fewer moles automatically means limiting, calculate the amount needed for each partner.

5 Connect neutralization to quantity

$0.0250 \times 0.100 = 0.00250$ mol H^+. Equal moles OH^- are needed, giving $0.00250/0.0200 = 0.125$ mol/L. $H^+ + OH^- \rightarrow H_2O$.

If equal molarities are assumed, ask whether the reacting volumes are equal.

6 Read data before applying a rule

At 60 °C capacity is 100 g, so 90 g is unsaturated. At 20 °C capacity is 64 g. The excess $90 - 64 = 26$ g crystallizes. Quantities refer to mass of water, not total solution mass.

If the answer is 36 g, distinguish maximum initial capacity from the actual 90 g present.

Released practice for each week

Week 1 2026-06 • Q74 • Atoms and ions

Question booklet Official mapping / guide

Week 2 2026-08 • Q79 • Write a half-reaction

Question booklet Official mapping / guide

Week 3 2026-06 • Q79 • Solution concentration setup

Question booklet Official mapping / guide