Metals and chemical tests: review

Teacher / technician

YEAR 10 / LESSON 36 / CHEMISTRY + SCIENCE (DOUBLE AWARD)

Staff preparation and answer guidance. Keep separate from student sheets. Shared-core original review; no practical or Chemistry-only extraction/alloy requirement.

Coverage and delivery

Shared-core consolidation of 2.16–2.20 and 2.44–2.47. Original classroom practice, not an official examination paper.

Allow about 50 minutes. Follow the student sequence and use the answers to check reasoning.

Requisition • class of 30, working in 15 pairs

Item	Per pair / setup	Class total
Booklet / writing tools	1 per learner	30 sets
Periodic table / correction pen	1 table per pair; 1 pen per learner	15 tables; 30 pens

Immediate safety

Desk activity only; no chemical or electrical equipment.

Preparation and delivery

Read alongside the student method

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1. Supply 30 booklets and correction pens, with 15 periodic tables. No reagents, gas samples or equipment are needed.

2. The scenarios are original classroom questions and have no official mark scheme or grade boundaries. Use the six staff answers as teaching guidance.

3. Keep this review shared-core. Lessons 32–33 are separate Chemistry and are not added as compulsory questions here.

4. Allow 10 minutes retrieval, 20 independent application, 10 peer discussion and 10 correction/exit task. Prompt complete procedure-and-result answers.

5. Use errors diagnostically: named products without conserved atoms, coloured solution confused with precipitate, and litmus contaminated by the test liquid are distinct misconceptions.

Close of lesson

• Keep corrections and revision actions. Return shared materials.

Check before teaching

Check the cards, reference data and quantities against this requisition. Keep the staff answer guide separate until the checking stage. Supplied numerical practice datasets are labelled examples; they are not class measurements.

Answers and teaching notes

Expected explanations • do not give as experimental observations

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• $Zn(s) + Cu^{2+}(aq) \rightarrow Zn^{2+}(aq) + Cu(s)$. Zinc loses two electrons and copper(II) ions gain two.

• Copper is less reactive than zinc and does not displace zinc from its salt solution under these conditions.

• Compare matched nails in air+water, restricted oxygen with water, and dry air, using dated observations over several days and controlled nail size/type. Explain the imperfections of oxygen/moisture exclusion.

• Oxygen relights a glowing splint. Hydrogen gives a squeaky pop with a lighted splint at the mouth of the gas sample.

• Brown precipitate supports Fe^{3+} in this restricted set. A small test set is not proof against every possible ion; contaminated or oxidised samples can complicate results.

• NaOH itself is alkaline. For ammonium, warm the sample with NaOH and test gas above it using damp red litmus, without contact with the liquid; ammonia turns the paper blue.

References and provenance

Pearson Chemistry specification

Prepared 22 November 2026. Original wording, tables and questions. Sources inform the concepts and technique; the lesson scope and classroom quantities are explicitly described here. No laboratory trial or final school risk approval is claimed.