Foundations review

Student activity • class activity

YEAR 10 / LESSON 13 / CHEMISTRY + SCIENCE (DOUBLE AWARD)

The question

Which foundation ideas can you explain, and which need another attempt?

Retrieve key chemistry ideas, apply them to new examples, then correct errors with reasons. These are original classroom questions, not copied past-paper items. This shared-core review uses particle classification, separation methods, atomic structure and periodic patterns; Chemistry-only solubility calculations are not required.

Equipment

- Student booklet, pencil and a different-colour correction pen
- Periodic table and calculator
- Previous lesson notes for the checking stage only

Desk review only. Keep the working area clear. No practical apparatus or chemical samples are required.

Course coverage: Consolidation of shared foundations: classification, separation, atomic structure, isotopes and main-group patterns. No new practical requirement.

Your learning checkpoint

One topic I can explain; one topic I need to revisit:

Method and reasoning

Read the whole sequence before starting

YEAR 10 / LESSON 13 / CHEMISTRY + SCIENCE (DOUBLE AWARD)

1. Close your notes. Spend five minutes writing one recalled fact for each topic in the table. Mark confidence from 1 (uncertain) to 3 (confident).

2. Answer questions 1–3 independently. Use the supplied task data and explain each choice rather than listing a word alone.

3. Answer questions 4–6, showing calculations and particle counts. Do not use notes until the teacher starts the checking stage.

4. Compare reasoning with a partner, then use the teacher's answer guidance. Add corrections in a different colour without erasing your first attempt.

5. For each correction, state the misconception and the evidence or rule that resolves it. A copied answer without an explanation is not a completed correction.

6. Choose two weak topics and write one precise next action for each, such as "redo isotope weighted means with unequal abundances".

7. Exit task: a neutral atom has Z = 12 and A = 25. Give its proton, neutron and electron counts and its first-twenty electron arrangement.

Cleanup

- Keep original answers and corrections together. Return shared calculators and reference sheets.

Record your evidence

Blank spaces are for your own work

YEAR 10 / LESSON 13 / CHEMISTRY + SCIENCE (DOUBLE AWARD)

Reference and task data

X and Y in question 1 denote different element types; a connecting line represents a bond in a model. Question 5 uses invented abundances and mass numbers as approximate isotope masses. No chemical observations or real isotope measurements are supplied.

Topic	My recalled fact / confidence	Correction and next action
Classification		
Separation		
Atoms and isotopes		
Weighted means		
Groups and periods		

Show your calculations, labelled model or correction here.

Explain and evaluate

Use evidence and show calculation steps where relevant

YEAR 10 / LESSON 13 / CHEMISTRY + SCIENCE (DOUBLE AWARD)

1. Sample A contains only identical X–X molecules. Sample B contains identical X–Y molecules. Sample C contains both X–X and X–Y. Classify each and explain.

2. You have salt mixed with insoluble sand. Explain the roles of water, filtration and crystallisation.

3. Correct: “A clear filtrate must be pure water, and a colourless distillate proves purity.”

4. A neutral atom has Z = 11 and A = 23. Find protons, neutrons and electrons and explain each.

5. An invented element has isotope values 20 and 22 in abundances 75% and 25%. Calculate its relative atomic mass using the mass-number approximation.

6. Compare neutral atoms with arrangements 2,1 and 2,8,1. Identify their group and periods and explain their similar chemical properties.