

PRACTICE WORKBOOK

CLASS 11

Chemistry

Six original topic units develop chemical reasoning through explanations, worked examples and answered practice. Stated assumptions distinguish ideal models from observations.

**6 practice units****36 tasks with answer guidance**

Name / नाम: _____

Original selected-topic practice. Use alongside school lessons and the prescribed textbook. The contents define this book's scope.

UNIT 01 · LOOK & EXPLAIN

Mole workshop: particles, mass and reaction ratios

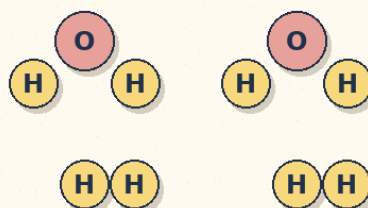
Every atom is accounted for

A countable model of the balanced reaction

Before reaction



After reaction



Ratio model: O_2 limits the reaction. H and O atoms are conserved.

Use the labels and worked example to explain the idea. The diagram is schematic unless a scale is given.

Look, annotate and explain

Identify the parts or values that matter. Add a label or annotation to show a connection. Explain how the diagram supports the worked example, then use it with the practice on the next page.

UNIT 01 · APPLY & EXPLAIN

Mole workshop: particles, mass and reaction ratios

4. For $\text{N}_2 + 3\text{H}_2 \rightarrow 2\text{NH}_3$, how much NH_3 can 0.60 mol H_2 form with excess N_2 ? [2 marks]

5. For the same reaction, mix 1.0 mol N_2 and 2.0 mol H_2 . Identify the limiting reagent and maximum NH_3 amount. [3 marks]

6. Theoretical product mass is 25.0 g but 20.0 g is collected. Find percentage yield and give two possible reasons. [4 marks]

Show your thinking with a drawing, diagram or explanation.

Pause & reflect

What can I explain now? What will I try again?

☐ I tried ☐ I explained ☐ I checked



UNIT 01 · ANSWER GUIDANCE

Mole workshop: particles, mass and reaction ratios

1. $n = m/M = 9.0/18 = 0.50$ mol.
2. $N = nN_A = 1.5055 \times 10^{23}$ molecules, approximately 1.5×10^{23} .
3. $m = nM = 11.7$ g. NaCl is counted in formula units, not isolated covalent molecules.
4. $0.60 \times 2/3 = 0.40$ mol NH_3 .
5. H_2 limits: 1.0 mol N_2 would need 3.0 mol H_2 . Maximum $\text{NH}_3 = 2.0 \times 2/3 = 4/3$ mol ≈ 1.33 mol.
6. Yield = $20.0/25.0 \times 100 = 80.0\%$. Incomplete reaction, side reactions or product loss during separation can reduce yield; any two distinct reasons.

Teaching note

Convert masses to moles before applying equation coefficients.

Curriculum reference: https://cbseacademic.nic.in/web_material/CurriculumMain27/SecPart2/Chemistry_SecP2_2026-27.pdf
Selected units; outcomes are publisher-defined. Practical, project and prescribed literature requirements must also be studied through school.