

PRACTICE WORKBOOK

CLASS 12

Biology

Six selected units on plant and human reproduction, inheritance, molecular information, biotechnology and ecology, with original answered practice. Practice marks are editorial allocations, not an official paper pattern.



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.

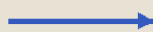
UNIT 01 · LOOK & EXPLAIN

Flower pathway: double fertilisation explained

Double fertilisation: two distinct nuclear fusions

In one angiosperm embryo sac, two male gametes have different fusion partners

male gamete n + egg n



zygote $2n$

develops into embryo

**male gamete n + two
polar nuclei ($n + n$)**



**primary endosperm
nucleus $3n$**

develops into endosperm

The second fusion is triple fusion, not fertilisation of a second egg.

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

Flower pathway: double fertilisation explained

4. Compare the developmental origins of a seed and a fruit. [2 marks]

5. Why can pollen landing on a stigma fail to produce a seed? Give two reasons. [3 marks]

6. Distinguish apomixis and parthenocarpy using the product formed. [3 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

Flower pathway: double fertilisation explained

1. Transfer of pollen grains from an anther to a stigma.
2. Syngamy joins one male gamete with the egg. Triple fusion joins the other male gamete with the two polar nuclei in the central cell.
3. Each haploid nucleus has 10 chromosomes. Three haploid contributions give 30 chromosomes, or $3n$.
4. A seed develops from an ovule; a fruit commonly develops from the ovary. Accessory fruits also include tissues outside the ovary.
5. The pollen may be incompatible and fail to germinate or grow successfully. Alternatively, gamete delivery or fertilisation may fail, so no normal embryo begins development.
6. Apomixis produces seeds without fertilisation, and can preserve a parental genotype. Parthenocarp produces fruit without fertilisation, commonly resulting in seedless fruit.

Teaching note

Label n , $2n$ and $3n$ beside the relevant nuclei; a whole ovule is not the same thing as an egg cell.

Curriculum reference: https://cbseacademic.nic.in/web_material/CurriculumMain27/SecPart2/Biology_SecP2_2026-27.pdf

Selected units; outcomes are publisher-defined. Practical, project and prescribed literature requirements must also be studied through school.