

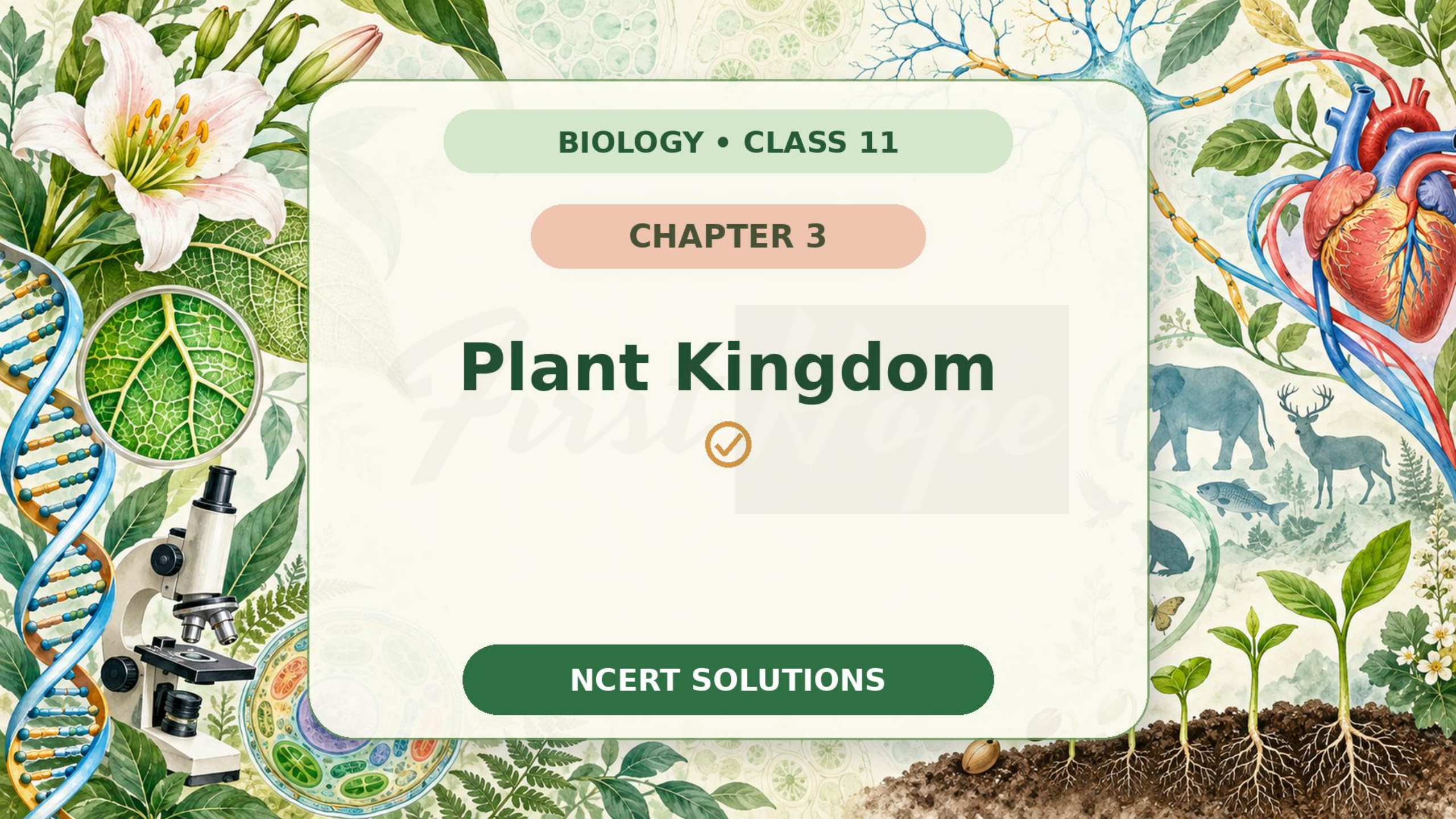
BIOLOGY • CLASS 11

CHAPTER 3

Plant Kingdom



NCERT SOLUTIONS



EXERCISE SOLUTION: QUESTION 1

Question 1. What is the basis of classification of algae?

Answer:

Algae are classified mainly by: (1) photosynthetic pigments, especially the accessory pigments that give the thallus its colour; (2) the form of reserve food; (3) composition of the cell wall; (4) number, type and position of flagella in motile cells; and (5) thallus organisation and reproduction.

Chlorophyceae — chlorophyll a, b; starch.

Phaeophyceae — chlorophyll a, c and fucoxanthin; laminarin and mannitol.

Rhodophyceae — chlorophyll a, d and phycoerythrin; floridean starch.

EXERCISE SOLUTION: QUESTION 2

Question 2. When and where does reduction division occur in the life cycle of a liverwort, moss, fern, gymnosperm and angiosperm?

Answer:

Reduction division means meiosis. In all these plants it occurs during spore formation in the diploid sporophyte.

Liverwort — in spore mother cells inside the capsule; haploid spores form.

Moss — in spore mother cells inside the capsule; haploid spores form.

Fern — in spore mother cells within sporangia borne on sporophylls.

Gymnosperm — in microspore mother cells of microsporangia and in the megaspore mother cell of the ovule.

Angiosperm — in pollen mother cells of the anther and in the megaspore mother cell of the ovule.

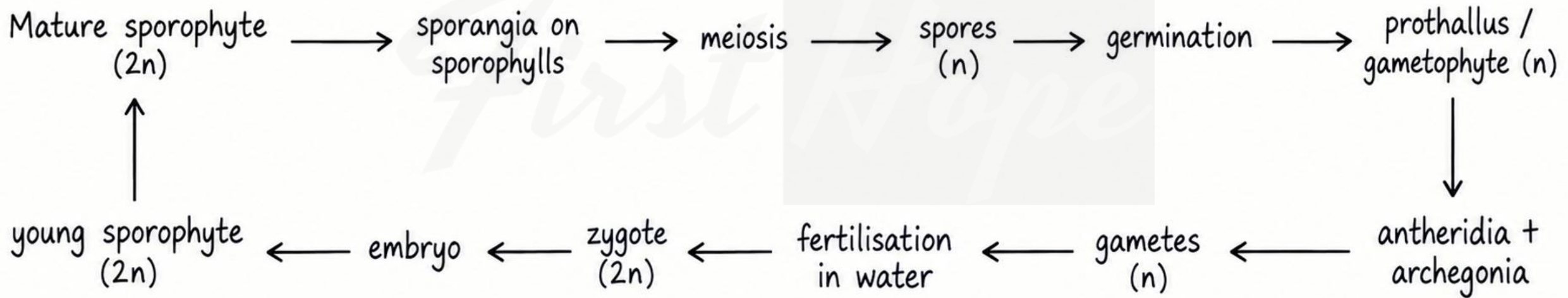
$$2n \xrightarrow{\text{meiosis}} n \text{ spores}$$

EXERCISE SOLUTION: QUESTION 3

Question 3. Name three groups that bear archegonia. Briefly describe the life cycle of any one.

Answer: Bryophytes, pteridophytes and gymnosperms bear archegonia.

Life cycle of a fern:



- The independent leafy fern is the dominant sporophyte.
- The small prothallus is the gametophyte.
- Water carries male gametes to the egg in the archegonium.

EXERCISE SOLUTION: QUESTION 4

Question 4. Mention the ploidy of the listed structures.

Answer:

Protonemal cell of a moss	— n (haploid).	Primary endosperm nucleus in a dicot	— $3n$ (triploid).
Leaf cell of a moss	— n .	Prothallus cell of a fern	— n .
Gemma cell in <u>Marchantia</u>	— n .	Meristem cell of a monocot	— $2n$ (diploid).
Ovum of a liverwort	— n .	Zygote of a fern	— $2n$.

Gametophyte cells and gametes are haploid; ordinary sporophyte cells are diploid.
Angiosperm primary endosperm nucleus is triploid.



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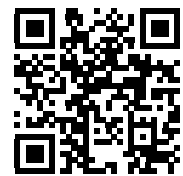


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