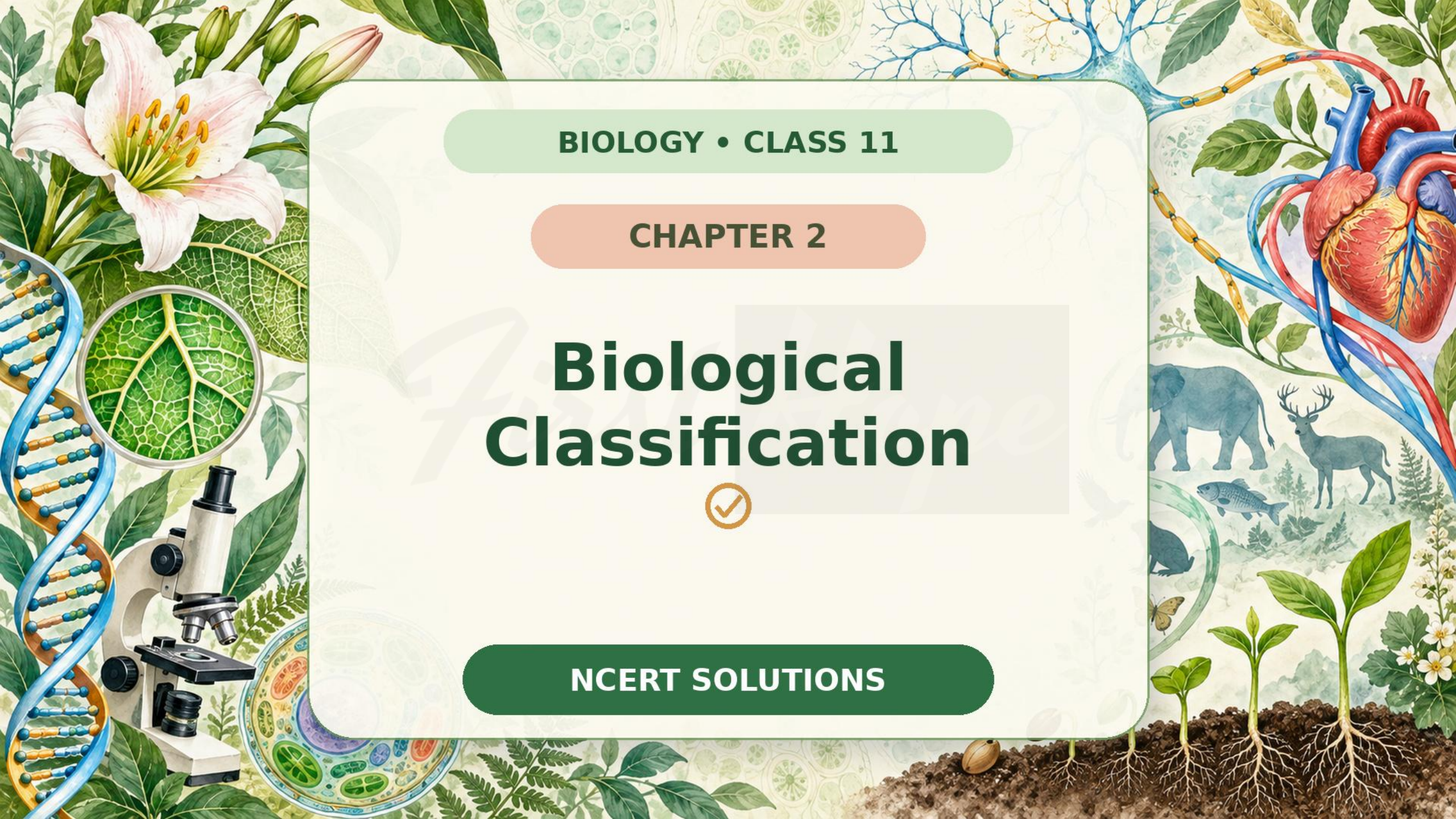




BIOLOGY • CLASS 11

CHAPTER 2

Biological Classification



NCERT SOLUTIONS

EXERCISE SOLUTION: QUESTION 1

Question 1. Discuss how classification systems have undergone several changes over a period of time.

Answer:

- Early groupings — organisms were grouped by practical use or simple visible form.
- Linnaeus — two kingdoms: Plantae and Animalia.
- Haeckel — added Protista for many microscopic organisms.
- Copeland — four kingdoms; Monera separated prokaryotes.
- Whittaker (1969) — five kingdoms: Monera, Protista, Fungi, Plantae and Animalia.

The criteria became broader: cell type, cell wall, body organisation, mode of nutrition, reproduction and evolutionary relationships: New evidence continues to revise relationships; therefore classification is a developing scientific system.

EXERCISE SOLUTION: QUESTION 2

Question 2. State two economically important uses of:
(a) heterotrophic bacteria (b) archaebacteria.

Answer:

Heterotrophic bacteria

1. Lactobacillus converts milk into curd and is used in dairy fermentation.
2. Some bacteria produce antibiotics used as medicines.

Decomposer bacteria also recycle nutrients, and some fix nitrogen in legume roots.

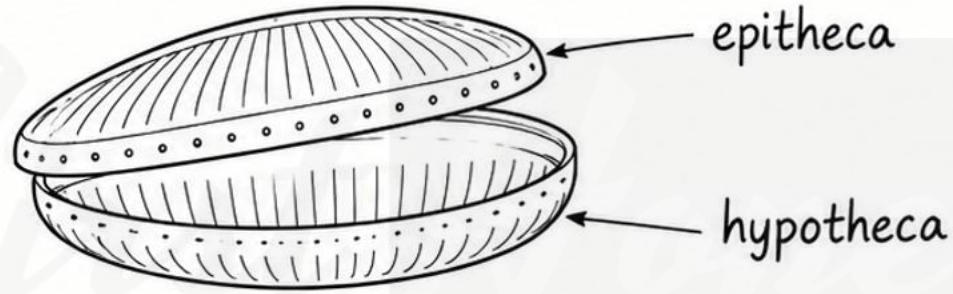
Archaeobacteria

1. Methanogens produce methane during anaerobic breakdown of dung and are used in biogas production.
2. Methanogens take part in anaerobic digestion of sewage and organic wastes.

EXERCISE SOLUTIONS: QUESTIONS 3 – 4

Question 3. What is the nature of cell walls in diatoms?

Answer: The diatom wall is impregnated with silica. It forms a hard, durable frustule made of two overlapping halves, like the lid and base of a soap box. Accumulated walls form diatomaceous earth.



Question 4. What do the terms algal bloom and red tide signify?

Answer: Algal bloom is a rapid increase of algae or cyanobacteria in a water body, often forming a visible surface growth.

Red tide is the reddish discoloration of sea water caused by rapid multiplication of pigmented dinoflagellates such as Gonyaulax. Some such blooms release toxins and may kill fish.

EXERCISE SOLUTION: QUESTION 5

Question 5. How are viroids different from viruses?

Answer:

Feature	Virus	Viroid
Nature	Acellular infectious particle	Infectious naked RNA molecule
Genetic material	DNA or RNA	small circular single-stranded RNA
Protein coat	Capsid present	capsid absent
Size	Generally larger than viroids	smaller than viruses
Example	Tobacco mosaic virus	potato spindle tuber viroid

T. O. Diener discovered viroids in 1971.

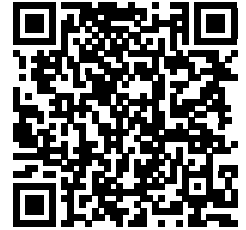


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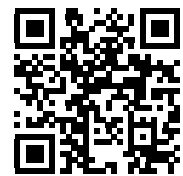


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