Class 9 Science – Chapter 7: Diversity in Living Organisms

Written in simple classroom language for clear understanding and easy revision.

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1. Introduction

The world around us is full of living organisms — plants, animals, microorganisms, insects, birds, etc. They all look different, live in different places, and perform different activities. This variety of life forms is called **biodiversity**.

To study such a huge variety, scientists group organisms based on similarities and differences. This process is called **classification**.

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2. Why Do We Need Classification?

- To make study of living organisms easier
- To know similarities and differences
- To understand evolution
- To avoid confusion in naming

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3. Basis of Classification

Scientists classify organisms based on:

- Cell type (prokaryotic or eukaryotic)
- Number of cells (unicellular or multicellular)
- Mode of nutrition
- Level of organization
- Body structure

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4. Hierarchy of Classification

Organisms are grouped step by step:

Kingdom → Phylum → Class → Order → Family → Genus → Species

FIVE KINGDOM CLASSIFICATION (R.H. Whittaker)

1. Monera
2. Protista
3. Fungi

4. Plantae
5. Animalia

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5. Kingdom Monera

- Unicellular organisms
- No true nucleus (prokaryotic)
- Example: Bacteria, Blue-green algae

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6. Kingdom Protista

- Unicellular but eukaryotic
- True nucleus
- Some are autotrophs, some heterotrophs
- Example: Amoeba, Paramecium, Euglena

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7. Kingdom Fungi

- Non-green organisms
- Heterotrophic (saprophytic or parasitic)
- Cell wall made of chitin
- Example: Mushroom, Yeast, Bread mould

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8. Kingdom Plantae

- Multicellular
- Autotrophic (photosynthesis)
- Cell wall present
- Non-motile

Plant Groups:

Group	Features
Thallophyta	Simple body, no roots/stems/leaves (Algae)
Bryophyta	Mosses, live in moist areas
Pteridophyta	Ferns, have vascular tissues

Group	Features
Gymnosperms	Naked seeds (Pine)
Angiosperms	Flowering plants

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9. Kingdom Animalia

- Multicellular
- No cell wall
- Heterotrophic
- Usually motile

Classification of Animals

Two main groups:

1. **Non-chordates**
2. **Chordates**

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10. Non-Chordates

Animals without backbone.

Phylum	Features	Examples
Porifera	Pores on body	Sponge
Coelenterata	Radial symmetry	Hydra
Platyhelminthes	Flatworms	Tapeworm
Nematoda	Roundworms	Ascaris
Annelida	Segmented body	Earthworm
Arthropoda	Jointed legs	Cockroach
Mollusca	Soft body	Snail
Echinodermata	Spiny skin	Starfish

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11. Chordates

Have backbone.

Characteristics:

- Notochord
- Dorsal nerve cord
- Gill slits

Classes:

Class	Features	Examples
Pisces	Fishes	Rohu
Amphibia	Live on land & water	Frog
Reptilia	Scaly skin	Snake
Aves	Birds	Pigeon
Mammalia	Hair, milk glands	Humans

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12. Important Terms

- **Biodiversity** – Variety of living organisms
- **Taxonomy** – Study of classification
- **Species** – Organisms that can reproduce

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13. Key Differences

Non-chordates vs Chordates

Non-Chordates	Chordates
No backbone	Backbone present
Notochord absent	Notochord present

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14. Important Points to Remember

✓ Classification makes study easy
✓ Five kingdom system is most accepted
✓ Plants are autotrophic
✓ Animals are heterotrophic
✓ Mammals feed milk to young ones