Animal Kingdom Class 11 Biology (NCERT): Easy notes

Meta Description

Animal Kingdom Class 11 Biology NCERT notes with detailed summary, MCQs, keywords, questions-answers, flowchart and exam tips. Simple, SEO-friendly, and student-oriented.

Introduction of the Chapter: Animal Kingdom

The **Animal Kingdom** chapter in **Class 11 Biology (NCERT)** deals with the scientific study of animals and their classification based on fundamental characteristics. This chapter is extremely important for school exams, NEET, and other competitive examinations. It introduces students to the vast diversity of animals and helps them understand how animals are grouped systematically.

The **Animal Kingdom** includes all multicellular, heterotrophic organisms that lack cell walls. Animals show a wide range of structural and functional diversity. To study such diversity easily, scientists have classified animals into different phyla based on criteria like level of organization, symmetry, coelom, segmentation, and presence or absence of notochord.

Understanding the **Animal Kingdom** helps students build a strong foundation in taxonomy, evolution, and comparative anatomy. This chapter emphasizes the importance of classification in identifying similarities and differences among animals. NCERT-based questions from the **Animal Kingdom** are frequently asked in exams, making it a high-weightage chapter.

Short Notes on Animal Kingdom

- Animals are multicellular, eukaryotic, and heterotrophic organisms
- Most animals show locomotion at some stage of life
- Classification is based on structural and embryological features
- Levels of organization: cellular, tissue, organ, organ system
- Body symmetry: asymmetrical, radial, bilateral
- Coelom types: acoelomate, pseudocoelomate, coelomate
- Segmentation may be present or absent
- Notochord is the key feature for chordates
- Non-chordates lack notochord
- Chordates include vertebrates and protochordates

Detailed Summary of Animal Kingdom (800–900 Words)

The **Animal Kingdom** represents one of the largest and most diverse groups of organisms on Earth. Members of the animal kingdom vary greatly in size, shape, habitat, and mode of life. Despite this diversity, animals share some common features such as multicellularity, heterotrophic nutrition, and absence of a rigid cell wall.

To simplify the study of such diversity, animals are classified into various groups based on specific criteria. The basis of classification in the **Animal Kingdom** includes levels of organization, symmetry, germ layers, body cavity, segmentation, and notochord.

Levels of Organization

Animals exhibit different levels of organization. The simplest animals show a cellular level of organization, where cells perform all functions. Sponges exhibit this level. More complex animals show tissue, organ, or organ system level of organization, allowing specialization of functions.

Body Symmetry

Body symmetry refers to the arrangement of body parts around a central axis. Animals may be asymmetrical, radially symmetrical, or bilaterally symmetrical. Radial symmetry is common in aquatic animals like cnidarians, while bilateral symmetry is seen in most advanced animals.

Germ Layers

During embryonic development, animals form germ layers. Diploblastic animals have two germ layers, while triploblastic animals have three. This feature is important for understanding body complexity in the **Animal Kingdom**.

Coelom

The presence or absence of a body cavity called coelom is another classification criterion. Animals may be acoelomate, pseudocoelomate, or coelomate. Coelom provides space for internal organs and allows efficient movement.

Segmentation

In some animals, the body is divided into repeated segments. This segmentation is called metamerism and provides flexibility and specialization.

Classification of Animal Kingdom

The **Animal Kingdom** is broadly divided into non-chordates and chordates.

Non-Chordates

Non-chordates do not possess a notochord. They include phyla such as Porifera, Cnidaria, Platyhelminthes, Nematoda, Annelida, Arthropoda, Mollusca, Echinodermata, and Hemichordata. Arthropoda is the largest phylum and includes insects, crustaceans, and arachnids.

Chordates

Chordates possess a notochord, dorsal hollow nerve cord, pharyngeal gill slits, and post-anal tail at some stage of life. They are divided into protochordates and vertebrates. Vertebrates have a vertebral column replacing the notochord.

The **Animal Kingdom** classification helps in understanding evolutionary relationships and adaptations. This systematic arrangement allows scientists and students to identify organisms correctly and study their biology efficiently.

Flowchart / Mind Map (Text-Based)

Animal Kingdom
→ Non-Chordata
→ Porifera
→ Cnidaria
→ Platyhelminthes
→ Nematoda
→ Annelida
→ Arthropoda
→ Mollusca
→ Echinodermata
→ Hemichordata

→ Chordata
→ Protochordata
→ Vertebrata
→ Pisces
→ Amphibia
→ Reptilia
→ Aves
→ Mammalia

Important Keywords with Meanings

- **Heterotrophic** – Dependent on others for food
- **Coelom** – Body cavity between gut and body wall
- **Notochord** – Flexible supporting rod in chordates
- **Radial symmetry** – Body parts arranged around axis
- **Bilateral symmetry** – Right and left halves equal
- **Metamerism** – Segmented body plan
- **Diploblastic** – Two germ layers
- **Triploblastic** – Three germ layers
- **Vertebrate** – Animal with backbone
- **Invertebrate** – Animal without backbone

Important Questions & Answers

Short Answer Questions (10)

1. What is the basis of classification in Animal Kingdom?
   Answer: Structural, embryological, and morphological features.

2. Define notochord.
   Answer: A rod-like structure present in chordates.
3. What is bilateral symmetry?
   Answer: Body divisible into two equal halves.
4. Name the largest phylum of Animal Kingdom.
   Answer: Arthropoda.
5. What are diploblastic animals?
   Answer: Animals with two germ layers.
6. Define coelom.
   Answer: Fluid-filled body cavity.
7. Give one example of mollusca.
   Answer: Snail.
8. What is metamerism?
   Answer: Segmentation of the body.
9. What is the level of organization in sponges?
   Answer: Cellular level.
10. Name one chordate feature.
    Answer: Dorsal hollow nerve cord.

Long Answer Questions (5)

1. Explain the basis of classification of Animal Kingdom.
2. Describe phylum Arthropoda with examples.
3. Differentiate between chordates and non-chordates.
4. Explain levels of organization in animals.
5. Describe vertebrate classification.

MCQs on Animal Kingdom

1. Which phylum shows cellular level organization?
   A. Cnidaria
   B. Porifera
   C. Mollusca
   D. Annelida
   Answer: B
2. Which animal shows radial symmetry?
   A. Human
   B. Fish
   C. Hydra
   D. Earthworm
   Answer: C
3. Arthropods have
   A. Jointed legs
   B. Notochord
   C. Radial symmetry
   D. No segmentation
   Answer: A

4. Coelom is absent in
   A. Annelida
   B. Mollusca
   C. Platyhelminthes
   D. Arthropoda
   Answer: C

Exam Tips / Value-Based Questions

Exam Tips

- Draw neat classification flowcharts
- Learn examples for each phylum
- Focus on differences between groups
- Practice MCQs regularly
- Revise keywords before exams

Value-Based Questions (5)

1. Why is classification important in biology?
   Answer: It helps in systematic study and conservation.
2. How does biodiversity benefit humans?
   Answer: It maintains ecological balance.
3. Why should animals be protected?
   Answer: They are essential for ecosystems.
4. What values are promoted by studying Animal Kingdom?
   Answer: Respect for nature and biodiversity.
5. How does scientific classification help society?
   Answer: It supports research and education.

Conclusion: Animal Kingdom (SEO-Friendly)

The **Animal Kingdom** chapter of **Class 11 Biology NCERT** is a foundational topic that introduces students to the immense diversity of animals and the scientific principles behind their classification. By studying the **Animal Kingdom**, students gain a clear understanding of how animals are grouped based on structural, functional, and developmental characteristics.

A strong command over the **Animal Kingdom** helps students perform well in board exams as well as competitive examinations like NEET. The chapter enhances analytical thinking by encouraging comparison between different animal groups. It also highlights the importance of biodiversity and conservation.

The systematic classification of the **Animal Kingdom** simplifies learning and helps students remember key features and examples. This chapter connects concepts of evolution, anatomy, and ecology, making it one of the most scoring units in Class 11 Biology.

Regular revision of **Animal Kingdom notes**, MCQs, keywords, and diagrams is essential for exam success. With clear concepts and proper practice, students can easily master the **Animal Kingdom**

and build a strong base for higher studies in biological sciences.

Long Answers-

1. Explain the Basis of Classification of Animal Kingdom

The classification of the **Animal Kingdom** is based on fundamental structural and embryological features. These criteria help in grouping animals with similar characteristics and understanding their evolutionary relationships.

Major Bases of Classification

1. Level of Organization

Animals show different levels of structural organization:

- **Cellular level** – Cells are loosely arranged (Porifera)
- **Tissue level** – Cells form tissues (Cnidaria)
- **Organ level** – Tissues form organs (Platyhelminthes)
- **Organ system level** – Organs form systems (Annelida onwards)

2. Body Symmetry

- **Asymmetrical** – No symmetry (Sponges)
- **Radial symmetry** – Body parts arranged around central axis (Cnidaria, Echinodermata)
- **Bilateral symmetry** – Body divisible into two equal halves (Most animals)

3. Germ Layers

- **Diploblastic** – Two germ layers (ectoderm and endoderm)
- **Triploblastic** – Three germ layers (ectoderm, mesoderm, endoderm)

4. Body Cavity (Coelom)

- **Acoelomate** – No body cavity (Platyhelminthes)
- **Pseudocoelomate** – False coelom (Nematoda)
- **Coelomate** – True coelom (Annelida onwards)

5. Segmentation

Presence of repeated body segments (Annelida, Arthropoda)

6. Presence of Notochord

- **Non-chordates** – Notochord absent
- **Chordates** – Notochord present

Thus, the **Animal Kingdom classification** is scientific, logical, and helps in systematic study.

2. Describe Phylum Arthropoda with Examples

Arthropoda is the largest phylum of the **Animal Kingdom** and includes insects, spiders, crustaceans, and millipedes.

General Characteristics

- Body is **segmented**
- Presence of **jointed appendages**
- **Bilateral symmetry**
- **Triploblastic and coelomate**
- Hard **chitinous exoskeleton**
- Open circulatory system
- Respiration by gills, trachea, or book lungs
- Sexes usually separate

Examples

- Cockroach
- Butterfly
- Crab
- Spider
- Scorpion

Importance

- Pollination (insects)
- Food source (prawns, crabs)
- Some are disease vectors (mosquito)

Arthropoda shows maximum diversity and adaptability in the **Animal Kingdom**.

3. Differentiate Between Chordates and Non-Chordates

Feature	Chordates	Non-Chordates
Notochord	Present	Absent
Nerve cord	Dorsal, hollow	Ventral, solid
Gill slits	Present	Absent
Post-anal tail	Present	Absent
Heart position	Ventral	Dorsal or absent

Examples

- **Chordates**: Fish, Frog, Bird, Human
- **Non-chordates**: Earthworm, Insect, Starfish

This distinction forms the major division of the **Animal Kingdom**.

4. Explain Levels of Organization in Animals

Animals differ in complexity based on how cells are organized.

1. Cellular Level

- Cells are loosely arranged
- No true tissues
- Example: **Porifera**

2. Tissue Level

- Cells form tissues
- Tissues perform specific functions
- Example: **Cnidaria**

3. Organ Level

- Tissues combine to form organs
- Example: **Platyhelminthes**

4. Organ System Level

- Organs work together as systems
- Highly specialized
- Example: **Annelida to Chordata**

Higher levels of organization indicate evolutionary advancement in the **Animal Kingdom**.

5. Describe the Classification of Vertebrates

Vertebrates belong to **Phylum Chordata** and have a backbone.

General Features

- Vertebral column present
- Notochord replaced by backbone
- Well-developed brain
- Closed circulatory system

Classes of Vertebrates

1. Pisces

- Aquatic
- Fins for locomotion
- Respiration by gills
  Example: Rohu

2. Amphibia

- Live on land and water
- Moist skin
  Example: Frog

3. Reptilia

- Dry, scaly skin
- Cold-blooded
  Example: Snake

4. Aves

- Feathers and wings
- Warm-blooded
  Example: Pigeon

5. Mammalia

- Mammary glands
- Hair present
- Warm-blooded
  Example: Human

Vertebrates represent the most advanced group in the **Animal Kingdom**.

Animal Kingdom – MCQs with Answers

1. Animals showing cellular level of organization belong to

A. Cnidaria
B. Porifera
C. Annelida
D. Arthropoda
Answer: B

2. Which symmetry is found in Hydra?

A. Bilateral
B. Asymmetrical
C. Radial

D. Spherical
Answer: C

3. Diploblastic animals possess

A. Three germ layers
 B. Two germ layers
 C. No germ layers
 D. Four germ layers
 Answer: B

4. Which phylum is acoelomate?

A. Nematoda
 B. Annelida
 C. Arthropoda
 D. Platyhelminthes
 Answer: D

5. Presence of pseudocoelom is seen in

A. Platyhelminthes
 B. Annelida
 C. Nematoda
 D. Mollusca
 Answer: C

6. Metameric segmentation is characteristic of

A. Mollusca
 B. Annelida
 C. Echinodermata
 D. Cnidaria
 Answer: B

7. Which is the largest phylum of Animal Kingdom?

A. Mollusca
 B. Arthropoda
 C. Chordata
 D. Annelida
 Answer: B

8. Jointed appendages are found in

A. Annelida
 B. Mollusca
 C. Arthropoda

D. Echinodermata
Answer: C

9. Open circulatory system is present in

A. Annelida
 B. Arthropoda
 C. Chordata
 D. Platyhelminthes
 Answer: B

10. Which phylum shows water vascular system?

A. Mollusca
 B. Arthropoda
 C. Echinodermata
 D. Annelida
 Answer: C

11. Adult echinoderms are

A. Bilaterally symmetrical
 B. Radially symmetrical
 C. Asymmetrical
 D. Cylindrical
 Answer: B

12. Which phylum includes earthworm?

A. Arthropoda
 B. Mollusca
 C. Annelida
 D. Nematoda
 Answer: C

13. Which is a triploblastic animal?

A. Hydra
 B. Sponge
 C. Planaria
 D. Jellyfish
 Answer: C

14. Notochord is present in

A. All animals
 B. Non-chordates
 C. Chordates

D. Arthropods
Answer: C

15. Dorsal hollow nerve cord is a feature of

A. Mollusca
 B. Annelida
 C. Arthropoda
 D. Chordata
 Answer: D

16. Which of the following is a protochordate?

A. Starfish
 B. Earthworm
 C. Balanoglossus
 D. Cockroach
 Answer: C

17. Vertebral column is present in

A. Protochordates
 B. Invertebrates
 C. Vertebrates
 D. Hemichordates
 Answer: C

18. Fish belong to which class?

A. Amphibia
 B. Pisces
 C. Reptilia
 D. Mammalia
 Answer: B

19. Amphibians are

A. Fully aquatic
 B. Fully terrestrial
 C. Live on land and water
 D. Aerial
 Answer: C

20. Dry and scaly skin is a feature of

A. Amphibia
 B. Aves
 C. Reptilia

D. Mammalia
Answer: C

21. Feathers are characteristic of

A. Mammalia
B. Reptilia
C. Aves
D. Amphibia
Answer: C

22. Mammary glands are found in

A. Aves
B. Amphibia
C. Reptilia
D. Mammalia
Answer: D

23. Warm-blooded animals include

A. Pisces and Amphibia
B. Reptilia and Amphibia
C. Aves and Mammalia
D. Pisces and Reptilia
Answer: C

24. Which animal shows bilateral symmetry?

A. Starfish
B. Hydra
C. Human
D. Sponge
Answer: C

25. Respiration through tracheae occurs in

A. Earthworm
B. Cockroach
C. Fish
D. Frog
Answer: B

26. Body cavity lined by mesoderm is called

A. Pseudocoelom
B. Acoelom
C. Coelom

D. Haemocoel
Answer: C

27. Example of mollusca is

A. Frog
 B. Cockroach
 C. Snail
 D. Starfish
 Answer: C

28. Which animal is a non-chordate?

A. Frog
 B. Fish
 C. Bird
 D. Earthworm
 Answer: D

29. Which feature is absent in non-chordates?

A. Segmentation
 B. Coelom
 C. Notochord
 D. Symmetry
 Answer: C

30. Animal Kingdom classification helps in

A. Confusion
 B. Random study
 C. Systematic study
 D. Ignoring diversity
 Answer: C