



## **Primary 6 Integrated Science**

### **Term 1**

### **Theme: The World of Living Things**

#### **Topic 1/4 – Classification of Animals**

**Learning Outcome:** The learner acquires the skills of identifying the characteristics of different groups of animals and their survival features.

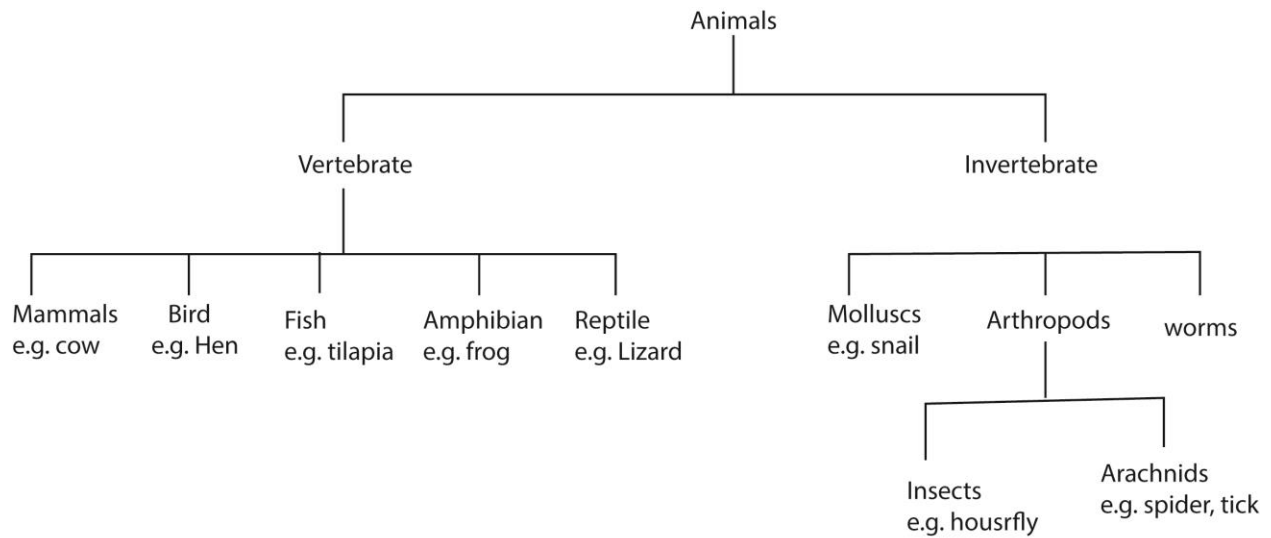
#### **Classification of animals**

##### **Vertebrates**

**Classification of animals** means grouping animals into different categories based on their body features and how they live. This helps us to study them easily and understand their similarities and differences.

##### **Two Main Groups**

1. **Vertebrates** – animals with a backbone.
  - Examples: cow, fish, frog, bird, snake.
2. **Invertebrates** – animals without a backbone.
  - Examples: insects, worms, snails, crabs, spiders.



## Why Classification is Important

- (i) Makes it easier to study animals.
- (ii) Helps us know which animals are useful for food, work, or medicine.
- (iii) Shows the differences and similarities among animals.

## Vertebrates

Vertebrates are animals with a backbone (spinal column).

### Features:

- Have an internal skeleton.
- Usually larger in size.
- More complex body systems.

## Exercise 1

What is the main feature of vertebrates?

## Mammals

Mammals are **vertebrate animals** (with backbone) that usually have hair or fur and feed their young ones with milk from the mother.

### Features of Mammals

- Have hair or fur on their bodies.
- Give birth to live young ones (except a few like the platypus which lay eggs).
- Mothers produce milk to feed their babies.
- Warm-blooded (their body temperature stays constant irrespective of environment temperature).
- Have lungs and breathe air.

### Examples of Mammals



Cow



Goat



Human being



Lion



Elephant



Dog

### Importance of Mammals

- **Food:** Provide meat and milk (e.g., cows, goats).
- **Work:** Some are used for transport or farming (e.g., donkeys, oxen).
- **Companionship:** Pets like dogs and cats.
- **Economic value:** Wool, leather, and other products.

### Exercise 2

- (a) Give two examples of mammals
- (b) State two characteristics of mammals.

## Birds

Birds are **vertebrate animals** (with backbone) that have feathers, wings, and lay eggs.

### Features of Birds

- Covered with **feathers**.
- Have **two wings** (most can fly, though some like ostriches cannot).
- Have **two legs**.
- Lay eggs with hard shells.
- Warm-blooded (keep their body temperature constant irrespective of environmental temperature).
- Have beaks instead of teeth.

### Examples of Birds



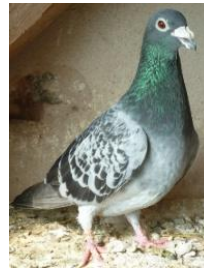
Eagle



Ostrich



Hen



Pigeon



Parrot

### Exercise 3

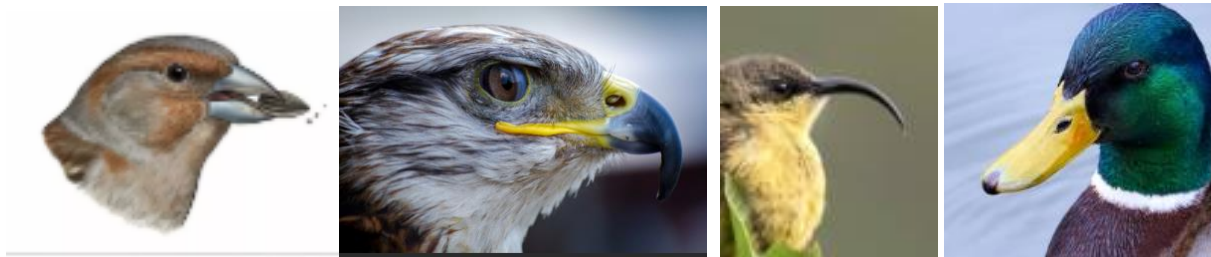
- State two features of birds.
- Give one feature in which birds are similar to mammals.
- Name one characteristic in which birds are different from mammals.

### C

### Classification of Birds by Way of Life

Group of Birds	Examples	Way of Life / Adaptation
<b>Birds of prey</b>	Eagle, Hawk, Vulture	Have sharp, hooked beaks and strong talons for catching and tearing flesh.
<b>Seed eaters</b>	Hen, Pigeon, Sparrow	Have short, strong beaks for pecking and eating grains or seeds.
<b>Water birds</b>	Duck, Goose, Swan	Have broad, flat beaks for filter feeding and webbed feet for swimming.
<b>Running birds</b>	Ostrich	Have long, strong legs adapted for running fast on land.
<b>Nectar feeders</b>	Hummingbird, Sunbird	Have long, slender beaks for sucking nectar from flowers.
<b>Fishing birds</b>	Kingfisher, Pelican	Have long, pointed beaks for catching fish.

### Adaptations of birds' beak



Grain eater

Flesh eater for birds of prey

Honey eater

Filter feeder

- (i) Grain eaters have short, strong beaks.
- (ii) Flesh eaters have sharp, hooked beaks.
- (iii) Nectar feeders have long, slender beaks.
- (iv) Water feeders/filter feeders have flat, sieve-like beaks.

### Exercise 4

How the beaks of the following birds are adapted to their functions?

- (i) Flesh eater
- (ii) Filter feeders

- (iii) Honey eater
- (iv) Fish eaters
- (v)

### Adaptations of birds' legs



Strong claws (talons) for tearing prey flesh



Webbed for swimming



Long strong legs of for running

### Importance of Birds

- **Food:** Provide meat and eggs (e.g., hens, ducks).
- **Economic value:** Feathers used for decoration, and some birds are kept as pets.
- **Pollination and seed dispersal:** Help plants grow by spreading seeds and pollen.
- **Control of pests:** Birds eat harmful insects.

### Exercise 5

- (a) How are the feet of the following bird adapted?
  - (i) Birds of prey
  - (ii) Wading bird
  - (iii) Runners
- (b) State one importance of birds.

## Fish

Fish are **vertebrate animals** (with backbone) that live in water and breathe using gills.

### Features of Fish

- Live in water (freshwater or saltwater).
- Breathe through **gills**.
- Have **scales** covering their bodies.
- Have **fins** for swimming.
- Lay eggs.
- Cold-blooded (their body temperature changes with the environment).

### Examples of Fish



Nile perch

Shark

Salmon

Gills

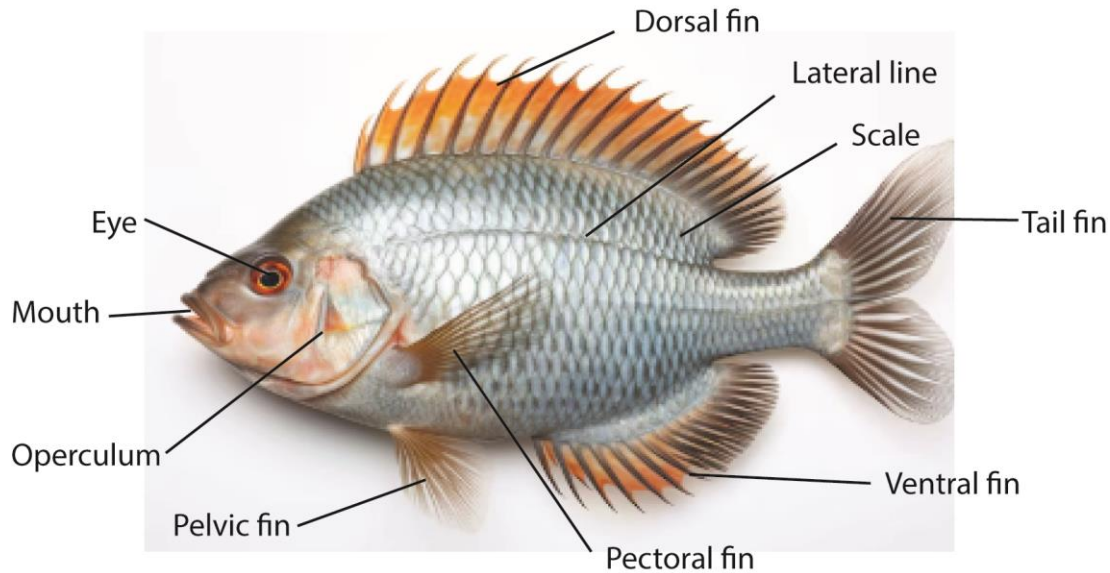
### Adaptations of gills to their functions

- Large surface area:** Gills have many thin filaments that spread out widely, allowing more oxygen to be absorbed from water.
- Thin walls:** The walls of gill filaments are very thin, making it easy for oxygen and carbon dioxide to pass through quickly.
- Rich blood supply:** Gills contain many blood vessels that carry oxygen to the body and remove carbon dioxide efficiently.
- Moist surface:** Gills are always moist, which helps gases dissolve and diffuse easily.

### Exercise 6

- Give two examples of fish in Uganda.
- List two features of fish.
- State any two Adaptations of gills to their function

## Parts of fish



## Functions of Parts of a Fish

Part of Fish	Function
<b>Head</b>	Contains the brain, eyes, and mouth; helps the fish to see, eat, and sense danger.
<b>Mouth</b>	Used for eating food and sometimes for breathing.
<b>Gills</b>	Help the fish to breathe by taking in oxygen from water.
<b>Fins</b>	Help the fish to swim, balance, and change direction.
<b>Scales</b>	Protect the fish's body from injury and parasites.
<b>Skin</b>	Covers the body and helps in protection.
<b>Tail (caudal fin)</b>	Helps the fish to move forward quickly in water.
<b>Swim bladder</b>	Helps the fish to float or sink in water.

## Importance of Fish

- (i) **Food:** Provide meat rich in protein.
- (ii) **Economic value:** Fishing provides jobs and income.
- (iii) **Pets:** Some fish are kept in aquariums for beauty.
- (iv) **Environmental role:** Help maintain balance in aquatic ecosystems.

## Exercise 7

- (i) Give the functions of the following parts of fish: scales, gills, and fins
- (ii) State one adaptation of fish to live in water.

## Reptiles

Reptiles are **vertebrate animals** (with backbone) that have dry, scaly skin and usually lay eggs on land.

### Features of Reptiles

- (i) Covered with **dry scales**.
- (ii) Breathe through **lungs**.
- (iii) Most lay eggs with hard shells.
- (iv) Cold-blooded (their body temperature changes with the environment).
- (v) Move by crawling or slithering.

### Examples of Reptiles



Snake



Lizard



Chameleon



Totoise



Crocodile

### Importance of Reptiles

#### Useful:

- (i) Crocodile and snake skins are used for leather.
- (ii) Some reptiles help control pests by eating harmful animals.

#### Harmful:

- (i) Some snakes are poisonous.
- (ii) Crocodiles can be dangerous to humans and livestock.

### Example 8

- (a) List any two features of reptiles.
- (b) How do the following animals protect themselves
  - (i) Chameleons
  - (ii) Tortoise

### Amphibians

Amphibians are **vertebrate animals** (with backbone) that can live both on land and in water.

#### Features of Amphibians

- (i) Have **moist, smooth skin** (without scales).
- (ii) Lay eggs, usually in water.
- (iii) Young ones (like tadpoles) live in water and breathe with gills, while adults breathe with lungs and skin.
- (iv) Cold-blooded (their body temperature changes with the environment).
- (v) Can live in two habitats: land and water.

#### Examples of Amphibians



Frog



Toad



Salamander



Newt

#### Importance of Amphibians

##### Useful:

- (i) Frogs eat harmful insects.
- (ii) Some are used in scientific research.

## Harmful:

Some toads and frogs produce poisonous substances.

## Tadpole

A **tadpole** is the young stage of a frog or toad before it becomes an adult.



## Differences between tadpoles and toads

Feature	Tadpoles	Toads (Adults)
Stage of life	Young stage (larva) of frogs/toads	Adult stage
Habitat	Live only in water	Live mostly on land but return to water to breed
Breathing	Use gills to breathe	Use lungs and skin to breathe
Body covering	Smooth skin, no legs, long tail	Dry, rough, warty skin, with legs
Movement	Swim using tail	Hop or walk using legs
Feeding	Mostly herbivorous (eat plants/algae)	Carnivorous (eat insects, worms, etc.)
Reproduction	Cannot reproduce	Can reproduce

## Exercise 9

- (i) State two differences between reptiles and amphibians
- (ii) How is a toad different from tadpole.

## Invertebrates

**Invertebrates** are animals without a backbone.

### Features:

- (i) Do not have an internal skeleton.
- (ii) Usually smaller in size.
- (iii) Simpler body systems.

## Arthropods

Arthropods are invertebrate animals (without backbone) that have **jointed legs** and a **hard outer covering (exoskeleton)**. They are the largest group of animals in the world.

### Features of Arthropods

- (i) Have a hard outer body covering (exoskeleton).
- (ii) Have jointed legs for movement.
- (iii) Most have compound and/or simple eyes.
- (iv) They shed their outer covering as they grow (molting).

### Examples of Arthropods

- **Insects** – ants, bees, butterflies.
- **Arachnids** – spiders, scorpions.

### Exercise 10

- (i) State one characteristic of invertebrates
- (ii) List three features of a housefly that shows that it is an arthropod.

## Insects

Insects are **invertebrate animals** (without backbone) that belong to the arthropod group. They are the largest group of animals on Earth.

### Features of Insects

- (i) Body divided into **three parts**:
  - Head
  - Thorax
  - Abdomen
- (ii) Have **six legs** (three pairs).
- (iii) Most have **two pairs of wings** (though some have none).
- (iv) Have **antennae** on their heads.
- (v) Breathe through small holes called **spiracles**.

### Examples of Insects



Butterfly



Bee

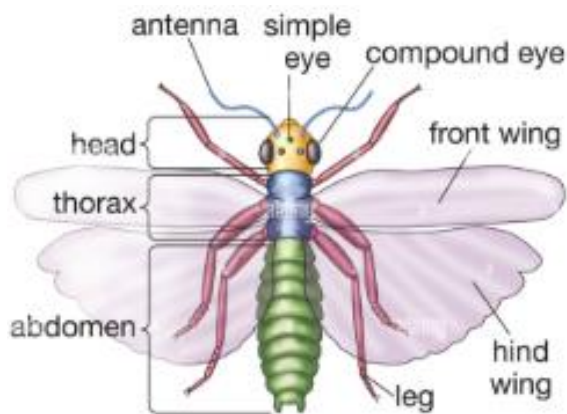


Ant



Mosquito

### Parts of an insect



## Importance of Insects

### Useful:

- (i) Bees make honey and help pollinate crops.
- (ii) Silkworms produce silk.
- (iii) Some insects help in breaking down waste.

### Harmful:

- (i) Mosquitoes spread malaria.
- (ii) Locusts destroy crops.
- (iii) Termites damage wood.

## Exercise 11

- (a) List three main features of an insect.
- (b) Name the structure through which insects breathe.
- (c) State one benefit of insects to plants.
- (d) Name two danger of insect to man

## Arachnids

Arachnids are a group of **invertebrate animals** (without backbone) that belong to the arthropod family. They have **eight legs** and a hard outer covering (exoskeleton).

### Features of Arachnids

- (i) Body divided into **two main parts**:
  - **Cephalothorax** (head + thorax together)
  - **Abdomen**
- (ii) Have **eight legs** (not six like insects).
- (iii) Do **not have wings** or antennae.

- (iv) Most are carnivorous (feed on other small animals).
- (v) Some produce venom to catch or kill prey.

### Examples of Arachnids



Scorpion



Tick



Spider



Mite

### Importance of Arachnids

#### Useful:

- (i) Spiders eat harmful insects.
- (ii) Some mites help in breaking down organic matter.

#### Harmful:

- (i) Ticks spread diseases to animals and humans.
- (ii) Scorpions and some spiders can be poisonous.

### Exercise 12

- (i) Name two parasitic arachnids.
- (ii) Give one difference between arachnids and insects
- (iii) What is the use of cobwebs to spiders

## Molluscs

Molluscs are **invertebrate animals** (without backbone) that usually have **soft bodies**, often protected by a **hard shell**. They are found mostly in water, but some live on land.

### Features of Molluscs

- (i) Soft body, sometimes covered by a shell.
- (ii) Most live in water (freshwater or sea).
- (iii) Breathe using gills or lungs.
- (iv) Move using a muscular foot.
- (v) Bilateral symmetry (body divided into two equal halves).

### Examples of Molluscs



Snail



Slug

### Importance of Molluscs

#### Useful:

- (i) Provide food (snails, clams, oysters).
- (ii) Oysters produce pearls used in jewelry.
- (iii) Some shells are used for decoration.

#### Harmful:

- (i) Some snails destroy crops.
- (ii) Certain molluscs carry parasites that cause diseases for example **bilharzia**.

### Exercise 13

- (i) Name the class of invertebrates into which a snail belongs
- (ii) State one disease transmitted by the snail
- (iii) Mention one symptom of the disease in (ii) above
- (iv) Suggest one benefit of snails to human beings.

### Myriapods

Myriapods are **invertebrate animals** (without backbone) that belong to the arthropod group. The word *myriapod* means “many legs.”

#### Features of Myriapods

- (i) Have long bodies divided into many segments.
- (ii) Each segment has legs.
- (iii) They have **many legs** (from tens to hundreds).
- (iv) Breathe through small holes called **spiracles**.
- (v) Have antennae on their heads.
- (vi) Live mostly on land, often in dark, damp places.

#### Examples of Myriapods



Millipede



Centipede

- **Centipede** – has one pair of legs per body segment, fast-moving, and some can bite.

- **Millipede** – has two pairs of legs per body segment, moves slowly, and feeds on decaying plants.

### Importance of Myriapods

#### Useful:

Millipedes help in breaking down dead plants, improving soil fertility.

#### Harmful:

- (i) Some centipedes bite and can be poisonous.
- (ii) Large numbers of millipedes may destroy crops.

### Exercise 14

- (a) How is a millipede different from a centipede
- (b) How does a millipede protect itself
- (c) State one way a millipede is useful to plants
- (d) Give one way a millipede is dangerous to the plants

### Crustaceans

Crustaceans are **invertebrate animals** (without backbone) that belong to the arthropod group. They usually live in water and have hard outer coverings (exoskeletons).

#### Features of Crustaceans

- (i) Have **hard shells (exoskeletons)** for protection.
- (ii) Body divided into **segments**.
- (iii) Have **jointed legs** (usually 5 pairs or more).
- (iv) Have **two pairs of antennae**.
- (v) Most breathe through **gills**.
- (vi) Found mostly in seas, oceans, and freshwater.

## Examples of Crustaceans



Crab



Lobster



Crayfish

## Importance of Crustaceans

### Useful:

- (i) Provide food (crabs, lobsters, shrimps).
- (ii) Shells can be used for decoration or fertilizer.

### Harmful:

- (i) Some can pinch or bite.
- (ii) Certain species may damage fishing nets or compete with other fish.

## Exercise 15

- (i) Give one example of crustaceans.
- (ii) List one similarity of crustaceans and arthropods

## Worms

Worms are **invertebrate animals** (without backbone) that have long, soft, cylindrical bodies. They live in soil, water, or inside other animals.

## Features of Worms

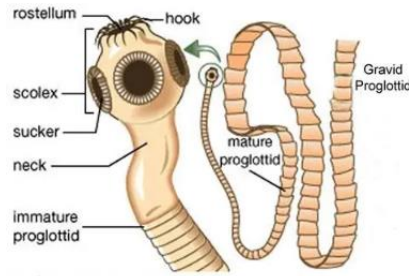
- (i) Soft bodies without bones.
- (ii) Long, cylindrical/flat shape.
- (iii) No legs or arms.
- (iv) Most live in moist places like soil or water.

(v) Some are parasites (live inside other animals).

### Examples of Worms



Earthworm



Tapeworm



Round worm



Flatworm

### Uses of parts of head of tapeworm and their uses

Part of Head (Scolex)	Function / Use
Suckers	Absorb nutrients from the gut wall
Hooks (in some species)	Help the tapeworm grip tightly to the host's intestine.
Neck region	Produces new body segments (proglottids) for growth.

### Importance of Worms

#### Useful:

- Earthworms improve soil fertility by mixing soil and adding nutrients.
- Some worms are used in scientific studies.

#### Harmful:

- Tapeworms and roundworms live inside humans or animals and cause diseases.

### Signs of worm infestation

- (i) **Stomach pain** – frequent or constant pain in the belly.
- (ii) **Swollen belly** – the stomach may look bigger than normal.
- (iii) **Loss of appetite** – not feeling hungry or refusing to eat.
- (iv) **Weight loss** – becoming thinner even when eating food.
- (v) **Weakness and tiredness** – feeling weak because worms take away nutrients.
- (vi) **Itching around the anus** – especially at night (common with threadworms).

- (vii) **Diarrhea or constipation** – changes in how one passes stool.
- (viii) **Presence of worms in stool** – sometimes worms can be seen in feces.

### Exercise 16

- (a) State one danger of worms
- (b) Give one example of a flat worm and one example of round worms.
- (c) List any two signs of worm infestation

### Ways by which worms transmitted to man

- (i) **Eating contaminated food:** Worm eggs may be present in unwashed fruits, vegetables, or undercooked meat.
- (ii) **Drinking dirty water:** Water that is not clean can contain worm eggs or larvae.
- (iii) **Poor personal hygiene:** Not washing hands after using the toilet can spread worm eggs to food and mouth.
- (iv) **Walking barefoot:** Some worms (like hookworms) can enter the body through the skin of bare feet.
- (v) **Contact with contaminated soil:** Playing or working in soil that contains worm eggs can lead to infection.
- (vi) **Close contact with infected persons:** Worm eggs can spread from one person to another through dirty hands or shared items.

### Means of controlling of worm infestation

- (i) **Maintain good personal hygiene;** Wash hands with soap after using the toilet and before eating.
- (ii) **Wash fruits and vegetables:** Clean food properly before eating to remove worm eggs.
- (iii) **Boil or treat drinking water:** Ensure water is safe and free from worm eggs or larvae.
- (iv) **Cook food properly:** Avoid eating raw or undercooked meat and fish.
- (v) **Wear shoes:** Prevent worms like hookworms from entering through bare feet.
- (vi) **Dispose of human waste properly:** Use toilets or latrines to stop contamination of soil and water.
- (vii) **Regular deworming:** Take deworming medicine as advised by health workers to kill worms inside the body.

### Exercise 17

- (i) Suggest two ways a person can get infected with worms.
- (ii) State two ways of preventing worm infection

### How Animals Protect Themselves

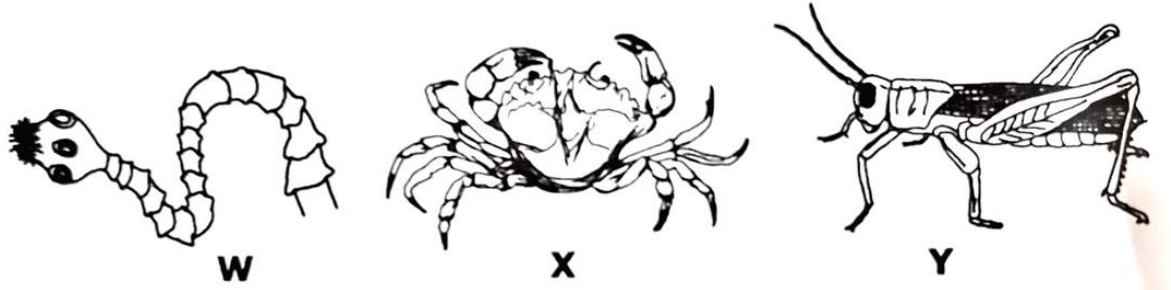
Animal	Method of Protection
Snail	Hides inside its hard shell when there is danger.
Tortoise	Withdraws its head and legs into its hard shell.
Porcupine	Uses its sharp quills to prick enemies.
Chameleon	Changes its body color to blend with the surroundings (camouflage).
Frog	Jumps quickly into water or hides in grass to escape enemies.
Birds	Fly away quickly when threatened.
Fish	Swim fast and hide among plants or rocks in water.
Dog	Barks or bites to scare away enemies.
Crocodile	Uses its strong jaws and tail to defend itself.
Insects (like grasshoppers)	Jump away or fly to escape danger.
Millipede	Curling into a coil hard tight spiral, hard exoskeleton, produce poisonous chemical

### Exercise 18

List **four** ways animals protect themselves

## Revision question

2. The diagrams below show the animals W, X and Y that belong to three different groups of invertebrates. Use them to answer questions that follow.



- (a) Identify the group of invertebrates to which animal labelled X belong

Crustaceans

- (b) Apart from having no backbone, state any one other way animal W and Y are similar in their body structure

Have segmented bodies

- (c) State any two benefits of animal Y to human

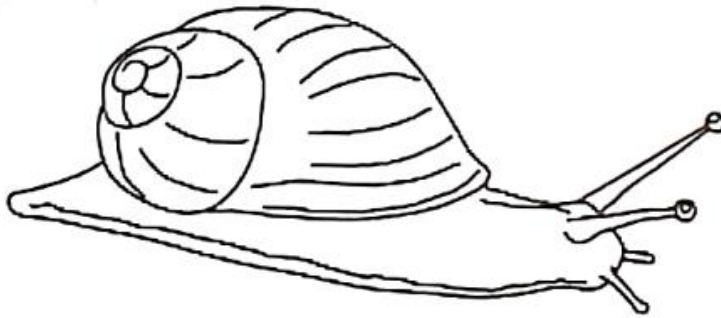
- (iv) Human food
- (v) Animal feeds
- (vi) Study purpose
- (vii) Source of income

3. Mention any one sign of roundworm infestation in humans.

- (i) **Stomach pain** – frequent or constant pain in the belly.
- (ii) **Swollen belly** – the stomach may look bigger than normal.
- (iii) **Loss of appetite** – not feeling hungry or refusing to eat.
- (iv) **Anemia** – some worm absorb blood from human
- (v) **Weight loss** – becoming thinner even when eating food.

- (vi) **Weakness and tiredness** – feeling weak because worms take away nutrients.
- (vii) **Itching around the anus** – especially at night (common with threadworms).
- (viii) **Diarrhea or constipation** – changes in how one passes stool.
- (ix) **Presence of worms in stool** – sometimes worms can be seen in feces.

4. The diagram below shows an animal in the group of invertebrates. Use it to answer questions that follow



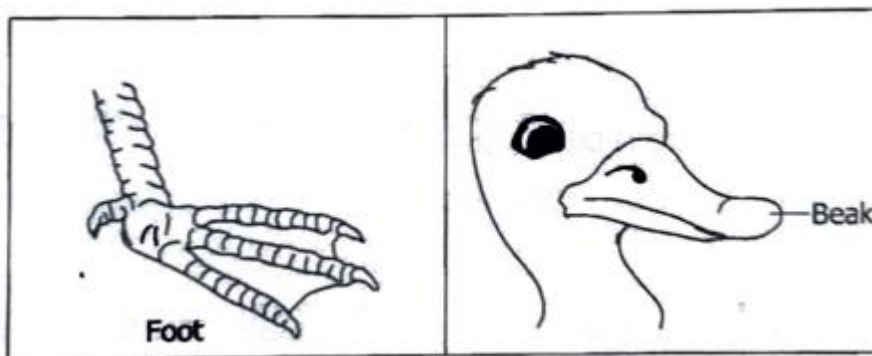
(a) Name the animal shown in the diagram

Snail

(b) State the group of invertebrates to which the animal belongs

Molluscs

5. The diagram below are of a foot and beak of a bird. Study and use them to answer the questions that follow.



- (a) Identify the group of birds with the type of foot and break shown.  
Water bird/swimming birds
- (b) How do the parts of the bird shown above help it to live well in its environment?
  - (iii) Foot: Help in swimming and paddling through water to find food.
  - (iv) Beak: allows the duck to scoop up water and mud easily and filter out food
- (c) Give any one example of a domestic bird with such type of beak and foot  
duck

6. Use the diagram of the animal below to answer the questions that follow



- (a) Identify the class of vertebrates to which the above animal belongs  
Reptile
- (b) How does the above animal protect itself?  
Hide its head and legs into the hard shell.

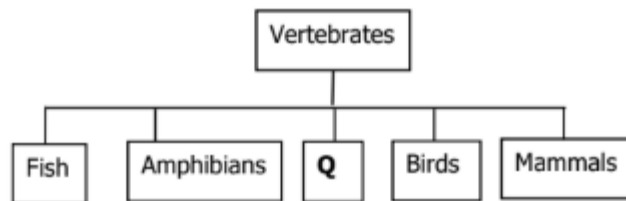
7. Give one characteristic of birds of prey.

Characteristic	Explanation
<b>Sharp, hooked beak</b>	Used for tearing flesh of their prey.
<b>Strong claws (talons)</b>	Adapted for catching, holding, and killing prey.
<b>Excellent eyesight</b>	Can see prey from very far distances.
<b>Strong wings</b>	Allow them to fly high and swoop down quickly on prey.
<b>Carnivorous diet</b>	They feed mainly on flesh of other animals.
<b>Powerful body</b>	Built for strength and speed during hunting.

### Examples of Birds of Prey

- Eagle
- Hawk
- Falcon
- Owl

8. The table below are classes of vertebrates Study and use it to answer the questions that follow



(a) Name the class of vertebrates represented by Q.

Reptile

(b) Apart from having backbones, give one characteristic common to;

(iv) All fish, amphibians and vertebratee in Q

Cold-blooded

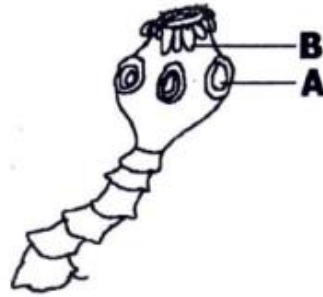
(v) Birds and mammals

Warm blooded

(c) State the difference in reproduction between vertebrates in class Q and the amphibians.

Reptiles undergo internal fertilization while amphibians undergo external fertilization.

9. The diagram below shows a head of a tapeworm. Study it and answer the question that follow.



- (a) Name the part marked A.

Hooks

- (b) How is Part B useful to the tapeworm.

Suckers absorb nutrients from human gut walls.

10. (a) Write down any two reasons why toads are classified as amphibians.

- (i) live both in water and on land,
- (ii) reproduce in water,
- (iii) undergo metamorphosis, a
- (iv) have moist skin for breathing.

- (b) In which two ways are the fish different from amphibians?

Feature	Fish	Amphibians
<b>Habitat</b>	Live only in water.	Live both in water (as young) and on land (as adults).
<b>Breathing</b>	Breathe through <b>gills</b> all their life.	Young (tadpoles) breathe through <b>gills</b> , adults breathe through <b>lungs and moist skin</b> .
<b>Skin</b>	Covered with <b>scales</b> .	Has no scales

- 11.



12. Give any one way in which human can prevent tapeworm infestation

- (i) **Cook meat properly:** to kill eggs
- (ii) **Wash hands regularly:** to remove eggs and larvae from them
- (iii) **Wash fruits and vegetables:** Cleaning food properly removes eggs or larvae that may be on them.
- (iv) **Drink clean water:** Avoid drinking dirty or untreated water, which may contain tapeworm eggs.
- (v) **Proper sanitation:** Using toilets and keeping the environment clean prevents contamination of food and water.
- (vi) **Avoid eating raw or undercooked food:** Especially raw meat or food prepared in unhygienic conditions.

13. The following is a list of animals that belong to different classes of vertebrates. Use it to answer the questions that follow.

Monkey, Parrot, crocodile, Tilapia

(a) In which class of vertebrates does a crocodile belong?

Reptiles

(b) Name the class of vertebrates which is not represented in the above list.

Amphibian

(c) Identify any one animal from the list which is cold blooded.

Tilapia or crocodile

(d) How is the reproduction of tilapia different from that of a parrot?

Tilapia has external fertilization while parrot has internal fertilization

Tilapia does not incubate eggs, parrots incubate eggs

Eggs of tilapia have soft shells while parrot eggs has hard shells

14. The diagrams below show animals in the arthropods groups. Study and use them to answer the questions that follow



- (a) Name the group of arthropods to which animal X and Y belong

X: Crustacean

Y: Insects

- (b) Give any one reason why animal Y does not belong to the same group as animal Z.

Feature	Y	Z
<b>Examples</b>	Spider, Scorpion, Tick	Butterfly, Grasshopper, Ant
<b>Body parts</b>	2 main parts: <b>cephalothorax</b> and <b>abdomen</b>	3 main parts: <b>head, thorax, abdomen</b>
<b>Number of legs</b>	8 legs	6 legs
<b>Antennae</b>	No antennae	Have 1 pair of antennae
<b>Eyes</b>	Has simple eyes	Has compound eyes
<b>Wings</b>	No wings	Most insects have wings
<b>Respiration</b>	Breathe through book lungs	Breathe through tracheae (air tubes)

- (c) How are animals X, Y, and Z similar in the way they reproduce?

They lay eggs

15. State any one characteristic that shows that bats are mammal

- (i) give birth to live young,
- (ii) feed young ones with milk,

- (iii) have hair,
- (iv) Have specialized teeth
- (v) they are warm-blooded vertebrates.

16. (a) Give any one characteristic which is common to all invertebrates

They lack a vertebral column

(a) To which group of invertebrates does each of the following animals belong?

Snail: Molluscs

Grasshoppers: insects

(b) State one way in which snails may be dangerous to humans

Water snails are vector for bilharzia

17. (a) To which class of vertebrates do toads belong?

Amphibian

(b) Give one way in which the breathing of a toad is different from that of a tadpole.

Toad breath through lungs and skin while tadpole breath through external gills

(c) State any two ways in which the jelly around the eggs of toads is important.

- (i) **Protection from drying:** The jelly keeps the eggs moist and prevents them from drying out.
- (ii) **Cushioning:** It acts like a soft layer that protects the eggs from mechanical injury (e.g., knocks or pressure).
- (iii) **Camouflage:** The jelly makes the eggs less visible to predators in water.
- (iv) **Barrier against predators and germs:** The jelly is slippery and discourages some animals from eating the eggs. It also helps protect against harmful microorganisms.
- (v) **Buoyancy:** The jelly helps the eggs float in water, keeping them near the surface where oxygen is available.

18. Mention the group of bird to which crested crane belong.

Wading bird/water birds

19. The table shows a group of animals A with their respiratory organs in B

A	B
Tilapia	Moist skin
Mosquito	Lungs
Frog	Gills
Dog	Spiracles

Write against each animal below, its respiratory organ from B

- (a) Tilapia: Gills
- (b) Mosquito: spiracles
- (c) Frog: skin
- (d) Dog: lungs

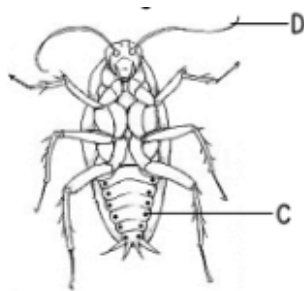
20. Give any example of swimming bird

- (iii) Duck
- (iv) Geese
- (v) Penguin

21. How is the function of stomata in a leaf similar to that of gills in a fish?

They are both used for gaseous exchange/breathing.

22. The diagram below shows an insect. Use it to answer the questions that follow.



(a) Name the parts marked C and D

C: antenna

D: spiracle

(b) State the function of part D

- (i) **Sense of touch:** Antennae help insects feel objects around them.
- (ii) **Smelling (detecting odours):** They can detect scents, such as food or pheromones from other insects.
- (iii) **Tasting:** Some insects use antennae to taste substances.
- (iv) **Detecting vibrations:** Antennae can sense air movements or vibrations, helping insects avoid danger.
- (v) **Orientation and balance:** They help insects know their direction and maintain balance while moving or flying.

(c) Why would an insect die when the whole of its abdomen is dipped in oil?

The insect suffocates

23. The table below lists animals. Use it to answer the questions that follow

P	Q	R
Toad	Chameleon	Cow
Newt	Snake	Monkey
Frog	Lizard	Rat

(a) Which characteristic is common to all the animals in the table?

All have vertebral column

(b) How is the reproduction in the animals in list P similar to those in list Q?

They reproduce by eggs

(c) Which list has warm blooded animals?

List R

24. The diagram below is of head of a bird. Use it to answer the question that follows



What does a bird with this type of beak eat?

Flesh

25. The diagram below is of common animal. Use it to answer the question below



Which disease does the above animal spread to human?

Bilharzia

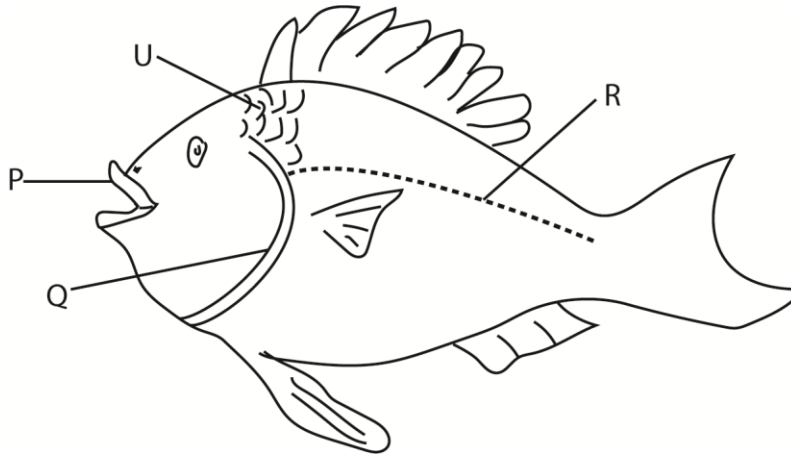
26. Match each animal in A with the correct group to which it belongs in B

A	B
Chameleon	Mammals
Toad	Birds
Bat	Reptile
Ostrich	amphibians

27. What type of skeleton does a cockroach have?

Exoskeleton

28. The diagram below is of a fish. Use it to answer questions that follow.



(a) Name the part labelled R.

Lateral line

(b) Give the functions of the part labelled P and U.

P- for feeding/take in water then through the gills for gaseous exchange

(c) What structure is covered by the part labelled G

Gills

29. Sunbirds visit flowers to get nectar. How do plants benefit from the birds

Flowers are pollinated

30. (a) Name two scavengers in the environment.

Scavengers are animals that feed on **dead organisms** rather than hunting live prey.

- (i) **Vulture** – feeds on dead animals.
- (ii) **Hyena** – often eats remains left by other predators.
- (iii) **Jackal** – feeds on carcasses and leftovers.
- (iv) **Crow** – eats dead animals and waste.

- (v) **Crab** – scavenges dead fish and organic matter along shores.
- (vi) **Cockroach** – feeds on decaying food and waste.

(b) In which way are scavengers useful in the environment?

- (i) **Cleaning up dead animals:** Scavengers eat carcasses, preventing the environment from being littered with rotting bodies.
- (ii) **Preventing spread of disease:** By consuming dead matter, they reduce the chances of harmful germs spreading.
- (iii) **Recycling nutrients:** Scavengers help return nutrients from dead organisms back into the soil and ecosystem.

(c) Give the difference between a predator and scavenger.

- (i) **Predator:** An animal that hunts and kills live prey.
- (ii) **Scavenger:** An animal that eats dead animals.

**Thank You**

**Dr. Bbosa Science**