

# SCIENCE WORKBOOK

3

For the preparation of National  
& International Olympiads



- Chapter-wise practice exercises
- Previous year paper

**CREST Science Olympiad (CSO)**

# Science Olympiad

## Exams Preparation Book

CSO | NSO | USO | iOS | NSTSE | HSO

**Grade 3**



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## CREST Science Olympiad Workbook for Grade 3

Fourth Edition

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**Disclaimer:** The information in the Workbook is to give you the path to success but it does not guarantee 100% success as the strategy is completely dependent on its execution. And it is based on previous year papers of CSO exam.

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# Contents

1. Plants and Animals .....	5
2. Birds.....	15
3. Food.....	22
4. Housing and Clothing.....	30
5. Transport and Communication .....	37
6. Human Body .....	44
7. Matter and Materials .....	54
8. Light, Sound and Force.....	61
9. Our Environment.....	69
10. Earth and Universe .....	77
11. Previous Year Paper (2023-24).....	86
12. Answer Key.....	92

# Preface

We are pleased to launch a thoroughly revised edition of this workbook. We welcome feedback from students, teachers, educators and parents. For improvements in the next edition, please send your suggestions at [info@crestolympiads.com](mailto:info@crestolympiads.com). Our team will make an effort to work on those suggestions. The status of the improvements can be checked at <https://www.crestolympiads.com/corrections-class3-597>

CREST Olympiads is one of the largest Olympiad Exams with students from more than 60 countries. The objective of these exams is to build a competitive spirit while evaluating students on conceptual understanding of the concepts.

We strive to provide a superior learning experience, and this workbook is designed to complement the school studies and prepare the students for various competitive exams including the CREST Olympiads. This workbook provides a crisp summary of the topics followed by the practice questions. These questions encourage the students to think analytically, to be creative and to come up with solutions of their own. There is a previous year's paper given at the end of this workbook for the students to attempt after completing the syllabus. This paper should be attempted in 1 hour to get an assessment of the student's preparation for the final exam.

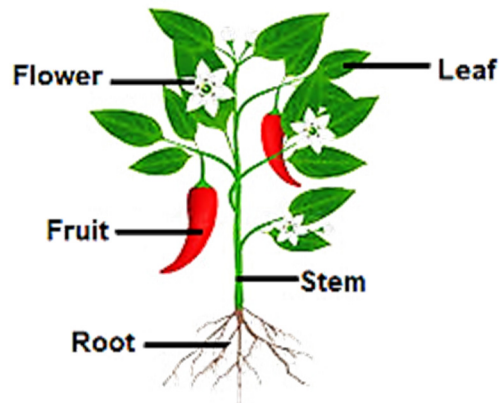
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# Chapter 1

## Plants and Animals

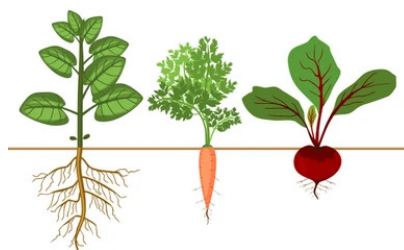
### Plants and Their Parts

- Life on earth would not be possible without plants. Plants play a vital role in our lives as we depend on them for oxygen, food, clothing, timber, medicine, and other things.
- The part of the plant that grows above the soil is the shoot while the part that grows below the soil is the root. The shoot has a stem, branches, leaves, buds, flowers, and fruits. All these parts work together and help the plant to live and grow.



### Root

- It fixes the plant firmly in the soil. It absorbs water and minerals from the soil and transports them to other plant parts.
- Plants have either taproot or fibrous root.
- Taproot is the single main root that grows straight downwards and has many small roots growing from it. Some examples of plants that have a taproot system include carrot, mustard, radish, turnip, beetroot, etc.
- Fibrous root comprises of several roots that grow from the lower end of the stem below the ground. Some examples of plants that have a fibrous root system include grasses, wheat, rice, corn, rosemary, coconut, etc.



Taproot system



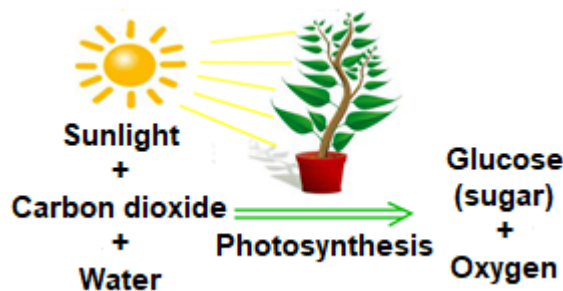
Fibrous root system

## Stem

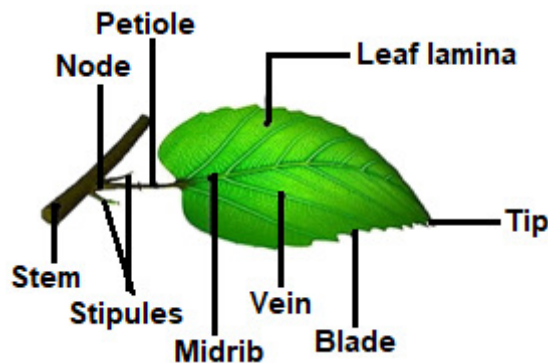
- It is the main part of the shoot system that grows above the ground and supports the upper parts of a plant.
- It holds the plant upright and straight.
- It carries water and minerals from the root and food from the leaves to various parts of the plant.
- We eat the stem of some plants such as onion, potato, ginger, etc.

## Leaf

- Thin, flat, and green part that grows from the plant's stem or branch is the leaf.
- Green leaves prepare food using water, sunlight, and carbon dioxide.



- Leaf blade, midrib, side veins and petiole are the main parts of a leaf.



- We eat the leaves of some plants such as spinach, cabbage, lettuce etc.

## Flower

- Flowers are the most beautiful and colourful part of a plant. They grow on plants to attract insects, bees, butterflies etc. They have a pleasant smell, and their main function is to make seeds.
- We eat the flower of some plants such as flowers of banana plant, sunflower, jasmine etc.

## Fruit

- A flower turns into a fruit and is the fleshy eatable part of a plant. It contains seeds in it.
- Different fruits contain different types and numbers of seeds. Fruits enclose and protect the seeds.
- Some plants store food in their fruits such as apple, orange, grapes, plum etc.

## Seed

- Seeds are small hard structures produced by plants.
- They are mostly enclosed inside the fruit. It gives rise to a new plant.
- Some seeds are edible.
- Seed coat, embryo, endosperm, and cotyledons are main parts of a seed.
- Some plants store food in their seeds such as rice, wheat, maize, peas etc.

## Types of Plants

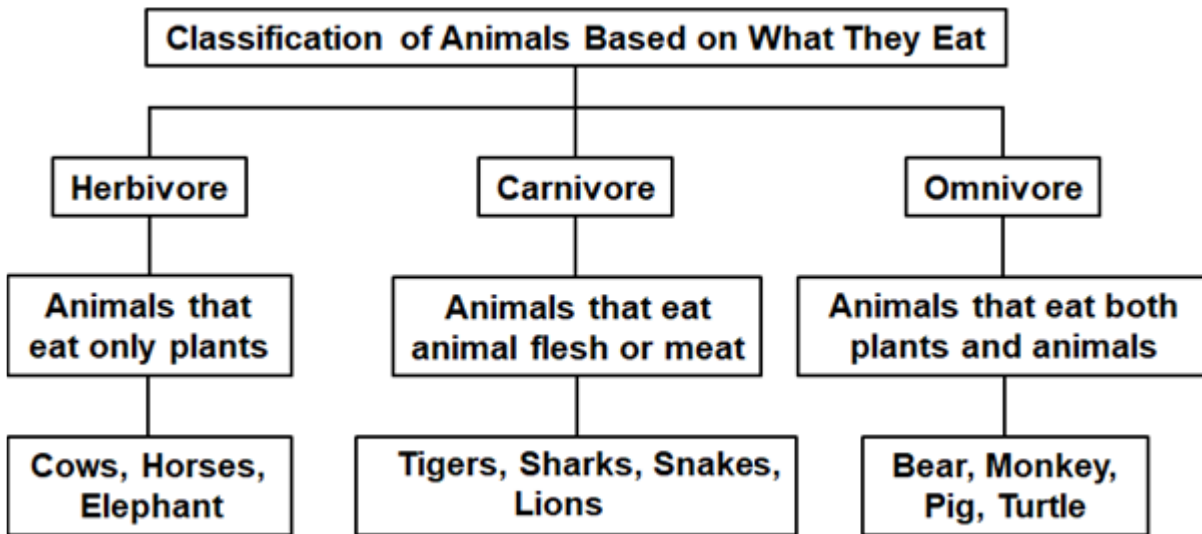
- Plants grow almost everywhere in the world. Some are big while some are small. There is a large variety of plants on our planet like trees, herbs, shrubs, climbers, creepers, and aquatic plants. The basic structure or parts of majority of plants remain the same.

<p style="text-align: center;"><b>Trees</b></p> <p>Trees are big and tall. They have a very large and woody stem called the trunk. The branches of a tree arise from the trunk. Examples- Coconut, mango, banyan etc.</p>	<p style="text-align: center;"><b>Shrubs</b></p> <p>Plants with thin stems are shrubs. They are small and bushy plants with many branches and live for a few years. Examples- Rose, marigold, jasmine etc.</p>	<p style="text-align: center;"><b>Herbs</b></p> <p>They are very small plants, and have soft and green stems. Most herbs live for only a few months. They are smaller than shrubs. They are seasonal plants. Examples- Mint, grass, coriander etc.</p>
<p style="text-align: center;"><b>Climbers</b></p> <p>They have weak stems and cannot stand straight on their own. They need other plants, sticks or walls for support. They have tendrils to attach themselves to the support. Examples- Money plant, grapevine, pea plant etc.</p>	<p style="text-align: center;"><b>Creepers</b></p> <p>They have weak stems and thin branches. They grow along the ground and usually bear heavy and big fruits. Examples- Pumpkin, bottle gourd etc.</p>	<p style="text-align: center;"><b>Aquatic Plants</b></p> <p>Some plants grow in water. They are called water/aquatic plants. Examples- Water lily, lotus, water chestnut etc.</p>



## Animals and Their Eating Habits

Different animals eat different kinds of food. Depending on their food habits, the animals can be divided into the following- **Herbivores, Carnivores, Omnivores, Scavengers and Parasites.**



**Scavengers:** Some animals eat the remains of dead animals. They are called scavengers for example hyena, vulture, jackal etc. They help to keep the earth clean.

**Parasites:** A parasite is a living thing that lives on or inside another organism. It depends on the other organism for food and other things that it needs to live. The parasite's victim is called its host. The host is usually much larger than the parasite. Fleas and lice are parasitic insects that live on the bodies of mammals or birds.

Animals eat their food in different ways:

1. **Gnaw** food with sharp, front-cutting teeth like that of rabbits and squirrels.
2. **Swallow** food completely like snakes do as they do not have teeth to bite or chew.
3. Insects like bees and butterflies have a long tube to **suck** nectar from plants.
4. Animals like frogs have long **sticky tongues** to catch their prey. When a frog spots an insect, it sticks out its tongue and catches its prey, then it **rolls its tongue** back into its mouth.
5. Dogs and cats use their tongue to **lap up** their food.
6. Animals like cows and buffaloes have a special way of eating their food, they first swallow their food whole and fill their stomach, later they bring it back into their mouth and keep chewing or **masticating** it for hours. This is known as **chewing the cud**.
7. The grass eaters that chew half-digested food or ruminant are called **ruminants**. Ruminants are animals that eat plants and have four-chambered stomachs that help them to digest food. Some common ruminants are cow, deer, giraffe, goat, sheep etc.
8. Animal like lions and tigers **tear and chew** the flesh of other animals. Such animals have sharp and pointed tearing teeth in the front to tear the flesh of animals and broad back teeth to chew the food.

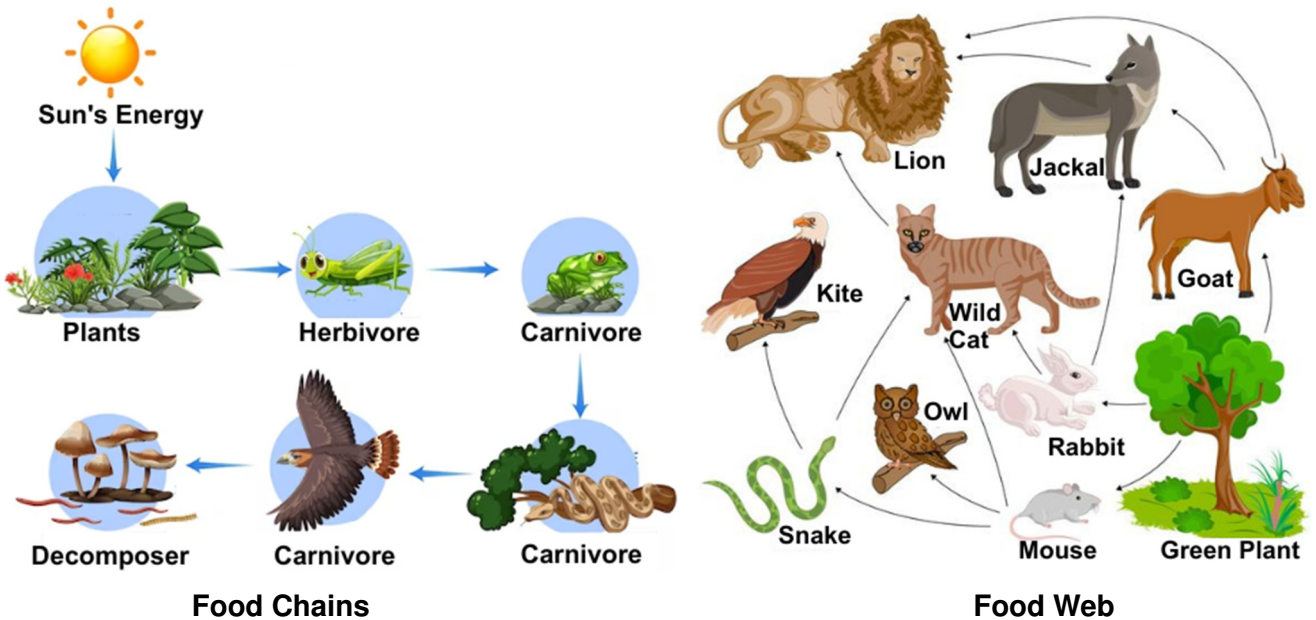
## Food Chain

A food chain shows the flow or path of energy from one living organism to another.

For example, grass is eaten by grasshopper and grasshopper is eaten by frog.

Food chains are models that illustrate how plants and animals in an ecosystem are linked by their feeding relationships.

A network of many food chains is called a **food web**.



We see a variety of animals around us. We find a particular animal in a particular place only. The place or surroundings where animal survives, or lives is called its habitat. Animals live in different habitats like grasslands, oceans, desert, polar region, river etc.

Animals resemble or differ from one another in the number of ways - their sizes, shapes and colours, the types of outer coverings they have, the types of food they eat, the ways they move, the ways they reproduce and the places they live in.

- Animals can be classified on the basis of absence or presence of backbone into two types-vertebrates and invertebrates.
- There are millions of animal species in the world that are invertebrates and have no bones instead they have exoskeleton. Examples of invertebrates are butterflies, insects, spiders, octopus, snail, worms etc.
- Vertebrates on the other hand have a spinal cord or backbone present inside their body. They do not have any exoskeleton.

Vertebrates	Characteristics
Pisces	Have scales, lives in water, cold-blooded, lay eggs, have gills
Amphibians	Have smooth skin, lives in water and on land, cold-blooded, lays eggs
Birds	Have feathers, warm-blooded, lays eggs, breathe through lugs
Mammals	Have hair or fur, warm-blooded, give birth, breathe through lungs
Reptiles	Have scales, lays eggs, cold-blooded, breathe through lungs

## Plants and Animals

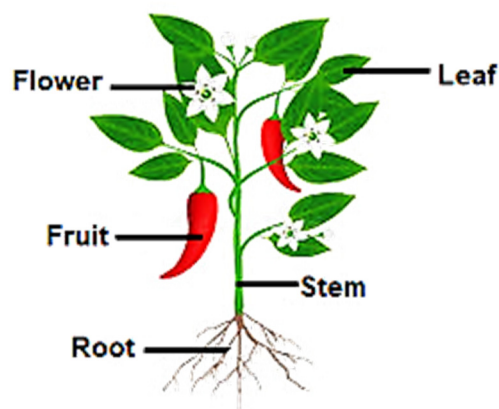
- Some animals have special body parts that help them to protect themselves from enemies or from weather conditions.
- Animals have the ability to adapt themselves according to the environment to protect themselves from enemies like camouflaging and to protect from climatic conditions by migrating to other places. Some animals undergo hibernation as well.

## Interdependence of Plants and Animals

Animals get food and oxygen from plants and plants get carbon dioxide from animals to make their food.

### Practice Questions

1. Which part of the plant is seen only in an adult plant and not in a young plant?



- a. Root  
b. Stem  
c. Fruit  
d. Leaf
2. Which of the following statements are CORRECT?
- Mammals like ants and cockroaches crawl on their legs.
  - When an enemy comes near a tortoise, it hides under the shell.
  - The mass movement of animals from one place to another is known as hibernation.
  - Gills are special organs with which all mammals breathe.
  - Nocturnal animals are active at night.
- a. I and II  
b. II and V  
c. III and IV  
d. II, IV and V
3. Which of the following animals listed have the same eating habit to that of the animal shown in the image below?



- a. Crow  
b. Giraffe  
c. Goat  
d. Rabbit

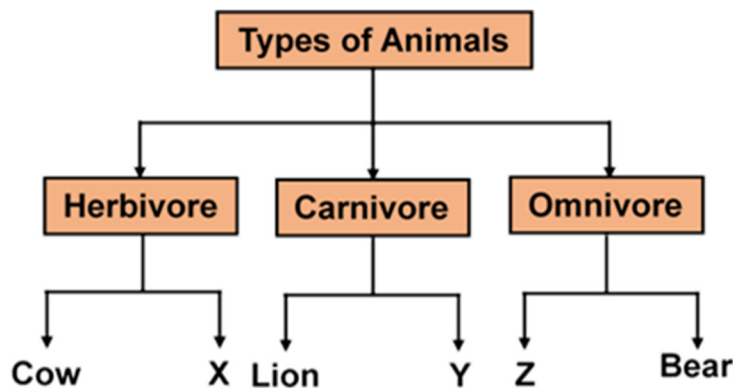
4. Read the following clue and identify the plant:  
I grow underground. I have a taproot system.

- a. Rice
- b. Beetroot
- c. Wheat
- d. Corn

5. Which of the following plants cannot be classified together in a group?

- a. Lotus and Lettuce
- b. Money plant and Grapevine
- c. Rose and Hibiscus
- d. Banyan and Mango

6. Study the given classification chart carefully and select the option which contains the animals that can be placed at X, Y and Z.



- a. X – Wolf, Y – Sparrow, Z – Bear
- b. X – Sheep, Y – Hen, Z – Camel
- c. X – Zebra, Y – Snake, Z – Crow
- d. X – Eagle, Y – Yak, Z – Vulture

7. Given below is an image of a cactus plant. Complete the following statement:  
The leaves are small and are like needles so that they \_\_\_\_\_.



- a. they make food faster
- b. they can reduce water loss to the atmosphere
- c. they can have more exchange of gases from the atmosphere
- d. they can receive more sunlight

8. Ethan took four identical plants named W, X, Y and Z. He removed a different part from each plant as shown in the table below.

Which plant will die first?

Plant	Parts that were removed
W	All flowers
X	All roots
Y	All fruits
Z	All the branches

- a. Plant W
- c. Plant Y

- b. Plant X
- d. Plant Z

**9.** Identify the INCORRECT match from below:

- a. Cotton plant – Clothes
- b. Oak tree – Furniture
- c. Bamboo tree – Rubber
- d. Jute plant – Sack and mat

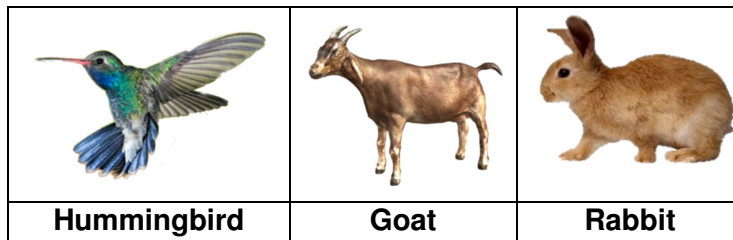
**10.** A vertebrate is an animal with a backbone. There are 5 types of vertebrates as listed in column I.

Match column I with column II and choose the correct option:

	Column I		Column II
1.	Fish	a.	An animal whose body is covered in hair or fur.
2.	Bird	b.	An animal whose body is covered with feathers.
3.	Mammal	c.	An animal with no legs that breathes underwater.
4.	Reptile	d.	An animal that lives both on land and in water.
5.	Amphibian	e.	An animal whose body is covered with scales.

- a. 1 – c, 2 – b, 3 – a, 4 – e, 5 – d
- b. 1 – c, 2 – b, 3 – e, 4 – d, 5 – a
- c. 1 – a, 2 – b, 3 – c, 4 – d, 5 – e
- d. 1 – b, 2 – d, 3 – a, 4 – c, 5 – e

**11.** Look at the pictures of animals given below.



Which of the following characteristic is common to all the above three animals?

- a. They are covered with fur.
- b. They have four legs.
- c. They give birth to their young ones.
- d. They feed on plants only.

**12.** Which of the following pairs are wrongly classified?

- D: Kiwi – Migratory bird
- E: Leech – Parasite
- F: Flying squirrel – Arboreal
- G: Jackal – Hibernates

- a. D and E
- b. F and G
- c. D and G
- d. E and F

13. State which of the following statements are true or false:

- I. We eat the seeds of corn.
- II. Litchi fruit has many seeds.

- a. I – True, II – False
- b. I – False, II – False
- c. I – True, II – True
- d. I – False, II – True

14. The figure shows a fibrous root.  
Which of the following plants have fibrous root?



- a. Carrot
- b. Sugar beet
- c. Mustard
- d. Corn

15. The given figure shows two groups ('M' and 'N') of animals.  
Select the correct option regarding the categorization of the given groups.



- a. M – Pet animals, N – Domestic animals
- b. M – Swallow the whole food, N – Lap the food
- c. M – Chew the cud, N – Grind the food
- d. M – Wild animals, N – Carry load

16. Four children made the following statements about animal homes.  
Whose statements about animal homes is true?

- Ana** - Elephants take shelter under tall trees.
- Michael** - Orangutans live in burrows.
- David** - Raccoons like to make their homes on the ground.
- Kate** - Bats and bears live in holes.

- a. Ana and Kate
- b. David and Kate
- c. Michael, David, and Ana
- d. Kate, David, and Michael

17. Complete the following food chain by filling the correct option:



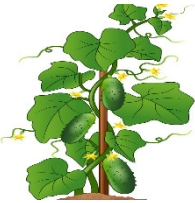



- a. A – Deer, B – Tiger
- b. A – Cow, B – Lion
- c. A – Snail, B – Snake
- d. A – Deer, B – Snake

18. Identify the similarity between water lily and lotus:

- a. They both are submerged aquatic plant.
- b. They both are floating aquatic plants.
- c. They both have strong stems.
- d. They both grow along the ground.

19. Students have a pack of cards to organise into groups.

Each card has a picture of a different plant. The cards that belong to group 1 are shown below:

			
<b>Cucumber</b>	<b>Grapevine</b>	<b>Pea</b>	<b>Money plant</b>

Which picture card would best be placed in group 1?



Rose



Watermelon



Bean



Coriander

20. Search the name of a gnawing animal found in our home from the wonder box given below:

G	R	K	P	N	T	O	Q	A
O	M	A	C	E	H	U	O	B

- a. Cat
- c. Rabbit


- b. Rat
- d. Frog

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